Herald of Health

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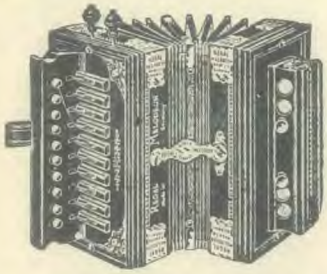

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HERALD OF HEALTH

The Indian Health Magazine.

V. L. Mann, M. D., Editor - - - - - S. A. Wellman, Asso. Editor.

Vol. 4 Lucknow, U. P., June, 1913. No. 6

Sunstroke,---Heat Prostration

THERE is some difference of opinion as to the cause of this condition. Some feel that the changes brought about are due to the actinic rays of the sun, while others argue that the actinic rays of the sun are concerned but very little, if at all, and that the chief causes are of an internal nature in which the body is mostly implicated. Very little scientific work has been done in this line. Inasmuch as this is necessary before we can arrive at any definitive conclusions, we must patiently wait and see what the future reveals.

The current idea in India seems to be that this symptom complex in man is due to the actinic rays of the sun. Every one wears a topee, young or old, weak or strong. Even people who are born in this country wear the topee. The larger and thicker the topee, the better. As far as we know at present this no doubt is the safer plan to follow, but there are some evidences which shake the actinic ray theory.

The most valuable scientific work yet done on this subject has been done in the Phillipine Islands. Medical authority in the Islands has made an exhaustive study on the effects of the tropical sun upon the human being.

Observations have been made on the blood-pressure, pulse rate, red cell count, and haœmoglobin of man in the tropics. It has been shown that the tropical sun had no deleterious effect upon these physiological processes of the body.

Major Chamberlain in his report says, "It is well known that heat and humidity in an experimental chamber, and in the absence of light, can produce symptoms similiar to those occurring in milder degree among residents of the tropics. We think it is probable these two factors, combined with infection, homesickness, and monotony, account for most, if not all of the injurious effects seen in the tropical lands."

In summing up he gives as one of his conclusions. "It is doubtful if the actinic component of the sunlight is a factor in tropical morbidity and deterioration."

With this we have to place the recent experiments of Leonard Hill who has proved that depressing symptoms similiar to those experienced in heat prostration are caused by excessive humidity and lack of the circulation of the air. That as soon as these conditions are removed the individuals become themselves again.

This is a condition that is not confined to the tropics as there are days in the warm season of the more northern latitudes in which our larger cities report quite a number of cases of heatstroke with considerable mortality, cities like London, Paris, New York, Chicago and Philadelphia.

If on the days that these centres of humanity report large numbers of sunstroke, the barometric observations are made, it will be found that these are days

humid to the extreme without circulation of the air. This condition is aggravated by the tall sky-scrapers. On these same days, under the same sun, some little distance from the city as many fatalities in proportion will not occur. This again would seem to corroborate the idea that humidity and a stillness of the air are important factors in the causation of heat prostration. That it is not those who are exercising out-doors in the sun that more often succumb to the influences of the sun, but that those who are tied up in inside work suffer most is a point worthy of note.

Another factor that requires some attention because of the relation that it bears to sunstroke is alcohol. In India this is a very important thing, as alcohol is considered almost a necessity to withstand tropical influences.

Weisenburg has noted in his experience in the tropics that it made no matter how much liquor a man drank; it was not until he was exposed to the heat that he would be at all affected and then very suddenly. Of course in elderly persons or those who are weak and sick there is every reason why the heat should affect them, but in the young adult it hardly ever occurs except in those who have been drinking.

There are many who become affected by the extreme heat who do not drink, but it will be very rare that we find an individual affected by the sun unless his nervous system, heart, or blood-vessels have undergone pathological changes. Many cass come under our care who are unable to stand the effects of a tropical climate who do not drink, but examination has revealed a faulty nervous system or heart or else he has been subject to arteriosclerosis, or hardening of the arteries. One thing does appear to us as inconsistent and that is, that whatever evil effects there may be in residing in the tropics we do our best to foster by indulging in alcoholics, and then wear a topee to try to overcome these effects. We wait, as we have said before, in the present knowledge of sunstroke and do not make any comment on the wearing of a topee, but we will make the statement that it is best to leave liquor alone. "Two evils never make one right." Dr. Tyson, an eminent physician, also makes the statement that in sunstroke the habitual use of alcohol is found a potent predisposing cause—at least alcoholics succumb very much sooner to the influence of over heat than non-alcoholics.

In concluding our remarks on the cause of sunstroke we quote a statement made by the editor of the *Indian Medical Gazette*. "The alleged deleterious effects are many and due to either heat, humidity, lack of exercise, disturbed sleep, improper food, bad water, alcholic and venereal excesses, and more than all, infection by animal and vegetable parasites."

Insertion

Gibbs says that the clothing for human beings for protection from the sun, should afford the greatest shade without obstructing air currents carrying off evaporated moisture. The superiority of white over colored materials as a reflector of the sun's rays has been demonstrated by experiment. The ideal condition is attained by the shade of a white umbrella lined with green cloth and supplemented by as little clothing as possible. A broad brimmed, light-weight white helmet, the band of which is so arranged that the frame of the hat does not touch the head, is the best substitute for an umbrella There are different manifestations of sunstroke. It is generally divided into four or five stages according to the severity of the symptoms.

The symptoms of the average case of sunstroke is a sense of uncomfortable burning heat and feeling of oppression may precede the stroke. At times no warning is given and the patient becomes suddenly unconscious. Sometimes intense

headache, dizziness, nausea, and vomiting with diarrhoea are present. The temperature rises to 107 or 112 F. The patient becomes comatose, in which a low muttering delirium and restlessness is manifest. The breathing becomes laboured and difficult and the pulse frequent and full. Convulsions may put in an appearance. From this state the patient may go on until death ushers in the end or the patient may begin to improve by an abatement of the temperature and a return of the pulse and respiration to normal.

The outcome will depend upon the severity of the symptoms and the promptness and thoroughness of the treatment. Some fall dead immediately, 70% recover. A temperature of 110° to 112° is grave.

The disabillties resulting from sunstroke are mostly due to the force of the disease being spent upon the nervous system. These are paralysis of various kinds. Disturbances of speech, tremor, paralysis of limbs, paralysis of one side of the body, facial palsy, neurasthenia, hysteria, and mental weakness. These may be permanent or as the patient picks up in strength they may partially or entirely disappear.

Treatment consists of pouring from a height water at 60° or less, while two persons rub the patient vigorously. Ice compresses to the head and neck, cold water drinking, and cooling enemas are useful measures. When the temperature has been reduced nearly to normal a sweating pack is indicated.

If cold water or ice are not in reach evaporation should be encouraged by the punkah. An artifical cold water can be made by adding to a quart of as cold water as can be obtained eight ounces of ammonium nitrate.

A very intense degree of cold may be obtained by means of carbon dioxide gas condensed in the form of snow. The liquid C O 2 is kept in a reservoir from which leads a pipe from which the liquid gas is allowed to escape into a flannel bag filled with absorbant cotton. Evaporation takes place so rapidly that a temperature of low degree is reached. This is then slipped into a rubber mackintosh bag and the whole is used as a compress or ice bag. One of these two conveniences ought to be kept on hand when one is living in a place in the tropics where ice cannot be obtained. It might be the means of saving the life of a number of individuals in your vicinity.

In the treatment of sun-stroke the bowels should be thoroughly kept open, which no doubt can be accomplished by the cold enemas. Still a dose of one of the salts will not be amiss. Sometimes it becomes necessary to give a couple of drops of croton oil to get a good evacuation of the bowels. Stimulation should be given only at the discretion of a physician. If it is given when contra-indicated, it may do much harm. The lighter attacks of heat or heat prostration, demand only cool sponging, rest, and quiet.

