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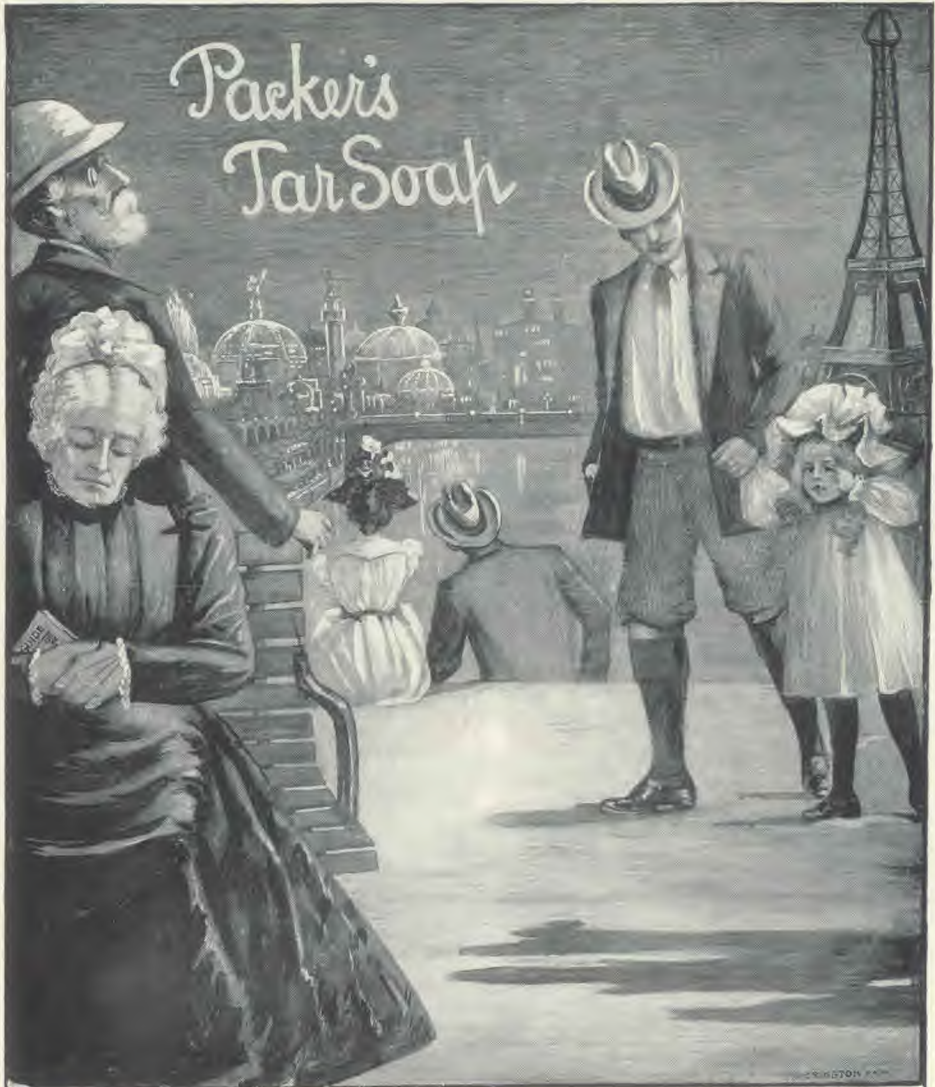
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VOL. XXXV

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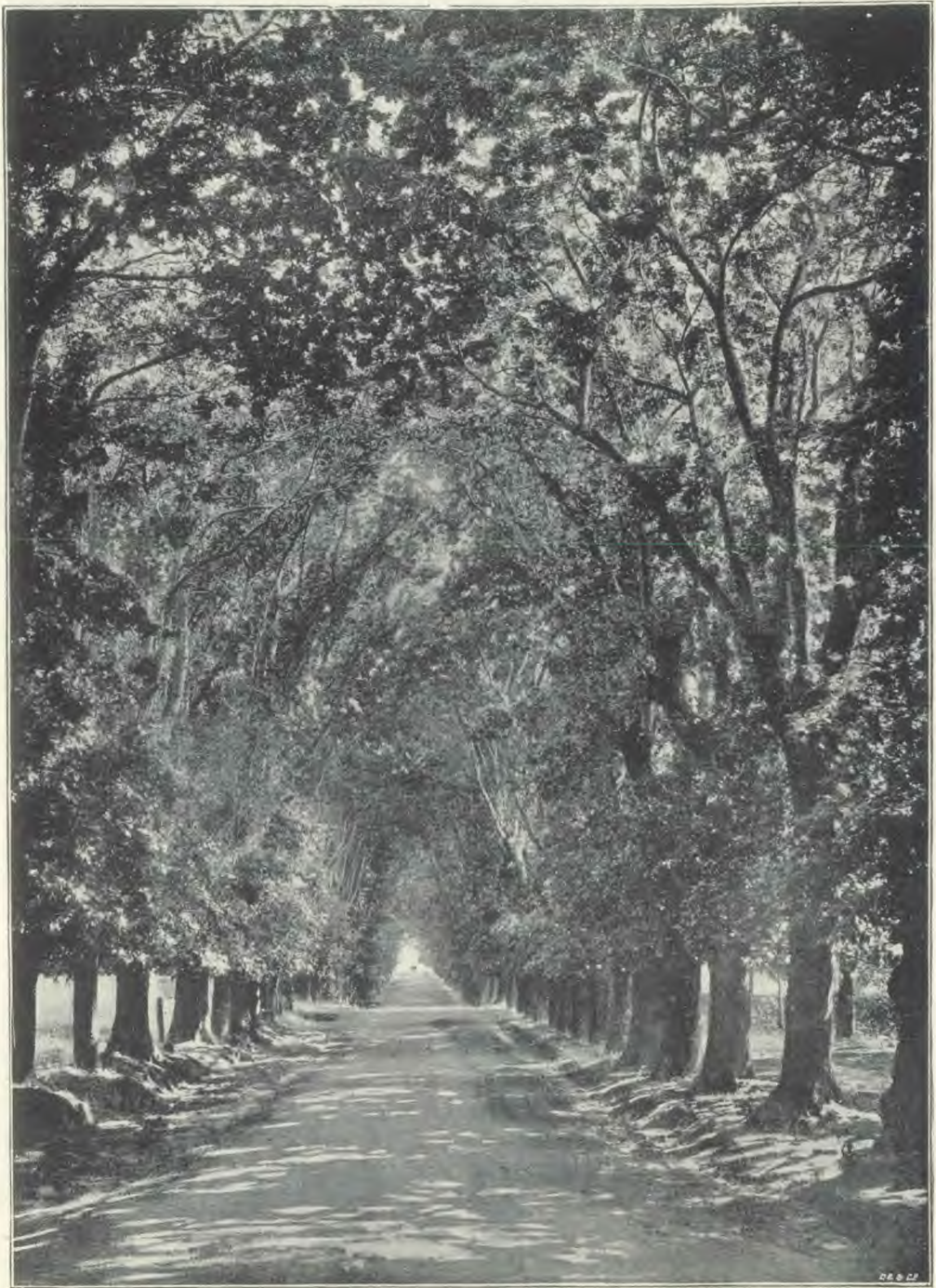
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GOOD HEALTH

A Journal of Hygiene.

VOL. XXXV.

AUGUST, 1900.

No. 8.

THE INADEQUACY OF PUBLIC HYGIENE AS A MEANS OF PREVENTING NATIONAL DECAY.

BY J. H. KELLOGG, M. D.

THE great strides which have been made within the last century in the development of sanitary science, and especially that branch of it commonly known as public sanitation, have, we fear, led to the development of too great expectations from general or public measures relating to the care of health. As an evidence of the salutary effects of sanitary laws, attention is frequently called to the fact that in some old European cities in which statistics have long been preserved, it has been shown that the length of human life has actually been doubled within the last two centuries. This fact is certainly encouraging, and is ample evidence of the great value of sanitary laws and regulations. Nevertheless, we are convinced that we are in error in supposing that this great increase in the average length of life is in itself an evidence of race improvement. An increase in average longevity, in other words, does not indicate an actual increase in race vigor.

Public sanitation, quarantine laws, and general hygienic regulations serve a most useful purpose in the prevention of epidemic and endemic diseases, but these influences at the same time serve to keep alive a great number of physically weak

and worthless human beings who would otherwise be carried off by acute disease, nature's method of securing the survival of the fittest. Public sanitation without attention to individual hygiene is likely in the end to prove detrimental rather than beneficial to the human race.