General Articles

Some Antecedents of Tooth Decay

D. H. KRESS, M. D.

FOR years I had an excellent opportunity, both in my practise and in my travels in various countries, to observe carefully the dietetic habits of the people as related to the diseases prevalent among them. Dental decay I have found to a greater extent in New Zealand and Australia, where meat is freely used, than in other countries in the world. Shortly after my arrival in Australia, I administered an anesthetic to a girl of sixteen, the dentist having found it necessary to extract every tooth. Upon inquiry, I ascertained that her sister, four years older, also had a full set of artificial teeth.

While tooth decay is common in Australia and New Zealand, among some of the native races of the South Sea islands it is quite uncommon. While in Fiji, I had an interview with the chief of Sueva, who called my attention to the sugar-cane. With his teeth he vigorously tore off the husks. I noticed his pearly teeth, and said to him, "You have remarkably fine teeth." He then opened his mouth wide, and I found that he had all his teeth, and that every tooth was perfect, although he was a man fifty-four years of age. The dinner I had with him was composed of bread, fruits, bananas, oranges, and yams.

In England and the United States tooth decay also prevails to an alarming extent among schoolchildren. Probably eighty-five per cent of them have defective teeth. Tooth decay, I have found, is common in every country where meat and white bread form the staple articles of diet. In countries where meat is seldom used, and grains, fruits, and vegetables form the staple articles of food, tooth decay is comparatively rare. In Australia, among the nurses and patients at the Sydney Sanitarium, numbering seventy-three in all, I found only two who possessed all their teeth in a wellpreserved state, and these two had been life-long vegetarians.

Diet and Dental Decay

There can be no doubt in the mind of any one who makes a careful study of this subject that the prevalent use of flesh foods is both directly and indirectly responsible for a large proportion of the dental decay in all civilized lands. Little particles of meat lodge between the teeth, and encourage the growth of germs. The germs that cause decay of flesh also cause tooth decay.

Tooth decay is remarkably prevalent In Australia, New Zealand, England, and the United States, the countries that have the heaviest meat bills.

Carnivorous animals do not lose their teeth because they also eat the bones and blood, and thus get the bone and tooth-forming elements, which are thrown away in serving the beefsteak.

Undoubtedly the eating of flesh is partly responsible for the large amount of dental decay in civilized peoples.

Dental decay exists because the bone-forming materials have been removed from the dietary.

Another food that has suffered this robbery is white flour. White-flour bread is thus also responsible to a certain extent for the prevalence of tooth decay.

If you can not be sure of the flour furnished by the mills, you can make it at home, according to directions given by Dr. Kress.

The sound teeth of our ancestors may be attributed to the fact that their habits and food were of such a nature as to build up healthy bone structures. The Japanese and Chinese, who live largely upon rice and other grains and fruits, give us a remarkable example of constitutional preservation of sound teeth. The absurdity of the theory that flesh food is necessary to supply the system with bone-making material is shown by Thoreau, in his reference to the farmer who, walking behind oxen that with vegetablemade bones jerk him and his lumbering plough along in spite of every obstruction, says, "You can not live on vegetable food only, for it lacks bone-making material."

The prevalence of dental decay is not wholly due to the flesh lodging between the teeth and forming culture beds for destroying gesms, but chiefly to the fact that the flesh foods themselves are deficient in bone-forming elements. Beefsteak contains only the muscle-forming elements, the bone forming elements being absent. It is the *quality* of the dental structure that is at fault. Teeth decay for the same reason that fruits decay. When fruit decays on the tree, we know that the tree is poorly nourished, or that some needed element is lacking in the soil. The intelligent gardener begins to dig around the tree, and adds to the soil the elements needed to nourish the tree.

No Bone Elements

Dental decay exists because the bone-forming elements are deficient in the food. To remedy this the food must be changed, and the lacking elements supplied. Until this is done, dental decay will continue in spite of the multiplication of dentists, and vigorous use of tooth-brushes, pastes, and powders. Monkeys, which use no tooth-pastes or brushes, possess remarkably fine teeth. Evidently their dietary is better suited to tooth preservation than that used by man. It would be well for civilized man to study the dietetic habits of these creatures that so closely resemble man.

Dr. Winters says, "One of the most unfortunate consequences of an early and liberal meat diet is the loss of relish it creates for the physiological foods of childhood,—milk, cereals, and vegetables." Meat, by its stimulating effect, produces a habit as surely as does alcohol, tea, or coffee, and a distaste for less satisfying foods. The foods which the meateating child eschews contain in large proportions certain mineral constituents which are essential to bodily nutrition and health, and without which the processes of fresh growth and development are stunted. "These mineral constituents." Dr. Winters goes on to say, "can not be introduced into the system in an assimilable form except in organic combination with an albuminous molecule; and in such combination they are found in sufficient proportion to meet the child's needs only in certain vegetables, fruits, and cereals."

Dr. C. Rose, of Munich, in his examination of 7,364 pupils of the Friedburg schools, discovered that the best teeth and the least tooth decay were to be found in the districts that contained hard water, and in which the soil was rich in lime. In places where lime poverty existed in the soil, he discovered there were nearly twice as many bad teeth among the children.

Dr. Neisler also states that in a certain district where quantities of ground lime were strewn over feeding-places where the soil was poor in lime, the deer which fed upon the grass of such fields possessed finer horns than those which fed in fields that were not so treated.

The vegetable kingdom serves a useful purpose— it is capable of dissolving and appropriating these earthy salts, and organizing and vitalizing them, thus preparing them for man's use. In districts where soils and water are poor in lime, the grains, fruits, and vegetables are necessarily poor in organized salts, or bone-form-

ing elements, and naturally one would expect dental decay to be more common in such districts; not, however, because of the absence of the salts in soil or water, but because of their consequent absence in food.

Dental decay is due to the absence of salts in the food. It does not matter whether the food is naturally deficient in the salts owing to a lack of earthy salts in the soil upon which the food is grown, or to the fact that they have been afterward removed by our modern process of milling.

Devitalized Flour

Dr. Bunge says: "It is remarkable that wherever we find a race of men retaining primitive milling customs, or living on uncorrupted grain food, we find their teeth strong, and free from decay." Baron Siebig estimates that "whole-meal bread contains two hundred per cent more phosphates than white bread." America is supposed to have clever dentists. To the question why this is so, Dr. Leuder Brunton aptly replied, "Because she has the best flour-mill makers." It seems, the better the mills, the whiter and finer the flour, the poorer the bread; and, naturally, the worse the teeth, the better the dentists.

It is not necessary to depend upon our modern mills for this partially devitalized flour. Each family may purchase a hand mill at a small cost, grind its own flour, and make its own cracked wheat for porridges, etc. Those who adopt this plan will be surprised to find a sweetness in the preparations and breads that is not present in those made of flour obtained from the grocer. A double purpose is served: not only do we obtain the needed salts, but the satisfaction imparted to the palate encourages longer retention of foods in the mouth, a more copious flow of saliva, and more thorough mastication. The maltose formed by the action of saliva upon the starch aids in dissolving the organized salts present in the breads. In the absence of maltose these salts, even if present, are imperfectly utilized. This is in part responsible for rickets and other bone deformities so prevalent in pap-fed children. The free use of mushes and other pastry foods produces lime starvation and favours tooth decay the same as does the pap. Thorough mastication not only encourages a freer circulation of nutrients to the gums and teeth, but the maltose formed makes it possible for the system to utilize the bone-forming elements the foods contain.

Unquestionably, the two important factors in teeth preservation are the presence of bone-forming elements in the food and thorough mastication.

Alcohol as a Food

A. B. OLSEN, M. D., D. P. H.

MANY alcoholic drinks contain, besides alcohol and water, certain small amounts, sometimes mere traces, of sugar, malt, and various other constituents. Therefore when considering the possible food value of an alcoholic beverage, we must take into consideration these accessory constituents besides the alcohol itself. The amount of nourishment found in most intoxicating drinks is trifling indeed, and almost of negligible character.

The Food Value of Wine

For the moment we shall omit all consideration of the hypothetical value of alcohol as a food, and turn our attention to these other constituents which are found in varying percentages in different spirituous liquors. "A litre of average wine," according to Gautier, "contains the following proportions of the principal materials fit to provide us with energy by their combustion:"—

	Grams
Alcohol	80
Glycerin	6
Sugars, etc.	1.5
Gums, dextrin, etc.	1
Cream of tartar	2

The total amount of food material obtainable from all these materials, except alcohol, is 10.5 grams, or a little more than 1 per cent. But even this small percentage is a theoretical and doubtful quantity, and under ordinary conditions most of it undoubtedly would be lost.

The Food Value of Brandy and Absinthe

Genuine brandy is obtained by distilling grape wine. "It contains about fifty per cent of alcohol, the remainder of the liquor being water, in which are held various secondary products, including acids, aldehydes, ethers, furfurol, and higher alcohols."—*Parkes and Kenwood.* Again excluding alcohol, we have left the merest trace of food material, if any at all.

The Food Value of Beers

Of all fermented liquors, beer and its associates, stout, ale, and porter, contain the largest percentage of food subtance, as seen from the following analyses from "Foods: Their Composition and Analysis," by A. Wynter Blyth, M. R. C. S., F. C. S.:—

	Malt Extract	Alcohol	Carbonic Acid	Water
	%	%	%	%
London porter	6.8	6.9		86.3
Scotch ale ...	10.9	8.5	0.15	80.45
White beer, Berlin ...	5.7	1.7	0.6	91.8
Sweet beer, Brunswick	14.0	1.36		84.7

No mention is made in this work of the possibility of the presence of arsenic in beers sometimes in sufficient quantity to cause disease, and even fatal results.

For the sake of comparison, let us look at the composition of both barley and malt before it has undergone fermentation, with the consequent production of alcohol. The analyses are from Blyth.

The Composition of Barley and Malt

	Barley air-dried Per cent	Malt air-dried Per cent
Dextrin (a form of sugar)	5.6	8.0
Starch	67.0	58.1
Sugar		0.5
Cellulose (fibrous matter)	9.6	14.4
Albuminous substances	12.1	13.6
Fatty substances	2.6	2.2
Ash, etc.	3.1	3.2
	100.0	100.0

Now look at the analyses of the beers again, and note the small amount of nourishment that they contain, even in the case of the sweet beer, which has but a small trace of alcohol, and is for all practical purposes a watery solution of malt. Surely no one would be so extravagant as to advocate beer as a food, seeing that the burley or malt can be obtained at a very

much lower expense, and any one can stir up malt extract with water and make a malt drink without wasting money on beer.

Alcohol as a Fuel

We have thus far considered only the accessory food constituents of a few of the more common alcoholic beverages, and we have now to deal with alcohol itself as a food. In the first place, we may say that food nourishes the body in two ways—by furnishing building and repair material for the support of life; and as a fuel, the burning of which provides heat and energy for doing muscular work. That alcohol is a fuel, although an expensive one, is well known, for it burns readily even in the form of brandy or whisky. But the question is, "Does this necessarily make it a useful food?"

If alcohol were fuel to the human body, it ought to supply it with energy either in the form of increased strength and ability to do muscular work or in the form of increased animal warmth. Scientific research has shown us plainly that the use of alcoholic beverages does not increase a man's ability to do muscular labour of any kind, but on the other hand actually diminishes it. Any healthy man is stronger in the lifting power of his muscles without the use of alcoholic beverages, even though the dose is a very moderate one. The scientific experiments of Kræpelin, Dr. Parkes, of Netley, and others show that alcohol in small or large doses does not improve a man's physical or even mental efficiency.

For this reason athletes when training for the purpose of doing feats of strength, such as cycle- or boat-races, running, and throwing the hammer, exclude all intoxicating beverages from their bill of fare. The same is true of walkers, swimmers, and indeed, as far as we know, of all athletes.

If wine or even beer possessed any strength-giving properties, then surely our athletes by this time would have found it out, and would take such drinks for the purpose of increasing their strength and endurance, but the contrary is the case.

Alcohol and Bodily Heat

When alcohol is taken into the system in any form, it enters the blood without any further changes and it is recognized by the living tissues as an intruder and a poison. This is doubtless on account of its irritating influence. A certain percentage of the alcohol is promptly got rid of without any change whatever, most of it passing away in the breath, and also through the kidneys and the skin. A varying percentage is burned in the body, producing a small amount of heat, but the heat thus obtained is actually less than that which is lost through the poisonous effect of the alcohol. By its paralyzing effect upon certain controlling nerve-centres in the brain, alcohol causes the blood-vessels of the skin to enlarge, thus flushing the skin with blood, and hastening in a marked manner the loss of heat from the body. That this process is accompanied by a mild temporary glow of warmth in the skin is true. It makes a man feel warmer, although he is really colder; for the truth is that it has a chilling effect upon him, the internal temperature of the body falling with the rise of the skin temperature, as Prof. G. Sims Woodhead has recently shown, and the man actually has less heat after his indulgence, and therefore is less fit to withstand cold.

Alcohol as Building Material

We do not think that even the best friends of alcohol claim that it possesses any building material whatever for the human body: and if no building material, then certainly it contains no repair material. Nitrogenous substances alone furnish the necessary material for the physical development of the growing child, or for the repair of the worn-out tissues of the adult.

But what about adipose tissue, or fat? some one may ask, and attention is drawn to the portly brewer as well as his employees, and to the rotund and often florid barkeeper. But the stoutness of the beer drinker is an indication of low vitality and impaired strength, and not good health. Alcohol, among its other evil effects, has a retarding influence upon the throwing off of waste matter from the body, and there is evidence to show that it interferes with excretion. Furthermore, alcohol also to a greater or less extent interferes with the metabolism, or life processes, of the living cell, and often leads to the storage of superfluous fat of a low order, which is really the beginning of obesity, or stoutness, a disease to which beer drinkers are liable.

We may then conclude that in any ordinary or proper sense, *alcohol is not a food.*

Nervousness

LAL CHAND GUPTA, *Lahore*

HAVING myself been a nervous patient I feel I can write with some confidence on this subject of vital importance to the educated classes in general and primarily students and those who have to do serious and strenuous sedentary work.

I may say at the outset that nervousness is a disease of the mind which gradually reflects adversely on the body through weakness of the nervous system. My observation is that symptoms of failing energy are usually foreshadowed by the weakness of the brain which the would-be patient begins to feel in almost any undertaking requiring a little concentration of mind. Decision, despatch, tact and quickness in disposal are respectively replaced by doubt, despair, want of confidence and delay. A sort of laziness which though not acceptable to one's conscience envelops the individual. In the beginning the man feels as if his brain is saturated with something foreign to his nature. But gradually the weak thoughts overpower him; and before he comes to realise the beginning of the new development within him he is already affected by the disease and consequently begins to hunt after tonics of which there is no dirth in the market. His new habits cause him to consult various *doctors of disease* without the least confidence in the treatments of any of them. Mutual misunderstanding of ideas between himself and those among whom he moves begins and while he is burning himself with his own fire of anguish, his comrades doubt the veracity of his statements.