The cholera and the plague serve, in a sense, a useful purpose in weeding out the constitutionally feeble. This is nature's method of destroying those who have undermined their constitutions by gluttony, intemperance, profligacy, and neglect to develop their bodies and to maintain them in a state of physical soundness by obedience to the laws of health. A writer who was present during an epidemic of cholera in a southern European city declared that drunkards died off like flies. Another witness of the last severe epidemic of yellow fever at Jacksonville, Fla., asserted that not a drunkard survived.

The advantage of the clearing out of these deteriorated human beings from a community must be the leaving behind of human beings of greater average constitutional vigor and physical stamina. If this hypothesis is correct, we shall expect to see as the result of the operation of public health laws, and notwithstanding the evidences of average longevity, some

evidences of positive physical deterioration.

The average rate of longevity, which at the present time is about forty-two years, gives one no adequate idea of the capacity of human beings of the present generation for length of life. It is, in fact, in no proper sense a measure of constitutional vigor. A careful examination of the matter shows conclusively that the increase in longevity is not due to an increased number of persons living to a great age, but to the prevention, by means of quarantine, isolation, and modern means of disinfection, of the terrible epidemics which formerly appeared with almost periodical regularity, carrying off many thousands, sometimes even millions, within a comparatively short space of time, thereby cutting down enormously the average longevity. The average longevity has also been increased by the general diffusion of information respecting the improved care of infants. The babies of the present day, on the whole, have a far better chance for life than those of one or two centuries ago. A high rate of mortality of infants among savages and primitive people generally is a matter of common remark on the part of those who have made this subject a study.

Careful inquiry into the matter has convinced us that persons of advanced years are very much less numerous at the present time than a century or even a half or a quarter of a century ago.

The physical deterioration which the human race is undergoing is shown in many ways besides lessened longevity. In France, for example, a country which sends few emigrants to this or any other portion of the world, the nation is undergoing steady depopulation, for the reason that the annual number of deaths actually exceeds the number of births. It is also a significant fact that a recent census of centenarians taken in France showed that

the whole country contains fewer than two hundred and fifty persons one hundred years of age or upwards.

Still another fact which is significant in this connection is the great increase in deformity among children and young persons. An examination recently made in England, under medical supervision, showed an enormous proportion of deformed children among pupils of the public schools. During an investigation made by request of the faculty in an American college some years ago, the writer found curvature of the spine in seventy-one out of seventy-three young women. In addition to the spinal curvature, marked physical deformities of other sorts were observed, particularly abnormal narrowness of the waist, prolapse of the stomach, movable kidney, and prolapsed bowels, all deformities which exert a very decidedly deteriorating influence upon the health.

Dr. Fox has called attention to the fact that the normal human eye is farsighted. He showed that mammalia in general possess farsighted eyes, and that the same is true of the Indian and other savage tribes. The civilized white man alone is nearsighted, and nearsightedness is coming to be a more and more common condition among civilized races. This is unquestionably the result of too much occupation of the eyes with near objects. Diseases of the eye are also very much more frequent among civilized people than among savages. This is doubtless the result of many unhygienic conditions to which the eye is exposed.

Professor Pflüger found among forty-five thousand German school children more than one half suffering from defective eyesight, in some schools as high a proportion of nearsighted persons as seventy or eighty per cent being found. In the Heidelberg gymnasium, every student was nearsighted. These facts clearly

justify a prominent eye surgeon in his assertion that we are likely soon to be known as "a spectacled race."

But we are developing more serious peculiarities than shortsightedness. We are becoming narrow-chested. Taking the civilized race as a whole, we are probably diminishing in stature. This deteriorative tendency is resulting in the development of various new varieties of human beings. The spectacled variety, as suggested by Professor Pflüger, already includes quite a large proportion of civilized men. A deaf-and-dumb variety is rapidly being developed by the association and intermarriage of mutes in our asylums. A blind variety may be developed the same way. The criminal type is recognized as an increasing one, and criminals as a class have been proved to be degenerates. The rate at which insanity is increasing is appalling; and while the cholera, the plague, and even the yellow fever are successfully held at bay by the adroitness of quarantine officials, the great white plague, consumption, is making increasing inroads upon us year by year. When an excellent medical authority tells us that half the autopsies made in the deadhouse connected with the great hospitals in New York City disclose evidences of tuberculosis, this alone is sufficient proof that the vital resistance of the human race is diminishing.

Popular hygiene makes life possible for those whose capacity for resisting the encroachments of microbes and other causes of disease is so small as to make them easy prey to those maladies which may be controlled by quarantine and public sanitary measures. But the hygienic regulations which come under the control and supervision of the public-health officers can not, except to a very small extent, contribute to the increase of the power to resist and overcome disease in the individual.

What may be accomplished through specific inoculation, such as has long been practiced against smallpox, and is now coming to be used extensively against diphtheria and two or three other forms of disease, it is not yet possible to say; but it seems to the writer that the thing which needs especially to be done as a means of checking the tendency to race deterioration, is to increase the vital resistance of the individual by the general diffusion of hygienic knowledge; in other words, so to instruct him in matters pertaining to diet and regimen that he may become a more vigorous animal, better able to cope with the enemies of life and health which surround him on every hand. Those causes of disease which are most active in destroying human life are always with us. In most civilized communities it is impossible to escape them. The germs of pneumonia are ever present in our throats, for death-dealing germs abound in the mouth, and swarm upon the skin of every human being. That we are alive and active to-day is due to the fact that our bodies are at the present time capable of resisting the attacks of the pneumococcus, the tubercle bacillus, and the various varieties of streptococci to which we are constantly exposed.

Public hygiene is incompetent to protect us from these prolific causes of disease and death. It is proposed to secure the enactment of laws against spitting, certainly a most worthy object for legislation; but spitting as a means of communicating disease is an evil which can never be more than mitigated by legislative measures. What we must do is to build up the individual by personal hygiene. The healthy man is superior to germs of every sort. The human organization, when perfectly intact and in sound health, can not be successfully assailed by any known germ; but when the vitality of the system is lowered, then the body

becomes a prey to various classes of microbes which develop their specific maladies.

Of the first importance in aiding the body to resist disease is diet. If men would live upon as simple a dietary as do such animals as the horse, the sheep, the cow, they would be as little subject to disease as are these animals, which, in a wild and natural state, are known to be almost absolutely free from maladies of any sort.

When one sits at a hotel table, and observes what sort of stuff people are trying to convert into bone, muscle, and brain, he is constrained to think that a day of retribution is coming.

I was much interested some years ago in reading the bill of fare prescribed for his patrons by a famous trainer of pugilists and wrestlers. The dietary was extremely simple. An abundance of fruits, grains, milk, and a few vegetables constituted the essential features; no tea or coffee, no pie, no knickknacks. The trainer knows well that it is impossible to make sound muscles and steady nerves out of such trash as composes the average hotel and boarding-house bill of fare. Is there any basis upon which to found the expectation that good brains can be made out of fried pork, spiced pickles, Welsh rarebit?

The excessive consumption of meat is beginning to show itself in the almost universal prevalence of the uric-acid diathesis, a hydra-headed constitutional malady which shows itself in protean and subtle forms. It is only recently that we began to understand that almost every nervous malady, from neurasthenia to locomotor ataxia, may find its origin in that form of toxicity to which the term "uric-acid poisoning" has been given. Modern researches have shown that not only nervous maladies and functional disorders of various sorts, but the majority

of tissue degenerations which lead to such maladies as Bright's disease and like afflictions, are really due to the nutritive disturbances set up by the various toxins and leucomains received into the body or developed in excess within the body, and retained by the failure of the liver to destroy or the kidneys to eliminate.

The use of alcohol and tobacco exhausts the power of the liver to destroy poisons and of the kidneys to eliminate toxic substances, and thus prepares the way for disease. It is for this reason that persons addicted to the use of alcohol are poor surgical subjects. The man who compels his liver and kidneys to dispose daily of a considerable quantity of alcohol or nicotine must not expect these organs to maintain their integrity for the same number of years as organs can which are not compelled to do the double duty of destroying and eliminating the natural wastes of the body and of protecting, so far as they are able to do so, the finer structures of the body by the destruction and elimination of toxic matters voluntarily taken.

Daily exercise in the open air is a condition almost as essential for health and a high state of bodily resistance as a simple, pure dietary. Daily exercise in sufficient amount to produce vigorous perspiration is essential to health. The divine command to Adam—that he should earn his bread by the sweat of his brow—was not a curse, but a blessing. Exercise fans the flame of all the vital fires; it stimulates every vital activity, creates an appetite for food, and gives ability to digest food; it purifies the tissues, clears the brain, steadies the nerves, and is, indeed, one of the most important and efficient of all life-promoting agencies.