It is mainly at this stage that the disease can be said to have taken hold of the victim. Engrossed in his own ideas of doubt and despair and at times of decay and death, the patient cannot enjoy even the most enjoyable things. I confess that the senses do not in such circumstances follow their usual objects of pursuit. The cold breeze of the early morning does not refresh his eyes. The delicious dishes do not tempt him. The company of friends does not give him merriment, rather he begins to shun company. All that he loves is to lie enveloped in his own thoughts of disease and despair. In short, everything, however pleasant, presents a gloomy outlook. The doubtful habit of the individual teases him only so long as he does not get a sympathetic adviser. May I add that the disease cannot be cured by medicine. The more a man believes in medicines, the more dangerous does it become for him. So much so that at times the patient even comes to doubt his life and I venture to think that if early advice of a spiritual and moral physician is not secured the patient is doomed for ever. The patient being troublesome to his family members

owing to his irreconcilable attitude towards others, even the dearest relations feel disgusted at his unbecoming demands. And following the advice of medical quacks, both health and money of the patient are ruined. In this transaction none but the so called doctors and the chemists are the gainers.

While the disease is so horrible, I may say that its cure is quite simple. The first thing is that the patient should not be allowed to have any spare time at his disposal in which he may think of his disease in solitude. He should be taken for long walks and if possible a river bath daily, early in the morning and breathing exercises thereafter are eminently useful. I know that my own morbid condition was almost cured in something like a month when through the kind advice of a friend of mine I resumed my long walks, started merry hobbies, and followed deep breathing in fresh air. The next important thing is that the individual should be persuaded to think only healthy and uplifting thoughts. Lastly, as regards food, he should only be given meals twice a day. The food should be nourishing as well as easily digested, and a good quantity of curd and butter should always be taken at meals. I have come to realise that curd contains the largest amount of health giving substance. Fruits should be taken with meals or if the patient is in the habit of taking lunch, a cup of milk or some fruits might be taken. But in no case should the stomach be over-loaded.

What is of primary importance in this connection is that the patient should realise his own existence and believe in the mercy of Providence. He should learn to pray sincerely, and seek health, vigour and happiness from that Fountain of Love. Living with God and in Him he will never again be overcome with nervousness, or as a matter of fact any similar disease. He should begin to live in harmony with nature. Natural modes of living rarely allow any germs of disease to become established in the body. We should therefore live with nature, and I may assure the reader that nature always gives happiness, peace, plenty, and power.

Care of the Voice

THE supreme consideration in the care of the voice is the state of the health. Churchill Sibley tells us that "the voice is always a sure index to the state of bodily health; and when a singer is 'below par' his voice soon tells the tale." To ensure a good voice, then, it is absolutely necessary to cultivate all-round good health by obeying the laws of hygiene.

"The First Essential."

Dr. Norman Meachen has told us that "deep breathing, the first essential of voice production, if persistently practised in season and out of season, in the street and at the office, for a few minutes at a time, will soon bring back the roses to faded cheeks and dissipate the sallow complexion." In ordinary breathing only about ten per cent of the lung capacity is utilized, while ninety per cent remains quiescent. A sedentary man who follows a quiet occupation has little occasion for using his lungs to their full capacity, and he, and indeed all men and women, should practise deep breathing daily. The full use of the chest involved in deep breathing is necessary for the sustained effort which successful platform work, whether speaking or singing, calls for.

We have in previous lessons pointed out the correct form of breathing, namely, the full use of the diaphragm muscle, that is, abdominal breathing combined with the proper use of the upper chest. Natural breathing is said to be the foundation of a good voice, but it is impossible when

there are any stays or constricting bands of any sort which hamper the abdominal movements.

Control of the Breath.

The successful speaker or singer must learn to control the breath, which is oftentimes a matter of considerable study and practice. The easiest and simplest way to secure this control is to use the conversational tone in speaking, and then learn to raise the voice sufficiently without putting the accessory respiratory muscles on tension or under strain. As a rule all the speaking should be controlled by the diaphragm, and the effort should be easy and natural. Strain of any kind makes the effort of voice production difficult, and speedily tires the vocal chords. A good speaker is not conscious of even the slightest strain upon his voice, and his words fall from his mouth in a natural, easy way, without apparent effort. When a speaker has once obtained such perfect control of the voice, speaking, or singing for that matter, becomes a pleasure, and there is little or no danger of tiring the voice or causing any injury.

Colds and Catarrh.

It is a matter of the greatest importance that all speakers and singers should take every possible precaution to avoid colds and catarrhs. Sometimes this is a difficult matter, because the cold is not so much due to exposure, cold, and storm, as to the breathing of foul air in a close, overheated room. The great heat combined with the malodorous air soon causes congestion of the voicebox and the vocal chords, and then an abrupt change into the cold air out-of-doors leads to trouble. When a person is suffering from a cold the voice should have as much rest as possible. Deep breathing exercises should be practised daily in the fresh air, or at least before an open window.

Things to Be Avoided.

Alcoholic beverages, hot and cold drinks, and especially tea, coffee, and cocoa, hot soups, ices, and iced foods should be strictly avoided by those who are endeavouring to cultivate a good voice. The extremes of hot and cold are particularly irritating to the voicebox. Again, mustard, peppers, and hot sauces should be avoided for the same reason.

Medicated lozenges, acid drops, voice tablets, and similar preparations, although much used by the ignorant laity, are a source of danger and should be carefully avoided. Sipping a glass of water will seldom fail to afford as much relief as any of these lozenges, and often more; but when the voice is getting tired or husky it is advisable to give it a rest.

The common habit of hemming or hawking and clearing the throat in other ways is not helpful to the throat and not infrequently has a rasping action upon the vocal chords, which irritates them and aggravates the evil. It is wiser to use a nebulizer containing some mild antiseptic, such as menthol or thymol, two or three times a day.

IN no sphere of life is happiness so easy to attain or so easily transformed to unhappiness as in the home. It does not depend on the number of luxuries obtainable, for some of the very happiest homes, the almost ideal ones, are those of the poor. One cheerful member in the home may uplift the tone of all the rest. Let the daughter but sing at her dish-washing, or allow her broom to keep time to her happy song, and her happiness is sure to infect the others. On the other hand, some little dispute, some little criticism, fault-finding, etc., by but one member of the family may upset the happiness of the entire family, probably for the whole day. And it would have been so easy to have left those words unsaid or instead to have spoken an appreciative word, or to have laughed instead of grumbling.—*Selected.*

The House We Live In

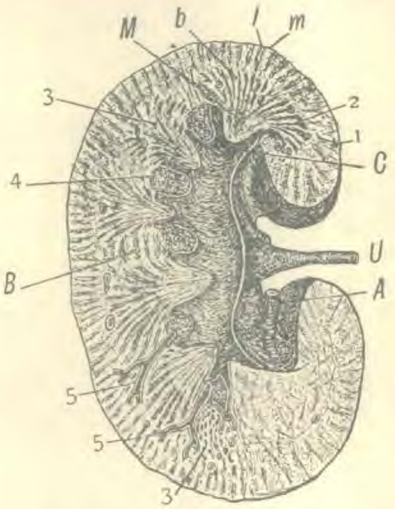
Our Waste Systems

The Kidneys

In this department of our journal we have mentioned a great many times that there are two processes going on in the body. One of these processes is called the building up and the other the tearing down. Technically we call these changes anabolism and katabolism respectively. In speaking of these changes in the body we really have to go back to the consideration of the cell or the unit of the body. Whatever gross changes take place in the body these same changes also take place in the cell minutely, as the work of the body as a whole is the collected effort on the part of the individual cell of our organism.

The anabolic change in the cell is the effort on the part of the cell to incorporate into its substance or protoplasm and nucleus, the foods prepared by the digestive system and eventually absorbed. This same process in reality means the up-keep of the body as a whole. We can call this the eating and drinking of the cell. In as much as the cell eats and drinks, it also throws off waste material. The waste matters of the cell are water, carbon dioxide and uric acid. These different waste materials make their escape from the body by way of the eleminative organs; the water leaves the body by way of the kidneys, skin, and lungs. The uric acid makes it escape mostly by way of the kidneys while the carbon dioxide mostly chooses the route by way of the lungs.