The daily cool morning sponge bath is a disease-preventing agency of very high value. The experiments of Winternitz, confirmed by various investigators in this

country and other countries, have shown that the cold bath increases to a wonderful degree the number of blood corpuscles. This is, of course, not due to the production of blood corpuscles *de novo*, since the increase is observable within a few minutes after the bath, but is due to the bringing into active circulation great numbers of corpuscles which have been retained by passive congestion in the liver, spleen, and other large viscera. When we remember the important facts developed by Metchnikoff respecting the germ-destroying function of the white blood corpuscles, the value of the cool morning bath as a means of developing and maintaining vital resistance becomes too evident to be ignored.

It is not the purpose of this paper to enter into all the details of correct hygienic living, but rather to impress the importance of more definite and specific instruction in matters pertaining to individual hygiene. A healthy stomach is able to eat up, actually to digest, all

known germs, typhoid and cholera germs included; but a dilated stomach, an overworked, abused stomach, does not possess this power of defense. Healthy, vigorous blood and tissues can destroy the germs which enter them, but an impoverished blood and weakened or poison-saturated tissues are unable to cope with microbes which in a state of health they are perfectly able to resist.

A healthy man, subsisting upon a pure diet, drinking pure water, breathing pure air, and maintaining a high state of vital resistance by habits of daily out-of-door exercise and the daily cool morning sponge bath, ought to withstand the attacks of any germ he is likely to come in contact with.

We want no less attention to sanitary legislation and to the maintenance of proper sanitary public-health regulations, but we do want more attention to those matters which immediately and profoundly affect the individual health of men and women through the influence of personal habits of life.

HEALTH IDEAS AT THE WORLD'S END.

BY GRACE AMADON.

[Miss Amadon is well qualified to write upon this subject, having recently returned from a six-years' residence in a suburb of Cape Town, South Africa, where she held a position as teacher in the Claremont Union College.]

WELL, there's no place like America, is there?" is a most familiar greeting to every homecomer, and true enough, there's no place like home. But Africa is many a body's home, and just as truly, there's no place like it. What is it like? — Africa really consists of three things — the mountain, the sea, and the valley. From the mountain comes the water, from the sea comes the air, and from the valley the food; and what the valley does not grow, the ships bring from over the sea.

Everybody lives in Cape Town. There is hardly a nation or a tribe but is there

represented. Even Americans are there. At first they rather miss their ice water in summer, and a comfortable furnace in winter, but sea bathing and mountain climbing soon make them forget these accessories of their home civilization.

Residents in the Cape Peninsula owe a debt of gratitude to the Dutch for having planted thousands of oak trees over the country. Many of these have been ruthlessly cut down, but there are a few of the famous avenues still remaining. A drive through them is most delightful.

The people of South Africa get most of

their boots and shoes from England, although America, France, and Venice send their supplies, too. I had not been in Africa very long when one day a neighbor said to me, "My friend, you wear too thin shoes; ladies here wear such shoes in their carriages only." Being an American, I protested that at home I wore the softest kid, with soles so flexible that they would bend together, and how could I cover my feet with calfskin tops and thick soles? But I did, and they proved a decided advantage. The thick sole protected the foot from the ground, and the calf top was rainproof. This made it possible to do as the Cape people do,—to wear no rubbers. The English boot does not strike an American's fancy at first any more than the American "toothpick" appeals at once to an Englishman's heart. It is quite embarrassing to walk along a street in Cape Town and have the people stare at your pointed shoes.

There is an old adage which says, "In Jerusalem one must do as they do in Jerusalem." But all do not do this, and therefore no country in the world impresses any two people just alike. The manner in which a man lives is very likely to influence his opinion of any place. This is especially true of South Africa, where the comforts of life are few and expensive; if one does not find out how to live there in a comfortable and healthful manner, even the beauties of the country make an unfavorable impression. The Cape Peninsula is a cold place; in mid-summer, even, it is cold if the sun does not shine. The houses are made of brick and plaster, and in winter do little toward keeping the people warm. It is possible to live more comfortably in a tent than in an ordinary Cape house; for a fire will keep a tent dry, but it only makes the damp walls of a house steam. Moreover, wood is very expensive in South Africa,



A TYPICAL DUTCH HOMESTEAD.



TRAVELING BY OX-WAGON.

so much so that people speak of it as "a penny a sliver." Coal, too, is very dear. Therefore the people do not depend so much upon fires to warm them as upon exercise and warm clothing. The Dutch, especially, are very hardy; and, considering that they were the first to settle in South Africa, their simple wants and necessities still govern more or less the import from foreign countries. In the midst of winter, when the roads are often flooded, the Dutch schoolboys sometimes take off their shoes and stockings and wade to school. This vigorous exercise really makes them warmer than the children who ride.

I have often wondered why it is that the Boers have such splendid physique; for many of their habits kill other people who are less strong. They live almost entirely upon meat and bread, drink a great deal of coffee and beer, and are very fond of sweets. Sometimes they even cook potatoes in a syrup, while their bread is made from sour dough, the only leaven they have. If the bread becomes too sour, they put in soda. They also eat many times a day, and every up-country town goes to sleep after dinner. The

shops are closed, and all the people turn in for a nap. Such a life soon uses up any ordinary man, but not so the Boer.

It is astonishing what he has endured to obtain his country. In the early part of this century the English began to govern South Africa, and it soon became evident that their rule would not suit the Boers. What did the Boers do? — They put their few belongings into bullock-wagons, and off they "trekked" across the Orange River to find a new home. Party after party of these Dutch farmers perished in the effort to settle the country. They were attacked by the natives, by fever, and by famine, and although many died, still the remaining ones did not lose courage, but became the hardy Boers so well known to-day. What makes them so strong? Is it not their outdoor life, the hearty exercise which they enjoy? They are also a very sociable people, and no doubt a neighborly life helps to make them better than men who have time for nothing but business.

The people of South Africa know very little about sanitary reform. Even the natives do as they do more from necessity

and custom than from the knowledge that a thing is right or wrong. In their primitive home they live in very simple houses, and eat plain food, but as soon as they come into contact with the white man, they adopt his habits and customs. A few years ago, when the rinderpest spoiled South African beef, the people of Cape Town came together in large numbers to discuss the situation, but when it was suggested that instead of meat they eat peas,

jam, and tea. Many a girl goes to the shop in the morning with only biscuit and tea in her stomach, and her thin, sallow face tells the story. Generally speaking, however, the people who have grown up in South Africa have better health than those who come there from outside. Foreigners do not always adapt themselves to the plain life which the country offers; they miss the luxuries and comforts of home, and in their effort to live as they



A NATIVE HUT.

beans, and lentils, it was too much; one after another arose and left the hall. Now, too, vegetarianism is but little known. The apparently well man sees nothing in it. Jams and custards are a Cape favorite. The Cape jams are known everywhere, while custard and wine is a common dessert. *Confete* is another sweet which the people like. It is made from watermelon rind stewed in sugar, and then crystallized.

An ordinary breakfast in Cape Town usually consists of eggs, bread and butter,

would at home, often spend all their money, and lose their health, too.

In Africa a stranger must walk when he would ride at home. Ice cream and soda water are not at every turn. He drinks water cool from the mountain, but not iced. He learns to enjoy a straight chair instead of a rocker, and when he gets a vacation, he climbs the mountain, bathes in the sea, or perhaps walks twenty miles to the Cape of Good Hope and back. There is no reason why the South African should not have the best health in the world.

The country is beautiful, and offers many wholesome pleasures. In certain parts a great deal of fruit is grown, and it is also cheap; in the Cape Peninsula, however, fruit is expensive. But ever since the phylloxera ravaged the vineyards of this part of South Africa, farmers have directed their attention to the culture of other kinds, and in time fruit ought to be abundant and cheap.

Hitherto diamond and gold mining have influenced men to invest their money in speculation instead of developing the soil, and consequently many people can not get the right kind of food to eat. Among the various missionaries who go to Africa, the missionary farmer would certainly be



ON THE UMGUSA.

in good place. Let him go forth, then, and break up her fallow ground, and plant it, and show the people how to make the earth yield its increase.

THE CAUSE AND THE PREVENTION OF INSANITY.