The kidneys are large sharers in the elmentary processes of the body. The kidneys are large glands. They are two in number and are located in the back part of the abdomen on either side of spinal column. They are situated between the twelfth dorsal and third lumbar vertebrae. They are imbedded in a thick layer of fat called the fatty capsule. The immediate vicinity of the kidney is called the venal fossa which is formed by the abdominal wall and muscles located in the back part of the abdomen. The right kidney is lower than the left because of the location of the liver above it, and



both kidneys in woman are somewhat lower than in man.

Each kidney is about four and one-half inches in length two to two and one half inches in breadth, and a little more than an inch in thickness. It weighs from four to five ounces. It has a larger convex and a smaller concave border. The latter is called the hilum of the kidney and is the place where the renal artery and vein make their entrance and exit. It is also from here that the ureter leaves the kidney and extends down to the bladder. The

kidney is surrounded by a true capsule which is thin, smooth, and glistening. It readily strips from the underlying kidney substance. It has two extremities called the upper and lower pole and it is upon the upper pole that the suprarenal gland sits like a cap.

When cut in two vertically and longitudinally, it puts in an appearance like the accompanying illustration. It will be seen that the portion of the ureter entering the kidney is dilated into what is called the pelvis which continues on into the renal cavity. The solid cut surface of the kidney presents two distinct tissues, the outer is called the ortical substance and is composed of small cellular bodies whose cells have the power of extracting from the blood the waste products of cell metabolism which we have mentioned above. The inner portion is called the medullary substance and is made up principally of small tubes whose duty it is to convey to the renal cavity and thence to the ureter, the waste substances extracted by the cortical bodies just mentioned.

The waste products as dealt with by the kidney are called the urine which is a very complex fluid, and which we will take up in detail in another article.

The ureter coming from the hilum of the kidney conveys the urine to the bladder. The ureter is a cylindrical tube about sixteen inches long and the size of a goose quill. It is lined with mucous membrane and also has a muscular and fibrous layer. It is in this small tube that a small stone in passing from the kidney on its way to the bladder causes considerable disturbance to the patient.

The urinary bladder is a collapsable sac situated in the pelvic cavity. It assumes a variety of shapes under different conditions. In the infant it is conical in shape. In the adult it is more nearly cup shape, when moderately distended, it holds about a pint. If it is greatly distended, it then rises above the pubis and is pushed up into the abdominal cavity. Under circumstances like these, it some times rises as high as the umbilicus. This hollow organ is lined with mucous membrane. The outer layer or coat is the peritoneum or a serous coat for part of its surface, while the other part is fibrous tissue. The middle coat is muscle of which there is a very strong layer.

The two ureters from the kidneys enter and the urethra leaves the bladder at three triangular points at the base of the bladder called the trigonum. The urine flows from the mouths of the ureter into the bladder drop by drop until a sufficient quantity has been collected, when it is periodically carried away through the urethra and voided, being controlled by a nervous mechanism.

This in general gives an outline of what is called the urinary apparatus.

IT was not altogether an accident that Col. Theodore Roosevelt escaped the effects of the assassin's bullet. A constitution weakened by poisons and excesses might not have withstood the strain. As stated by the *Outlook*, Mr. Roosevelt's "lifelong temperate habits and careful physical culture had endowed him with a physique capable of resisting a shock which would have been fatal to a body poisoned by vice and enervated by luxury." And no one more fully realized this fact than his chief attendant physician, who said:—

His superb physical condition, due to outdoor exercise and habitual abstinence from liquor and tobacco, as well as his simplicity of diet, accounts for the small effect produced upon him during his long speech while suffering from such a severe shock."

Mr. Roosevelt is one of the comparatively few men who have realized the immense value of superb health as a prerequisite of efficiency, and who have so lived as to conserve and build up that efficiency. It is his careful mode of life that has helped to make him what he is conceded to be by the mass of his countrymen, the representative American.

Vegetables

A free supply of these is essential to healthy nutrition in all climates, and especially so in the Tropics, where it is desirable to restrict the amount of meat consumed. English folk might with great advantage take lessons from our neighbours across the channel, by introducing to their tables *plats* of vegetables served up alone, and flavoured with some tasty stock, or with simply a little butter. Well cooked, and served piping hot, such dishes are most tempting and wholesome, and may most advantageously take the place of meat dishes at the mid-day meal in hot climates; besides which it is as great a mistake to mask the delicate flavour of early peas and French beans by eating them with meat, as it would be to try to appreciate the flavour of a vintage claret under like circumstances. Where vegetables are scarce, it is well to investigate the dietary of the native races amongst whom one lives, as even in long-settled colonies it is astonishing how often excellent articles of food are entirely neglected by European residents. Served up as *haricots verts*, the soy bean (*Glycine soja*) or the lablab bean (*Dolichos lablab*) cut at the same stage of maturity, as is customary with the ordinary French bean, are excellent and are specially valuable, as they come on at a time when little else is obtainable: but in spite of this, they are very rarely eaten by Europeans. Then too a great variety of succulent leaf plants form an excellent substitute for spinach, and a variety of herbs, wild or cultivated, suitable for serving up in this way, are usually known to the indigenous inhabitants of any country; the very young tops of gram (*Cicer arietinaum*), for example, are excellent eating. During the Cgaleka campaign, the troops were often for long periods quite without vegetables, and one day the writer, wandering among the kraals near the camp, found some Kaffir women busily gathering a wild plant with small succulent leaves. On discovering that they were picking it for food, a basketful was purchased from them, and when cooked, furnished an excellent dish, almost indistinguishable from genuine spinach. Arrangements were then made to supply the entire detachment once or twice a week; and the men remained throughout the year entirely free from scurvy, a disease which has nearly always given rise to a certain amount of trouble in prolonged military operations in that part of the world, and notably in the Boer concentration camps during the late war.

Many vegetables, too, are excellent when cut very young, which are scarcely eatable when mature. This is especially the case with the bhindi, one of the commonest of the few hot weather Indian vegetables; but your native gardener likes to see them "large and fine," and will never cut them young enough unless this is insisted upon by his customer. Many vegetables such as pumpkins, onions and tomatoes, may be kept a long time if hung up in an airy place so that they do not come in contact with each other; and where the plan is not practised by those who supply the market, it is well to bear this point in mind, so as to lay by a timely

supply against the "rainy day" when vegetables will be scarce. There can be little doubt that the inclusion of a certain amount of uncooked vegetable food in the dietary is always desirable, but salads are too often a dangerous luxury, owing to the very obvious danger from the fertilisers that may have been used in their cultivation, and on this account it is better to avoid them, unless one is absolutely certain as to the conditions under which they are grown; the more as an adequate supply of vegetable acids and salts can usually be taken in the form of fruit. Cucumbers and tomatoes, which can be peeled, need not of course be included in this general law against leaf salads, but tomatoes should always be peeled, as the skin is extremely indigestible, and is a freqent cause of diarrhœa. By dipping it for an instant in boiling water, the skin may be removed with the greatest ease without crushing the tomato.—*Vegetables in the Tropics by Lt. Col. Giles.*

GREENS AND VEGETABLES ARE OF MUCH BENEFIT

BALLAST or bulky foods are those which should be used to replace the cathartics and physic of the medicine chest. Under this heading we find the fresh green vegetables, spinach, cowslips and dandelions being the most efficacious of them all. Spinach has been termed by the French "the broom of the stomach," because it is so bulky that it sweeps through the alimentary tract, stimulating the secretion of the juices, scraping the walls and carrying all waste with it. Spinach once a day for a week or more will bring about immediate results. It is a great mistake to consider foods suitable only for certain occasions, for all foods are so adaptable that they can be prepared in divers ways for either breakfast, luncheon or dinner; and while the family may refuse spinach for dinner they will welcome it for breakfast in a different form because it is a novelty.