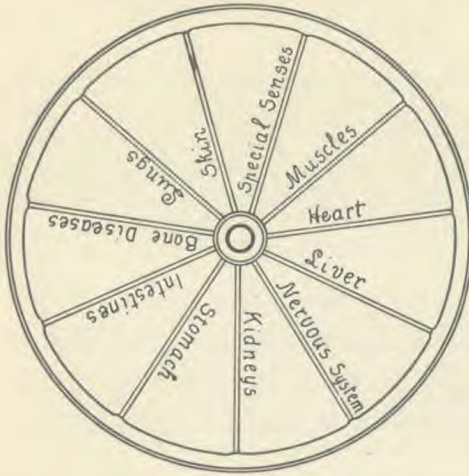
BY DAVID PAULSON, M. D.

OCCASIONALLY the unfortunate mortals who are afflicted with mental disorder have the disease precipitated upon them as the direct result of a sudden shock to the nervous system in one of the following ways: Passing through a railroad accident or being subjected to some unusual emotional strain; experiencing some severe test of physical endurance, as, for instance, close confinement with a sick person night and day for weeks in succession without suitable rest; it is also occasionally one of the complications resulting from some prolonged disease. But after summing up all of these causes of insanity, and even others which might be mentioned, it still remains a stubborn fact that the majority of mental diseases are the result of deliberate seed sowing. When an individual ventures into other paths of life than those established as a part of the divine order, physical bankruptcy results sooner or later, and nature will begin to foreclose her mortgage on the weakest spot in the human economy.

The wheel of life, unlike the deacon's "one-horse shay," does not have all its spokes of uniform strength. This is largely because of a miserable inheritance which has left some of them more fragile than others. The harvest from a wrong seed sowing results simply in the snapping of the weakest one, and this harvest is as progressive as the sowing is continuous, until one too many of these spokes is disabled, and the wheel of life collapses long before nature intended it should, and in most cases because of the ignorance or self-indulgence of its owner. If the weakest legacy which is handed down to an individual happens to be the kidneys, then persistent violation of nature's laws will sooner or later bring Bright's disease as an unwelcome visitor. If the stomach is the weakest spoke, then under similar conditions there will be dyspepsia with its train of evils. Or if the livers of our forefathers were ruined by high living and persistent doping with calomel, then if we imitate their habits of life, we shall cer-

tainly be successful in ruining this useful organ.

If, however, the most susceptible spoke is the brain, then, as a result of living months and years on pastries and highly



spiced foods, or of the habitual use of whisky and tobacco, or of trying to carry off the waste products with which flesh foods are loaded, or even of small tipping in the way of using tea and coffee; or if perhaps instead of these habits, or in addition to them, the individual is habitually spinning about in the ballroom at the very hours when nature ought to be renewing brain energy by sound sleep, or if the mind is being fevered by pouring into it a

putrid stream from some fascinating novel, when instead it ought to have healthful gymnastics in the way of planning to benefit humanity,— then, by these and a score of other ways, insanity is invited, and that such invitations do not go unheeded the crowded condition of our insane asylums bears only too terrible testimony.

The keynote of the prevention of insanity is radical reform, returning to the simplicity of our forefathers in all the various habits of life, involving a simple and nutritious diet, the laying aside absolutely of all stimulants, the taking of plenty of vigorous exercise in the open air instead of reclining on sofas or holding down office chairs nearly all of our waking moments, accustoming ourselves to the beneficial and vigorous effects of tonic hydrotherapy, so that the nervous system may have the benefit of a healthy stimulus which tends to increase its natural vigor. In spite of every effort to ignore the fact, insanity is alarmingly on the increase in all civilized countries, and this of itself should be a sufficient incentive to lead us to adopt right habits of life in order that we may reap the natural vigor and health that nature intended we should, instead of a palsied brain which will require for its environment the gloomy walls of an insane asylum.

TRUTH.

BY G. C. TENNEY.

NO gift of God is more precious than truth. Every phase of truth is an emanation of the divine mind. There is not a truth in existence that has not God for its author. Truth contains the elements of life, purity, nobility. Truth and wisdom are twin virtues. They form the atmosphere of the dwelling place of God and the basis of all his work. There is but one family of truths, of which

every truth in existence is a member, and every truth in existence is in the most perfect harmony with every other truth. No truth is redundant. Every principle of truth is an essential element in the formation of a symmetrical character. That which distinguishes the character of God from human character is the fact that God is cognizant of all truth,— every truth is represented in him; while

in the human being, truth is circumscribed by the limits of his perceptions, and is mingled with error.

He is most like God who has the fullest and purest conception of truth, and in whose life the truth has fullest expression. To attain to this distinction we have a task which calls for the fullest exercise of our noblest talents. All around us lie heaps of doctrines, theories, traditions, superstitions, mingled with truth and error. To select the true, to reject the false, to cut loose from tradition and superstition, to detect fraud and humbug, to battle with selfish propensities, and to stand for pure, unadulterated truth, is the highest calling of mankind; but it is a battle that comparatively few have the courage to fight. None, however, can expect with any show of reason to be accounted faithful who have not consecrated their powers to the struggle. This is not a battle for personal advantage, but a strife for heaven and humanity. The example of self-denial for truth's sake is an inspiring one. By it the world has been preserved from ruin. By it every step in advancement has been made.

Every man carries with him continually two distinct intelligences. Each of these is determined to assume control of

the life, and they are contrary one to the other. One is animated by the impulses of the body. These impulses clamor for the gratification of the flesh, for natural pleasures, for selfish aggrandizement. The other receives its impulses from without the body. They come from above. They are unselfish, pure, noble. They call for self-restraint and self-denial. It is along the lines of this consciousness, the spiritual sensibility, that truth lies. Error crowds the pathway of the fleshly mind. He who would walk in truth must be prepared to deny self. Self-denial lies at the very threshold of Christian experience, as indeed it does at the doorway of every reform.

People who live for truth will be mocked by the selfish crowd as victims of a fad; but the difference between the truth and a fad is as high as heaven is above the earth. God will vindicate the truth in every respect, and will vindicate those who stand with the truth.

Truths which relate to our physical well-being stand with all other truths. They are God's gift to men as truly as is the revelation of moral principles or a moral and spiritual Saviour. He who despises these hates wisdom, and he that hates wisdom wrongs his own soul.

THE WAYSIDE INN.

I HALTED at a pleasant inn,
As I my way was wending;
A golden apple was the sign,
From knotty bough depending.

Mine host — *it was an apple tree* —
He smilingly received me,
And spread his choicest, sweetest fruit
To strengthen and relieve me.

Full many a feathered guest
Came through his branches springing;
They hopped and flew from spray to spray,
Their notes of gladness singing.

Beneath his shade I laid me down,
And slumber sweet possessed me;
The soft wind blowing through the leaves
With whispers low caressed me.

And when I rose and would have paid
My host so open-hearted,
He only shook his lofty head;
I blessed him and departed.

— *Our Dumb Animals.*

THE EFFECT OF ALCOHOL ON THE NERVOUS SYSTEM IN THE LIGHT OF RECENT SCIENTIFIC RESEARCH.

BY W. H. RILEY, M. D.,

superintendent of the Colorado Sanitarium, Boulder, Colo.

THE evil effects of alcohol upon the body become more and more apparent and conspicuous when the searchlight of modern scientific methods is focused upon this subject. It has been well known to physicians and scientific men for a number of years that the use of alcohol, even in moderate quantities, when long continued, produces various diseases of the nervous system, such as paralysis, insanity, apoplexy. In hundreds and even thousands of cases of those who have been addicted to the use

of this poison for any considerable time, by post-mortem examination, severe and distinct organic changes have also been found in the brain and other parts of the nervous system.