Besides its splendid qualities as a laxative agent the dandelion possesses a certain principle known as Taraxacum. This has been used for years as a liver tonic. Thackeray says, in Philip: "You are bilious, my good friend; go pay a guinea to one of the doctors, he will prescribe Taraxacum for you." Unfortunately that is just what the majority of people still do, whereas a generous diet of dandelion greens will soon correct the fault, and benefit not only the liver, but the general system as well. A wonderful old country physician said to one of his bilious patients: "What you should do is to go out and dig a quart of dandelion greens every day, then cook and eat them. This prescription may be used *ad libitum*."

Iron, potassium, magnesium, calcium, sulphur, phosphorus, all these and many more are contained in combination in all growing things. It is a wonderful provision that when the body is in greatest need of these foods Nature brings about their season. And it is due to her wonderful alchemy that so many minerals can be eaten at once, for were a like amount to be taken in the form of medicine severe illness and sometimes death would follow. Spinach is the richest in iron of any vegetable; carrots are next, while the dandelions, beets, salad plants and all other vegetables contain certain amounts. Watercress furnishes sulphur, whereas cauliflower, onions and cabbage are rich not only in sulphur, but in phosphorus as well.

Asparagus comes at a time when the kidneys need flushing or stimulation, in order to aid in carrying off the body wastes; and as it possesses marked diuretic properties it has a distinct place in the dietary.—*Ladies' Home Journal.*

"A SYSTEMATIC study of cooking should be a fundamental part of the education of the homemaker."

Mother and Child

How Shall We Educate Our Girls?

WM. W. WORSTER, A. M., M. D.

JUST now the educational world is deeply interested in the education of our girls. The pages of history have recorded the unhappy conditions of woman before educational privileges were granted her. Experience to-day reveals the unfitness of the average modern college girl to become the matron of the home and mother of the race. We have simply gone from one extreme to the other. Wherein lies the reason? The answer is very apparent. The cause of present conditions is the opening of our educational institutions to the entrance of girls without providing special courses of study for them.

Experience, although a slow teacher, nevertheless in this case has been a good one. To-day high schools and colleges are offering lines of study whereby girls may receive a training to fit them for practical, domestic duties, as well as to give them a full and complete course of study along general educational lines.

It has not been so very long, only about one hundred years, since a system of co-education was not believed in. It was thought at that time that the boys were the ones who needed an education, since upon them devolved the responsibilities of maintaining the home, state, and nation. Experience, however, has taught that when these boys came forth from college as men, well equipped for life, they were not disposed to look upon women as their equal; indeed, they could not do so, as their ideals of life, their aims and ambitions, were so widely different that there could be no common bond of sympathy. The girls, who remained at home and led a simple, uneventiful life, were not capable of appreciating the superior knowledge of their husbands and brothers. Thus it was that woman came to be looked upon in ancient times as a slave, a being by no means equal to man. This condition lowered the standard of civilization to an alarming extent.

When the public was gradually won over to the idea of sending girls to school, the sentiment became strong in its favour. Common schools, high schools, and colleges were all opened to them, and with these great advantages woman very soon gained back her true position of love and respect. But her ability to manage the home and care for the health of her offspring, instead of being increased, was in in the majority of instances markedly decreased.

The serious difficulty which is now so apparent is that the girls were required to enter the courses of study which were designed especially for the boys. This had a great tendency not only to develop in the girl masculine characteristics, but to weaken her love for and her ability to perform the practical, domestic, and maternal duties of a woman's life.

The lines of study pursued in obtaining an education should fit one in an all-round way for the duties of real life. If a man desires to be a doctor, a lawyer, or to pursue any professional or business calling, he takes such courses of study as are designed to fit him for his life-work. So if we are to have good wives and mothers, we must have special courses provided for our girls.

Upon man rests the responsibility of finances; hence he requires an education

that will enable him to cope successfully with the commercial world; while upon woman rests that sacred and tender duty of caring for the home and for her children. One can readily see that an education that would fit man in every way for the various duties of his life, would fail to give to woman a training for her work.

Before the adoption of our present system of coeducation, the mother of each home considered it her heaven-born duty to train her daughters for the practical duties of life. To-day she is either neglecting her duty or throwing the responsibility upon our educational institutions. Many a girl is hastened off to school without any insight into the true meaning of home or its duties. Vacations are often spent in the parlour, while mother does the work. It is not the object of this article to stimulate better home training, which is to-day sadly neglected, but to endeavour to awaken an interest in our educational institutions to assume and better prepare for the duties thrust upon them.

Since the adoption of coeducation, our schools and colleges have returned to us women who are capable of filling positions of responsibility and trust in our state and nation. They are highly accomplished along social lines. Many are masters in art, science, and literature. Their minds have been so carefully cultivated that they reach a high degree of efficiency in all their undertakings. They are in every sense the equal of their brothers. But woman's education, while broadening her vision and giving her high aspirations, has to a greater or less extent unfitted her for the domestic side of her life, and caused her to lose that true desire for home which God himself has planted in every woman's heart. Her ambitions are very liable to run along the same lines as her brother student's. She is qualified to fill the same positions as he; and why not aspire to them, instead of settling down to a quiet home life, which appears to her to be monotonous?

But if she does decide to live a professional life, what of it? Has she not a perfect right to do it? We can only bid her Godspeed. But we still contend that she ought to have a preliminary training, which is due every girl. Why? for what purpose? She will most likely, sooner or later, marry; for statistics show that only a relatively small per cent of the women of to-day do not marry. Then what? The problems of home-keeping are entered upon without the necessary knowledge of the fundamental principles. She then awakens to this painful realization.

Even if she is so situated as to have servants to obey her every wish, so that she need never perform any of the domestic duties herself, nevertheless the management of her home depends upon her own judgment and knowledge of the household arts. She can not expect always to have ideal servants. They usually do not know the best and most sanitary methods of doing the work assigned to them. She needs to know also for her children's sake, that they be not placed in the hands of inexperienced servants to be trained. If, on the other hand, she marries a man who can not give her all the luxuries of life nor all the comforts that he would like to, what will she do? Will she get a divorce from a true, honest-hearted man, who has never wronged her, because she failed to do her part from lack of practical knowledge, and thus made home unworthy of the name, made it the most unhappy place on earth?

The nation's strength depends upon home influences, early impressions, and manner of living. How much power the mother in the home wields can never be estimated. She is the molding influence of the home, the community, and the nation. Her children will strive to imitate her ideals.

Is it not a godsend that we now have courses of study which fill the lack that has always existed in our schools? Why do not more girls take these courses? They prefer Latin, Greek, higher mathematics, astronomy, etc.; but these will not prevent dyspepsia, nor insure health and vigour to their children. The subjects enumerated above are essential to the broadening of the intellect, and girls should be encouraged to take them, but not to the exclusion of those mentioned in the following paragraph.

Years of profitable study may be spent along the line of household economics, and at least one fourth of the high-school and college education should be devoted to it. The following subjects should be taken by every girl, regardless of her aim in life: Physiology, personal and household hygiene, care of the home, dietetics and cooking, home treatment of the sick, accidents and emergencies, the care and diseases of children, and sewing.

If every woman took up the responsibilities of home with a knowledge of these subjects, our nation would be noted far and wide for its tranquil, happy homes. After the experience of seven years of college and university life both as student and professor, and of ten years of medical practise, the writer feels very confident of this.

Fathers, mothers, instructors, encourage your girls to take a course in household economics as well as other essential studies. It will be a valuable use of time and will bring golden results. It is all advantage and no disadvantages. And your girls will come home from school to you with a full and complete education, and rounded into sweet, homeloving, Puritanlike women.

College View, Nebr., U. S. A.

The Requirements of Healthful Exercise

[To Dr. Luther Halsey Gulick, physical culture is not an end, but a means; and the end is not the possession of "muscles that stand out like croquet-balls." Physical culture to the doctor is one important means by which one may increase his personal efficiency, make the most of himself, get the most possible out of life, and contribute as much as possible to the world's uplift.

The doctor in his long years of experience in connection with the Y. M. C. A. work, the public school, and the playground, has acquired a very practical knowledge of exercise in all its forms, and no one is better qualified to speak on the subject. The following abbreviation of an article by him in *Lippincott's* is worthy of general attention. —Ed.]

THE human lungs are able to furnish eight or ten times as much oxygen, and to get rid of many times as much carbon dioxid, as the conditions of modern city life require. The heart also is capable of doing ten times as much work as the city man ordinarily demands, and if he gives his muscles no more use than his business occasions, they become small and fatty.

Develope Internal Organs

Physical exercise, in order to serve the ends of health, must call into occasional

activity the heart, the lungs, and the organs of digestion and excretion. Health depends not upon the power of muscle, but upon the balanced, vigorous, steady functioning of these organs, and the criterion of health is the only safe one to apply in deciding whether a given exercise is a good one or not. All-round exercise usually means that which affects all the muscles of the body.

A person may exercise all the muscles of the body in turn without making much demand upon the heart or lungs. The young man who can tie ropes or chains around his upper arm and break them by bending the elbow and contracting the biceps, or put bands about his chest and burst them by the expansion of the ribs, is proud of his physique, and yet he has added no power to his circulation.

Sandow used to take a hundred pound dumb-bell in each hand, and do a back somersault with them. He thought that if he had a bicycle strong enough to support the exertion of his full strength, he could achieve supremacy as a rider. With his tremendous leg muscles he could easily break the shaft of any ordinary bicycle, so he ordered one with a high gear and a specially strong frame. When he got on his machine, he could push it at an extraordinary speed, but he could keep it up for only a few minutes. His power of circulation enabled him to make only a few contractions of his great muscles.

Specialization Necessary

There is a school of education which is based upon the notion that the two sides of the brain ought to be trained alike. Its adherents forget that the speech centre is only on one side—the left. Should we spend all our time acquiring two poor sides, or would it be better to have one that was good? Every minute of endeavour to train one part of the body to do a thing which has already been specialized on by another part, is time thrown away, and time that should be used in learning some needful thing better. There is only one all-round organism in the world, and that is the ameba.

In examining the adequacy of various particular forms of exercise, it is necessary to ascerain what effect they have upon the four fundamental activities of human life,—circulation, respiration, digestion, and excretion.

During the running high jump, the heart rate remains about normal. It does not get up to two hundred twenty or two hundred thirty, as in running, dancing, rapid callisthenics, and many other activities.

Unless a man jumps a great deal, it does not have much immediate effect upon the digestion, whereas in a ten-mile walk considerable energy is used that must be replaced. It is impossible for any of us to expend enough energy in a few efforts to modify the metabolism of the body. High jumping does not make people hungry to the same degree as running, pitching, rowing, swimming, or long-distance walking. It is primarily a matter of skill, technique, and muscular coordination, and it does not involve enough of the fundamental activites to make it proper for a man to depend upon it for all his exercise.

All-Round Exercises

Mountain climbing meets the four fundamental requirements, and so also does chasing butterflies. For those who care for it, the pursuit is a good specialty from the viewpoint of health. It makes one get out-of-doors; it necessitates large movements of the body, and it satisfies the instinct for the chase.

A game which is preeminently well suited to those who desire recreation and general outdoor exercise is that of golf. It is better adapted to adults than to boys and girls, who usually crave violent exertion. A man who plays eighteen holes on a golf course has walked two and one-half miles. He has climbed up hill and down dale. He has stooped down many times; he has been out-of-doors. It is a social game, and so interesting that it quickly becomes a habit.

MEDICAL EDUCATION IN THE UNITED STATES.

A great many unfavourable comments have been made upon American Medical Education. There have been good grounds for such comment, and still unjust criticism at times has been made. We must keep in mind that America is but an infant in years, and that it has not had time to weed out all that is undesirable by organization. During the past years although medical education in this new country has been at loose ends, still it has had medical centres where the facilities for training the medical student and doing research work have been unsurpassed.

We are glad to state that outside of these medical centres general medical education is making rapid strides and the time has come when the prospective Indian or Chinese student of medicine cannot buy a diploma of medicine for $100, from America. From this on students in schools belonging to the Association of American Medical Colleges will be forced to take a five year instead of a four year course, as at present. A resolution to this effect was adopted at the closing session of the Association on Monday, February 26. Members of the association declared its passage marked a big step toward universal standardization of medical school courses.

Another resolution raised the entrance standard for all colleges of medicine in the Association after January 1,1914, to include a year of college work in physics, chemistry, animal biology, and a modern language. Special standards for chemical work were also adopted.

With this we must keep in mind that some medical schools in the United States have for many years required a university degree of arts or sciences before admittance to their courses, and that they have offered the fifth year term in their curriculum. The advances spoken of in medical education in America has reference to medical education in general. It means that all must come up to these standards in order to be recognized by the Association of American Medical Colleges. This will go a long way in weeding out the undesirable in medical education.

PREVENTION OF ARTERIOSCLEROSIS

The importance of intestinal putrefaction has been dwelt on by many writers, and is no doubt a long step in the right direction. A low protein diet seemed at the time when it was advocated a great advance in accomplishing good, as is often the case, even if administered under a misconception. I now believe in and advocate *the few protein diet*, which seems to justify itself by the results I have observed. It is founded on the belief that heart disease is not caused by a high protein diet as such, but by the action of some aminoacid or acids derived from some particular protein food or foods to which the individual attacked is idiosyncratic. I believe, as mentioned above, that conscious poisoning of many individuals by particular protein derivatives points in this direction.

So a person eating the great variety of protein foods found in a modern dietary is laying himself open to the attack of many different kinds of amino-acids, any one of which may be the one which is to do him harm. If he cuts out one-half of his proteins, he is by that much safer. If he is willing to do with a single protein, he is almost certain, on the theory of chances, to escape that which will do him damage.

The prevention of heart disease in otherwise healthy persons past middle life is a matter of dietetic management and the avoidance of all those things which may upset the chemistry of the body. The chemistry of the body can be upset by nerve strain, anxiety and stress; it can be upset by the abuse of drugs, particularly the saline laxatives and mineral waters; it can be profoundly upset by accidental food poisoning or a severe attack of malaria, dysentery or an infectious fever. Nor should we forget the necessity of rest and exercise.—*Journal A. M. A.*

BOSTON MAYOR ESCHEWS MEAT

In order to protest against the present prices, the mayor of Boston has asked the people in general to join him in a boycott of meat with the purpose of forcing down prices. The mayor says: "People should use more vegetables. . . . The American people of to-day eat altogether too much meat." And he is right. If the people of the United States should eat only the meat that they actually need to maintain good health, the beef trust would go bankrupt. The trouble is the trust people know too well the power of appetite, and that the attempt to boycott meat would be like the attempt to boycott whisky or tobacco. The punishment would be too hard on the boycotters because of their life-long habits.

To give up the use of meat, alcohol, or tobacco, even by one who is certain that the change would be better for him, is no easy task; and for one to do it in order to get even with the trust, when all the time his appetite is calling for the article, is almost impossible for the average human. Ninety-nine out of a hundred will be likely to say, "I am only one; it will not make any difference to the trust whether I eat meat or not. I will let the other fellows carry on the boycott." And probably one out of a hundred will, in the end, carry on the boycott. The beef trust is well enough acquainted with human nature to know that, and they are not borrowing any trouble from the threatened boycott.

But it is no wonder that the common people feel that they have to have meat, regardless of price, when a paper with the authority of the *American Medicine*, speaking in regard to the meat famine, can say, "Can not our dietetists realize that in a short time the poorest paid of our population can not afford meat more than once a week or month or not at all? What will the human harvest be?"