The immediate evil effect of alcohol in moderate quantities, however, has not been so clearly understood or appreciated until more recent methods of study have been applied to this line of investigation. The fact is now thoroughly established that alcohol, even in small quantities, does produce serious structural changes

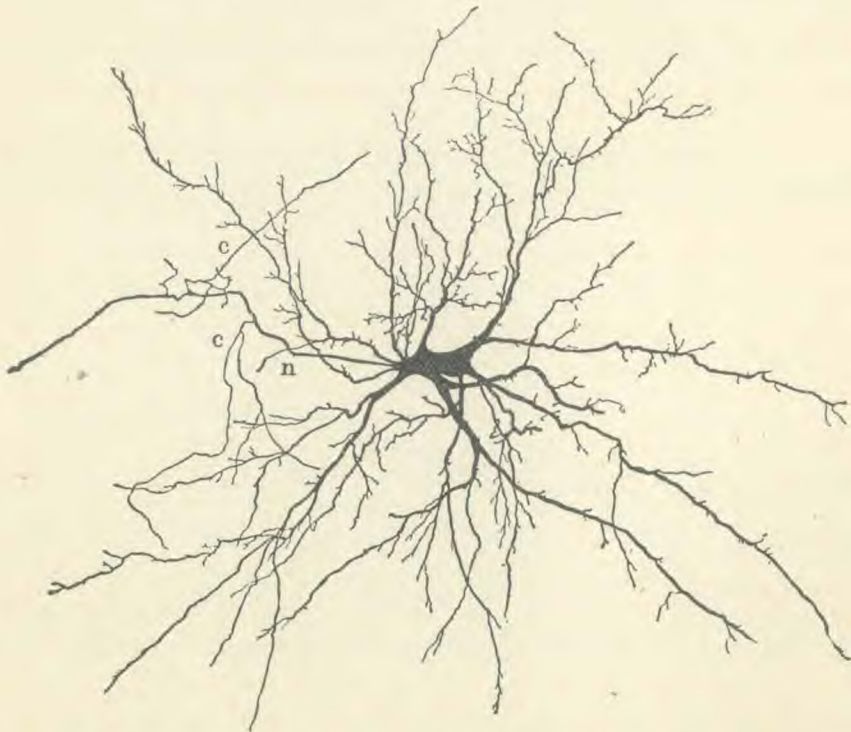


FIG. 1. A healthy nerve cell of the brain of a cat: n, single axis cylinder, which extends some distance outside of the drawings, and in some cases in the nervous system of man, may be two or three feet long; c, c, are collateral branches of the axis cylinder. The other branches of the nerve cell are called the protoplasmic branches, and extend only a short distance from the body of the cell.

in the different tissues of the body. These organic changes can be demonstrated in the human body after death caused by acute alcoholic poisoning, and in the bodies of lower animals that have been given moderate quantities of alcohol, and killed a few hours after the administration of this poison, the cells of the body being then subjected to a careful microscopical examination.

The purpose of this paper is to bring out clearly, if possible, and to emphasize the fact *that alcohol in moderate quantities does produce, in a short time, serious organic changes in the nerve cells of the brain and central nervous system.* To make the matter clearer it may first be necessary to place before the mind of the reader some facts with reference to the finer anatomy of the nervous system, and the internal structure of the nerve cells which form its essential tissue.

The central nervous system, consisting of the brain and spinal cord, is made up of different kinds of tissue: First, the nerve tissue proper, which is composed of nerve cells; second, connective tissue, which forms the framework of the nerve system, and the supporting tissue for the cells; third, the blood vessels and lymphatics, the function of which is to carry food to the nerve cells and to the other tissues of the brain, and also to carry off waste matter.

Figure 1 is an illustration of a nerve cell, and shows how the nerve cell is made up of several different parts. It takes all these different parts and processes to form a nerve cell in its entirety. This cell, or nerve unit, is usually considered as made up of two parts in general: first, the central part, described as the body of the cell; and second, the various branches or processes that are attached to the body of the cell, and extend out in various directions from it. From one standpoint, the body of

the cell is, perhaps, the more important part, as it has control of the life and nutrition of all the other parts and branches of the nerve cell connected with it. The branches, or processes, which extend out from the cell-body, are attached to the central part, or body, in somewhat the same manner as the branches of the tree are connected directly with the main trunk. As the branches of the tree are a part of the tree, so these branches, or processes, of the nerve cell are really a part of the nerve unit. As will be seen in Fig. 1, these processes extend out in nearly every direction from the body of the cell. There is usually one process much longer than the others, and this may be two or three feet in length. In the illustration this is marked n. Its entire length is not represented, for this would be impossible; but in many cases, as, for instance, in the nerve cells in the lower part of the spinal cord, this particular branch extends down the lower limb, and ends finally in the skin on the sole of the foot, in this case being three or more feet in length.

These nerve cells, as we term them, are the units or fundamentals which make up the whole nervous system. They may be looked upon as real living animals, for such, indeed, they are,—very small, to be sure, so small that we must have a powerful microscope to see them; yet these little bodies are alive and active, and take in food from the blood. Each cell has its peculiar duties to perform, the same as individual members of society have each their particular place and vocation. These nerve units have various shapes, forms, and sizes, many of them being of the same shape as that shown in the illustration; others are star shaped, some are flask shaped, some spindle shaped, and still others have irregular forms of various kinds. These nerve

cells, as before stated, are microscopical in size, but some of them are comparatively large, and in some of the lower animals they are sufficiently large to be seen by the naked eye. In order to study their shape and form, their internal structure, and the various changes that occur in them as the result of poisons like alcohol, and disease processes, it is necessary first to color or stain these nerve cells with a dye so that they may be better seen, and then to observe them carefully under a

powerful microscope. There are millions of these little living nerve units in the brain and nervous system, and it is by their activity that we are enabled to feel, to see, to hear, to smell, to move; in short, to perform all the functions of intelligent men and women. When-

ever they become diseased, or their function is in any way impaired, some of our senses, or our faculties, or the function of some organ in the body, become impaired or destroyed. In order that these microscopical bodies may do their work properly, it is necessary that they be kept perfectly healthy, and that they have the proper amount and the right kind of food.

We may regard each of these little nerve bodies as a minute machine, the purpose of which is to transform into nerve energy the energy that we take into our bodies in food. This nerve energy is a real form of energy, and not a myth. The nerve current travels along the nerve

fibers that are attached to the body of the nerve cell, and passes from the brain and the central nervous system out, in one instance, to the muscles, to make them contract, or along another nerve path to the heart to keep it in motion. Other currents travel along still other lines to the stomach and to the bowels, and to all the different organs of the body, keeping them stimulated and active and performing their functions properly. No mechanism conceived by the mind of man is so complex

and so delicate in its make-up as these little nerve cells. It is really wonderful how well they retain their integrity under so many varied and harmful conditions. In order to appreciate more fully how delicate the make-up of these little nerve cells is, we may notice briefly some of the main points in their internal

structure, as revealed by the microscope when they have been properly stained for this study.

Figure 2 shows the body of a nerve cell with part of the processes that are attached directly to the body, but it does not show all of the processes, as does Fig. 1. One may notice in this first a little black point in the center of the cell. This is known as the nucleolus. Outside of this is another larger space, showing white in the illustration, which is known as the nucleus. Scattered throughout this white space is a fine meshwork composed of delicate nerve fibers, which is usually spoken of as a nucleo-reticulum.

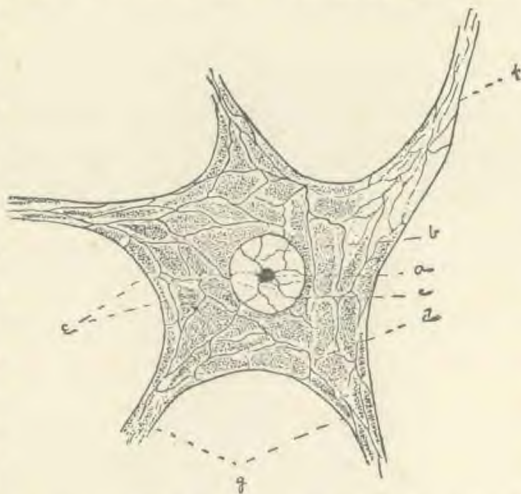


FIG. 2. (After F. R. Bailey, in *Medical Record*.) The body of a human nerve cell, showing the internal structure of a cell, and the beginning of the different branches or processes which extend out from it: *a*, nucleolus; *b*, nucleo-reticulum; *c*, nuclear membrane; *d*, cyto-reticulum; *e*, chromophilic bodies; *f*, axis cylinder process; *g*, protoplasmic processes.

Outside of the nucleus is the principal part of the cell, known as the cytoplasm. We may notice in this a network of nerve fibrils similar to those seen in the nucleus. This is called the cyto-reticulum. Scattered through the cytoplasm of the cell are small masses of matter which stain or color very readily with certain dyes, and are therefore called chromophilic bodies. They are represented by the dark-colored patches within the cell body. All of these different parts of the body of the nerve cell are shown in Fig. 2. When seen under the microscope these chromophilic bodies have a somewhat granular appearance. They are supposed to be the food matter for the cell, and are composed of highly complex and elaborated substances that have been transformed by the cell from the food substances brought to it by the blood current. During our waking and active hours we are constantly using up nerve energy. This nerve energy is manufactured within these little nerve cells out of the energy that is stored up in the chromophilic bodies that we are now describing.

When one becomes fatigued by exercise, the energy in the nerve cell is nearly all used up, and we find by examination of the lower animals after they are fatigued

that these chromophilic bodies are very much lessened in number and in quantity, and the nerve cell is very much smaller, and irregular in outline. This would seem to emphasize the fact that the little nerve cell is a very perfect and complex machine for transforming the nerve energy out of the latent or potential energy that we take into our bodies in our food. These chromophilic bodies are more susceptible to influences, perhaps, than any other part of the cell, and consequently when any poison like alcohol comes in contact with the cell, the effect is first seen by changes in them. In fact, the changes which occur in these chromophilic bodies furnish us a very delicate test of the effect of different substances upon the nerve cells of the nervous system.

The fibrous network, or reticulum, in the body of the cell, is that part which has to do with originating and transmitting nerve currents. This part of the nerve body is not so sensitive to different substances and poisons, and consequently changes are not observed in these fine fibrils so quickly as in the chromophilic bodies. Nevertheless they are very delicate, and their structure is very easily affected by alcohol and other poisons that may be brought to the cell in the blood current.

(To be concluded.)

WELL NAMED JUDAS.

BY T. E. BOWEN.

UNDER the heading, "Woolly Judas Slain for Turning Saint," appears an interesting piece of news from the great Armour stock yards in Chicago. If the better nature of a dumb animal could be so awakened as to cause him to submit himself to the cruel knife of the butcher, rather than continue his ques-

tionable occupation of leading thousands of his fellows to the same doom, ought there not to be left in the human heart some chord of sympathy to be touched as the thousands of dumb animals pass by to their execution,—all to satisfy an appetite that in no way contributes to the health of its possessor?

“CHICAGO, March 24: Judas Iscariot, for eight years a traitor to his fellow sheep, turned saint this week, and paid the penalty of death for it. He was slain because his awakened conscience would not permit him to continue his old game of leading innocents to slaughter.

“Judas was a big wether. He came from Wyoming. At his *début* in the Armour sheep pens at the stock yards, he attracted no attention; but when the time came to drive a thousand sheep to slaughter, he placed himself in the lead, and walked bravely to the slaughter pen, but at the door he turned to one side, and walked back to his old quarters. His victims kept on, and were soon reduced to mutton. Next day another thousand sheep were told off, Judas among them. Again he marshaled the host, and led it to the threshold of the shambles, and stood to one side while the thousand went to their death.

“Judas instantly became a favorite. He was petted, fed on the best, and given cozy quarters. He saved the men hours of work chasing sheep. If the woolly victims were to be transferred from pen to pen, Judas would be sent among them and they followed his lead. During eight years he led uncounted thousands of his kind to slaughter. They never lost faith

in him until too late. He knew all the intricacies of the pens. In and out, across and beyond, up to the slaughter he marched at the head of the sheep, and at the door invariably turned ‘about face,’ and watched the others go to their doom.

“He waxed big and fat, and grew in knowledge. Last month he began to show symptoms of despondency. It was observed that a suspicious moisture was in his eyes when he did his daily ‘stint.’ Once, instead of leading the sheep to slaughter, he balked, and refused to take his place at the head of the procession. The butchers petted and fed him, but an ugly temper developed. Finally he refused absolutely to play the traitor. When placed in the sheep pen, he started a rebellion, and the butchers aver that he told the sheep what their fate was to be, because it was almost impossible to drive them. He was placed in solitary confinement for several days, and then put back at work. He was worse than ever, and could not be brought to reason.

“Then sentence of death was pronounced. He was led up to the slaughterhouse, resisting at every step. Two of the butchers pleaded for a reprieve, but in vain, and there, on the spot where he had sent so many to be sacrificed, his own life was taken.”

THE HEALTH OF THE BUSINESS MAN.

BY CHARLES T. HOWARD.

EXERCISE, as every one knows, is a great aid to digestion, and when a business man is deprived of it by sedentary employment, digestion goes on more slowly, and if eating is done in the ordinary way, with the usual combinations, decomposition takes place in the intestines, and poisons are formed. These, being absorbed into the blood, make it impure, paralyze the nerves and brain to

a degree, and render thinking difficult. To remove these poisons, alcoholics, blood purifiers, and acid drinks are often used, which, according to their strength, injure the kidneys and other tissues with which they come in contact.

In order promptly to remove imperfectly digested food, the business man often resorts to medicines. These are more or less ineffective, and enlargement of the

liver, the bowels, and the kidneys takes place. When there is a cessation of drinking, poisons are still absorbed, and more rapidly deposit themselves in the tissues throughout the body. The business man wonders why he can not move about so quickly, why he is losing his elasticity; he tells his friends he believes he is growing old. Since this state of things is brought on through lack of exercise, a simple remedy is more exercise. This demands time and energy, but if one is not overworked when taking it, it gives more energy than it requires. The proprietors of money-making concerns ought to allow their employees time for exercise. Some of them do, and find that it pays.

Suppose a business man can exercise but very little, is there no other help?

The digestive system is a unit, and when much work is put upon one part of it, strength is taken from another part. If the digestion of two meals is not yet complete, and if much food is put into

the stomach, force is withdrawn from the intestines to the stomach, and digestion not being properly completed, poisons are created, and taken into the system.

Eating nothing but fruit for supper permits the intestines to do their work more completely, and the mouth and throat are cleaner in the morning, the appetite is better, the head clearer. If dinner is eaten at night, nothing but fruit for breakfast, or fruit and bread, or crackers well chewed, without fatty material, the digestive system will be given a chance to recuperate. A trial of one of these plans should be made by those whose blood is impure, or who deem medicine or alcohol necessary.

Regular hours for rest should be observed. Those adopting the plan should not allow themselves to do an extra amount of work because their heads are clear, for this will wear them out, and they may wrongfully lay the blame on the new way.

UNHEARD.

ALL things are wrought of melody,
Unheard, yet full of speaking spells;
Within the rock, within the tree,
A soul of music dwells,—

A mute symphonic sense that thrills
The silent frame of mortal things;
Its heart in the ancient hills
And in each flower sings.

To harmony all growth is set;
Each seed is but a music note,
From which each plant, each violet,
Evolves its purple note.

Compact of melody, the rose
Woos the soft wind with strain on strain
Of crimson; and the lily blows
Its white bars to the rain.

The trees are pæans; and the grass
One long, green fugue, beneath the sun;
Song is their life, and all shall pass,
Shall cease, when song is done.

— *Madison Cawein, in Truth.*

A GOOD HEALTH CENTENARIAN.



"FATHER GIFFORD," whose face is shown in the accompanying illustration, was born in Rochester, Mass., Sept. 22, 1798, and is therefore at

this date, August, 1900, nearly 103 years old. The members of his family and the family physician give as the secret of his long life a careful and healthful diet. From his earliest years, whenever any principle of healthful living was brought to his attention, he adopted it immediately, and adhered to it unwaveringly. He never used liquor or tobacco, but when young he drank coffee at breakfast. Being told by the family physician, however, that this habit caused the trembling of his hands which had troubled him increasingly, he at once discarded coffee en-

tirely, and would never afterward allow it in his house. This happened in 1836.

Father Gifford long ago gave up the use of meat. Before that time he had frequent very ill attacks, and was laid up one winter with the rheumatism; but after banishing flesh and all rich foods from his table, he had no more trouble either from rheumatism or the sudden spells.

He has been sick very little, and has used few drugs. His usual diet is oatmeal and graham bread, corn meal served in different ways, fruit, and vegetables.

This remarkable vegetarian centenarian is unusually active and vigorous for his years. He has good eyesight, and spends much time in reading. He seldom lies down during the daytime, but sometimes drops asleep while reading. He works in the garden, cultivates small fruit, and does many little odd jobs. He is six feet in height and well proportioned. He has worked hard all his life, and is a fine example of the results of healthful living.

THE HEATING COMPRESS OR PACK.

BY J. H. KELLOGG, M. D.

THIS most valuable hydiatic procedure consists of a thick moist linen compress well covered with flannel, with or without an outer covering of impervious material.

The heating compress may be applied to any part of the body. Its most useful applications are to the trunk, the chest, the neck, the spine, and the joints.

The principle upon which the effects of the heating compress depend is the production of reaction by a primary cold application, and the accumulation of heat by protecting the cold compress in such a

manner as to prevent, wholly or in part, the escape of heat by means of radiation or evaporation.

The degree of protection may be regulated by the number of thicknesses of flannel applied as a covering, or if complete protection is desired, by the application of an oilcloth, rubber cloth, or some other impervious material. Oiled paper may be used in an emergency, in the absence of anything better. In all cases it is necessary to cover closely the edges of the compress so as to prevent the formation of air currents at any part,

as such currents produce cooling by evaporation. Even though the area thus cooled may be very small, the refrigerant effect produced may be sufficient greatly to disturb or even wholly destroy the legitimate effect of the compress.