Our brother editor speaks as if meat were a necessity. This is one of the obsessions of the age, and should be classed with the "popular sanitary errors" spoken of by Dr. David Starr Jordan in the June *Science*, and quoted with approval in this same issue of the *American Medicine*. The necessity for the use of meat lies entirely in the fact that man has formed a habit of eating it, and that he thinks he needs it. Physiologically, it is no necessity.

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..... , 1913.

To International Tract Society,

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—:o:—

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EDUCATION AND HEALTH

"EDUCATION is the most important factor in all health problems," said Charles J. Hastings, of Toronto, before the National Housing Conference. Legislation providing for better sanitation, for better housing conditions, in fact any legislation intended to improve the condition of the people, can accomplish little if it is not accompanied with an adequate, enthusiastic campaign of education.

Legislation intended for the general good is sure to pinch somewhere. It must compel some one to do his duty, or forbid the doing of something that would be harmful to others. Those few who are disturbed by the law will antagonize it; and unless the great majority who might benefit by the law if enforced, realize its value and importance to them, they will let it die under the attacks of interested parties. Hence, with all new legislation there should be a campaign of education.

This is only one phase of the educational problem. There are thousands, including many of the so-called better classes, who need to learn that health is not obtained out of a bottle, but is dependent entirely on methods of living, environment, etc.

Housing reformers and health inspectors generally encounter two great obstacles to the enforcement of sanitary legislation,—the opposition of interested parties whose gains would be diminished if they were compelled to put their properties in good sanitary condition, and the indifference and ignorance of those who have all their lives been used to squalor, and who do not realize to what extent such conditions impair the health.

Education may not reach the first class, for with them it is a change of heart rather than a change of head that is needed; but the exploited class, the defenceless class, getting but the dregs of civilization, need to know wherein the law provides for their protection, and what they can do to help make the law effective.

TREATMENT OF INTESTINAL DISORDERS

METCHNIKOFF came into the limelight so far as the "common people" are concerned (that is, the people who do not follow up closely the progress in the sciences) when he announced to the public that man is cursed by his large intestine, that the trouble

is with certain putrefactive germs that grow there and produce poisons, which are absorbed into the system, cause a long train of disagreeable, alarming, and dangerous symptoms, and shorten life. This was the dark side of his message. But he also announced the discovery of a germ, *Bacillus lactis Bulgaricus*, which is antagonistic to putrefactive germs, and which differs from other antagonistic germs in that it can survive in the human intestine.

At first, Metchnikoff's reports were received with much interest; then again they were very greatly discredited because no one on this side seemed to have success with his treatment. It may be that the real reason for this lack of success, was that we have not been dealing with the real *Bulgaricus* germ at any time. Now the professor has deserted *Bulgaricus* for something better.

His latest idea is rather interesting. He states that animal foods usually produce more toxins than do vegetable foods, and that sugar will act as an energetic and destructive agent on toxins, but, being rapidly absorbed in the intestinal canal, it does not reach that part of the intestines where the toxic action is carried on, and so, with Metchnikoff, the problem has been to find some way to carry the sugar down into the large intestine. He has found a microbe which assimilates sugar, and which can be sent into the large bowel, taking the sugar with it. This microbe, which is found in dogs, is a parasite of starch, transforming it into sugar, and it does not act on albuminoids and produce poisons. In order to keep this "benefactor microbe" alive in the large bowel, it must be fed with "many young potatoes, barley, sevelina, and bread." We will watch with interest the outcome of this theory.—*Life and Health*.

NOTICE

WILL the reader who sent the pamphlet on the "Oxypathor" to the editor of "Herald" also send his name and address. Some comments were written on the pamphlet, but no name or address were given.

WILL those of our readers who possess an "Oxypathor" please send their names and addresses to the editor of "Herald." This favour will be very much appreciated.

THE EDITOR.

NEWS NOTES

Plague has re-appeared at Pindi—several cases are reported in the Sadder Bazar.

CHOLERA IN BENARES.

Cholera recently broke out in Benares in almost every part except the cantonments. A large number of people have died.

RELATIVE COST OF HEALTH AND WAR

To kill a soldier in war, according to statistics based on the late unpleasantness between the British and the Boers in South Africa, cost forty thousand dollars. To save the life of a citizen in the Panama Canal Zone costs $2.43 per capita of population, reports Colonel Gorgas, head of the sanitary force of the Zone. From which it would seem that it is much more economical to save a citizen than it is to kill a soldier. But we are so blind that while we willingly tax ourselves hundreds of millions of dollars to carry on a war, we grudgingly give up a paltry sum for the support of health boards—so little, indeed, that the health boards are unable to do much more than give advice, which advice is usually not acted on to any noticeable extent.—*Druggists Circular.*

THE DANGEROUS NEGLECT OF VACCINATION

The relaxation of the vaccination law and its dangerous consequences have been described previously in THE JOURNAL. Speaking at the annual dinner of the public vaccinators of England and Wales, Dr. Arthur Maude, the president, complained that though the public vaccinators were doing an important work they received no assistance from the government. The importance of vaccination was recognized all over the world—in Japan, Servia, Mexico and Russia. The only place in which it was not recognized was England. The proportion of unvaccinated people now amounted to about 50 per cent. of the population, and in many towns was still larger. They might do something in the way of isolation when there was a limited outbreak, but the out-

break which would come would not be limited and the hospital accommodations would be totally inadequate.

BOOK DISINFECTION.

In order to determine whether saturated carbo-gasoline will kill bacteria when it is in direct contact with them, Nice filled three test tube cultures each of *B. coli communis*, *Staphylococcus pyogenes aureus*, and *B. diphtherion*. This was drawn off after one hour and ten minutes and ninety-six hours later cultures were made. Growth occurred in two of the *B. coli* test tubes, in two of the tubes of *S. pyogenes aureus* and in one of the diphtheria tubes. He says that the lack of growth in Beebe's experiments was probably due to his bouillon cultures being washed off by the gasoline, since two of his books were dried only one hour and the third not at all. In Nice's experiments, although the books were dried for forty-eight hours, growth occurred in 80 per cent. of the agar and 25 per cent. of the bouillon cultures. After repeated trials it was found to be impossible to make a stronger solution of carbolic acid in gasoline than about 2 per cent., so there seems to be no way of modifying the carbogasoline method to make it effective. Nice recommended moist hot air as an entirely satisfactory disinfectant for books.

MOSQUITO POISON.

Bruck has isolated from the common mosquito its toxin, which he calls culicin. He obtained it by grinding the mosquitoes, *Culex pipiens*, in a mortar with salt solution containing a little glycerin and centrifugating. He found that culicin contained a homolysin and an urticaria-producing principle, and describes research with it and research on mosquitoes to find whether they could convey the syphilis spirochetes. He never was able to get the mosquitoes to bite a syphilitic lesion: they always avoided the morbid tissues and settled only on the sound tissue encircling them. At the same time he found that the mosquitoes can take up spirochetes on their feet and thus transmit infection. In his one positive experiment in this line, from a mosquito that had been in contact with a primary sore on a rabbit and, fifteen minutes later, had had its legs rinsed with salt solution, obtained a motile, unmistakable *Spirochaeta pallida*, which was found in the rinsing water.

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WE also call attention this month to the "ad" of Messrs. Cox and Company on page four of our cover. Messrs. Cox and Company have been established since 1758 and the house carries on not only a banking and insurance business of the highest class, but a shipping and forwarding agency under the title of Cox's Shipping Agency, Ltd., with brauches in Bombay, Calcutta, Karachi, Rawalpindi, Srinagar, Port Said, Southampton and Marseilles. Full particulars of any phase of the Company's business may be obtained from any of their Indian agencies.

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