The degree of protection will be regulated by a number of conditions; as,—

1. If the patient's temperature is elevated and the skin hot, one or two thicknesses of flannel sheeting or one thickness of flannel blanket will suffice, as the purpose is simply to limit evaporation so as to prevent too rapid cooling. When the surface is cool or cold, even though the temperature may be elevated, several thicknesses of flannel (three or four) may be employed. The covering should be sufficient to insure slight warming of the compress, but not enough to prevent drying by evaporation.

2. When the purpose is to control a deep-seated inflammation by producing fluxion of the parts, the compress being changed once in thirty or forty minutes for this purpose, the compress should be covered with flannel, so as to cause prompt reaction.

3. When it is desired to produce the effect of a poultice by the fullest possible accumulation of heat and consequent dilatation of the surface vessels, the compress should always be protected, not only by several layers of flannel, but also by some impervious covering, as thin mackintosh, rubber cloth, or oilcloth, or, in the absence of some convenient, impervious material, ordinary newspapers may be employed. The efficiency of paper may be increased by saturating it with oil, wax, or paraffin. This is the protected heating compress proper.

The rate at which the heat accumulates in the heating compress depends, of course, primarily upon the degree of protection; but many other factors are involved; as, the temperature of the water

employed, the amount of water left in the compress, the reactive powers of the patient, and the condition of the cutaneous circulation in the surfaces to which the application is made.

Other things being equal, very cold water produces a quicker and more vigorous reaction than water at a higher temperature. The more water the compress contains, the longer the time required to heat it, hence the longer the delay in the establishment of the reaction. If the protection is but partial, evaporation may take place at such a rate as to prevent accumulation of heat, the heat being dissipated by the evaporation as rapidly as it is generated. If the compress dries rapidly, this fact is evidence that rapid evaporation is taking place; and of course the heating of the compress will be much less than when it is protected by an impervious covering.

The degree of reaction also depends very much upon the condition of the patient. Bloodless, very feeble patients sometimes react very slowly, and in a particular case the effect of a well-protected compress may not be greater than that of a partially protected compress with another person. This fact must be constantly considered in giving directions respecting the application of the heating compress.

In persons in whom reaction takes place very slowly after the application of the compress, so that uncomfortable chilliness and other disagreeable symptoms are experienced, the surface with which the bandage is to come in contact should be vigorously rubbed with the dry hand until red, or with the hand or a friction mitt dipped in water at a temperature ten or fifteen degrees below the temperature of the bandage.

The colder the water, the drier should be the compress. The smaller the compress, the sooner will reaction occur.

During the warming-up period, before superheating begins, the effect of the heating compress is highly tonic, exciting all the functions of the skin and the internal parts connected with the area treated.

If it is desired to emphasize the tonic effect of the application, it is only necessary to lower the temperature and make the covering relatively less, so that excessive heating may not occur.

If the effects of heat are desired, with the strongest possible revulsive effects, the moist bandage should be very warmly covered with blanket flannel, and the impervious protection carefully applied. It may be well to remark that when the greatest heat accumulation is secured by the impervious covering, the skin is most strongly stimulated, and the most powerful derivative effects are induced; but when the impervious covering is omitted, vascular activity and tone being maintained in the skin, a strong tonic effect is exerted upon the viscera, and most powerful fluxion effects occur. These facts should be borne carefully in mind in the therapeutic application of the heating compress, especially in its use in the form of the wet girdle.

This measure is indicated in *insomnia*, *indigestion*, *constipation*, *bronchial catarrh*, *laryngitis*, *articular rheumatism*, and a great variety of other conditions.

The protected heating compress proper should be used in cases of *old joint trouble*, in which the heating compress is used to promote absorption of exudates; in cases of *chronic bronchial catarrh*; to relieve cough in *tuberculosis* and spasms of the bronchioles in *asthma*; for the abdominal compress and the leg compress when strongly derivative effects in favor of the cerebral circulation are desired; to the head for the relief of *acute coryza*, *headache*, *vertigo*, or *insomnia* due to cerebral anemia.

The protected compress should also be used for the gastric or abdominal heating compress in cases of *hypopepsia*, in *hyperesthesia* of the abdominal sympathetic, and in cases in which patients chill easily, and whose circulation and heat-making powers are so sluggish that the compress does not become sufficiently heated to accomplish the result desired unless evaporation is wholly prevented.

One of the most practical and effective applications of this compress is in the treatment of chronic rheumatism for the relief of pain and to restore lost joint motion. Fomentations applied night and morning, followed by the heating compress, to be worn during the succeeding twelve hours, constitute a good method in the treatment of *rheumatic joints*.

A very important use for this procedure is in the treatment of *pneumonia*. The compress should be large enough to cover the whole chest, and should be renewed as soon as well warmed, so as to encourage energetic fluxion in the lungs.

The heating compress likewise finds useful employment as an application to the trunk in *acute* and *chronic peritonitis*, *acute ascending paralysis*, *congestion of the spleen*, *infectious jaundice*, *appendicitis*, *intestinal catarrh*, *gastric ulcer*, *Addison's disease*, *chronic migraine*; to the spine in *locomotor ataxia* and *spinal neuralgia*, *hyperpepsia*, and as a local measure in *muscular rheumatism*, *chronic appendicitis*, *chronic ovaritis*; to the scalp in *anemic insomnia*; and as a derivative measure in *acute coryza*.

Few measures of treatment are capable of producing more disastrous results than the heating compress when improperly used, and especially when so applied that prompt reaction does not occur. The slow but prolonged chilling produced by the evaporation resulting from the loosely applied or imperfectly protected heating compress, when not indicated as a thera-

peutic measure, is certain to result in visceral congestion and in the production of an aggravation of the condition for which it is applied, with the production, in many cases, of rheumatic pains and general results liable to cause discomfort.

The effects, in fact, are precisely the opposite of those which it is desired to obtain. There is no other hy-driatic procedure the success of which is more wholly dependent upon exact technique.

WHAT IS BETTER THAN A MINERAL SPRING?

BY DAVID PAULSON, M. D.

THERE are many who honestly believe that almost any sin against the body can promptly and satisfactorily be atoned for by a few weeks' sojourn at some famous or infamous mineral spring. The moral courage that might have been used to resist temptations to violate nature's laws is now sufficiently aroused to enable the physical sinner to swallow daily large quantities of more or less ill-smelling or unpleasantly flavored mineral water. Pure water has always been recognized as a universal cleansing agent, but just where and when the notion became prevalent that its virtues in this respect would be greatly increased by its being saturated with various mineral substances is not now definitely known.

Water-drinking is virtually a bathing of the tissues on the inside, and it is a lamentable fact that thousands who are scrupulously careful with reference to external cleanliness, almost entirely neglect this internal bathing, which is the more important of the two.

Much of the fluid which is drunk nowadays is so heavy with poisonous substances in the form of liquor, tea, or coffee that it can hardly be expected to accomplish much in the human system.

Thousands of those who annually flock to mineral springs are very much benefited, because merely changing the routine of life for a few weeks is a balm of Gilead to many a worn-out, nervous wreck, and the draining through the system of large quan-

ties of even brackish water does carry away a certain amount of waste products which, however, in most cases, could have been eliminated more effectually by drinking the same amount of pure water from the home well.

The ingredients of some of these mineral waters are so irritating that they do temporarily cause the kidneys to perform an increased amount of work, but why should such faithful organs as the liver and the kidneys be stirred up by these irritating substances? They are not lazy, but tired. The so-called "torpid" liver is a worn-out liver, and the same thing is true of the kidneys; instead of swallowing various mischievous fluids, we might better manifest our gratitude to these organs for their faithful efforts to keep us alive by a radical change for the better in our daily bill of fare.

Professor Schafer, of London, in his recent great work on physiology, calls attention to the important fact that experiments have indicated that the most common constituents of mineral waters diminish not only the quantity but also the quality of the pancreatic juice, while distilled water, in other words, pure water, increases this secretion. The pancreatic juice is the digestive fluid *par excellence*, and anything that interferes with or limits its usefulness, is striking a blow at one of the important functions of the human body.

There is a deep-rooted delusion abroad

that air is improved by adding tobacco smoke to it; that mustard, pepper, and the whole catalogue of irritating flavors can be substituted for those naturally present in food; for every food has a normal flavor of its own, just as each flower has an individual odor, although many have so far paralyzed the delicate nerves of taste as never to recognize that substitution of the unnatural for the natural and of the artificial for the real is the spirit of the age. So it is not surprising that the same principle should be applied to the matter of drinking water,

and that the notion should be entertained that in some way its usefulness to man can be increased by destroying its purity.

The average invalid needs not simply a temporary renovation, which can in some cases be secured by going to mineral springs, but he needs to be lifted above the disease line. This he can accomplish by forsaking once and forever the habits of life that have been dragging him down; and then by utilizing such applications of rational remedies as will cure the whole man.

THE PLAGUE IN HONOLULU.

BY EDWARD L. CLARK,

Honolulu, H. I.

AN odd superstition prevails among the Hawaiian natives that the appearance of shoals of red fish called *aalalauwas* is always the precursor of some dire calamity, such as the death of a royal personage, or the outbreak of an epidemic.

Old white residents, while failing to offer any intelligent reason for the phenomenon, acknowledge that past experience has proved its accuracy. These fish were seen in quantity prior to the cholera outbreak in Honolulu a few years ago; and more lately, just before the recent bubonic plague made itself known, large numbers were observed off the island of Kauai, over five hundred being captured by native fishermen. This is mentioned simply as a curious circumstance, the solution of which is left to some piscatorial scientist. Notwithstanding every precaution taken by the board of health to avert a possible visitation of the dreaded scourge, on Monday, Dec. 12, 1899, the plague made its presence known in the community. On that date a Chinaman of Honolulu, employed as

bookkeeper, was taken sick, and died. An autopsy held on the body caused the board of health to pronounce the case one of genuine bubonic plague. On the same day a South Sea Islander succumbed to the fatal malady. The news quickly spread, and the quiet city of Honolulu was soon in a state of ferment. On December 18 a meeting of the Medical Association took place, when a discussion of the situation was entered into in detail.

The characteristics of the plague are thus described:—

“Bubonic plague is an infectious disease due to a bacillus. It is assumed that the infection is acquired through the food, through the lungs, and through abrasions of the skin. The period of incubation is ordinarily from five to seven days—in rare cases, longer intervals. The symptoms are those of virulent poisoning, accompanied with fever, severe bodily pains, headache, some delirium; dry, furred tongue; the glands of the groins, armpits, or neck become swollen and painful, and if the patient does not succumb to the intensity

of the poison, abscesses form in these swollen glands. Vomiting, sometimes bloody in character, occurs. There is a characteristic expression of the face, recognized by those who have seen cases as similar to 'cholera face.'

"The same precautions are efficient in plague as in other contagious diseases; *viz.*, eating or drinking nothing not previously well cooked; the use of disinfectants, such as bichloride of mercury tablets dissolved in water, for washing hands and face; and general cleanliness about all habitations."

The plague did not prove to be of a virulent or highly contagious character, as may be seen by the total number of deaths which took place under that head. The mortality was indeed very much smaller than that from any one of several other local abiding causes, such as pneumonia, consumption, or fever, the average mortality for the three months ending with March being at the rate of five a week. Incidentally it may be mentioned that the annual death-rate has wonderfully increased of late years, the months of January in each year from 1895 to 1900, inclusive, showing a mortality per thousand of 49, 51, 52, 71, 93, and 176, respectively. The native Hawaiians head the list of all nationalities here, with an annual death-rate of 69.37 per thousand, consumption being the principal decimating cause.

The bubonic plague germ is essentially a filth germ, every case having been clearly traced to be the outcome of filthy and unsanitary conditions. The germ, which might have been imported in Chinese or Japanese freight, or by rats, obtained a foothold and a breeding place only in the Chinese slums, which were in a notoriously neglected condition. On some premises open cesspits were discovered immediately under the dwelling floor, and in use. With the government at its

back, and the cordial support of the mercantile and general community, the Board of Health immediately inaugurated the most drastic and repressive measures; fire, fumigation, and the destruction of rats being the principal means employed. Blocks of dwellings and warehouses with their contents, comprising in Chinatown alone over thirty acres, were consigned to the flames, as well as blocks in other portions of the city. Immense relief camps were hurriedly constructed, notably Kalihi, which accommodated nearly six thousand people. Several smaller camps were also built, each having its own hospital, medical, and nursing staff. The fact that Chinese and Hawaiians alike, more especially the former, take great pains to conceal their sick friends, largely on account of possible cremation, caused the health inspector considerable and unnecessary annoyance.

By the end of the month of March the plague situation was well in hand, and the fear of any general spreading of the pest was *nil*. If a patient was announced to have contracted plague, the Board of Health, through its physicians, had serum injected in doses of from fifteen to twenty minims.

Serum is a curative, and is the blood of a horse made immune by having been inoculated with plague bacilli culture a sufficient number of times to prevent the animal from responding to the injection. Prophylactic, which is a preventive, was quite largely used by local residents wishing to travel either to the mainland or the neighboring islands. Prophylactic is the bacillus of plague grown on agar-agar, a kind of sea moss, transferred to bouillon soup, in which the germs are allowed to grow a few days, and then sterilized and filtered.

A large area of the city was laid waste; general business, with the exception of certain lines, all but paralyzed;

and over two millions of dollars expended, the latter being entirely apart from fire and other claims requiring settling. A large exodus took place; hampered and restricted, however, by the owners and agents of the various steamers touching at the port, in many instances refusing to take passengers on account of

possible quarantine at San Francisco or elsewhere.

On the other hand, old timers stood by the city, and looked hopefully to the future when Honolulu, the hub of the Pacific, would rise, Phenix-like, from her ashes, and again enjoy her wonted prosperity.

RED BETTY, OR THE SLAUGHTER OF THE DUMB INNOCENTS.

BY MRS. L. D. AVERY-STUTTLE.

CHAPTER V.

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I HAVE been very, very much interested in your story, Red Betty," I exclaimed, "but I fear you are exhausting your strength. Pray refresh yourself once more with this morsel of grass."

In a few moments my wonderful companion again proceeded with her strange story; though I could plainly see that she was very weak and exhausted, and that her breath seemed unnaturally labored, and I shuddered as I thought that, weak and diseased as she evidently must be, she would soon be served up as an appetizing dish upon the plates of my carnivorous people, unless in some manner I could rescue her from the terrible fate.

"Do tell me," I entreated, "were you not very lonely in the forest, so far away from any of your own kind?"

"O no, lady," she replied with a sigh. "I did not stay long enough in my pleasant, shady home among my gentle neighbors to become lonely. O that I could at this moment hide me in the cool, green forest!"

"Why did you not remain, Betty?" I asked.

"I will tell you," she replied. "One evening late that fall, a few weeks after the morning visit of my neighbors, my old

friend Gray Squirrel came hurrying over, his teeth chattering with fright and excitement:—

"O Betty, Betty!" he cried breathlessly, hurrying to my side, as I lay upon a bed of soft, bright leaves. "I have hastened to tell you; they are coming—the hunters are coming! I have heard them talking, and they are coming with their dreadful guns when the sun rises tomorrow. O Betty, Betty! What shall we do? We shall all surely perish!"

"I tried to reassure him as best I could, but my own heart sank in fear. Little Gray hurried off then to warn our neighbors that a hunting party had been formed, and that our peaceful forest would be invaded in a few hours. Then I lay down and tried to sleep, but I could not. Finally, I decided that I would escape if possible. Though young as I then was," said Red Betty, "I knew that if I found my way out of the forest, I would most likely only fall in with some of the human kind, toward all of whom I had learned to entertain a mortal fear.

"At last I started out; I left my pleasant leafy home, where I had spent many happy hours, with a feeling of sadness. The moon was shining dimly through the

forest, and the black shadows thrown by the trees as their rustling branches were lightly shaken by the wind, seemed to my feverish fancy like the forms of an army of terrible giants armed with weapons of death."

"O you poor creature!" said I, remembering vividly a certain night in my childhood when I had become lost in the forest. "Do tell me, Betty, how long did you wander around in the darkness?"

"I suppose it must have been some hours; but at last the autumn sun rose, painting the few leaves which still remained on the trees, all the colors of the rainbow. Still I rushed blindly on. In a few moments I heard the sharp report of a rifle, then another, and another, and I knew that the hunters were upon us. I saw a little way before me the upturned roots of a large tree, and I ran toward it, hoping it might afford me a hiding place. I was none too soon. Scarcely had I crept, shivering with terror, behind it, when there ran past me my old friend, the Deer, his beautiful head erect, and his great liquid eyes filled with terror. Then I heard the deep baying of hounds, and soon the hunters rushed past me. They were so intent upon overtaking the Deer that they did not see me. I did not dare to venture from my hiding place all that dreadful day; but when the shadows began to lengthen, I stole out to get a mouthful of grass, for I was very faint.

"A little to one side a brook babbled noisily over the smooth pebbles, and as I was drinking, I heard a loud shout. One of the hunters had discovered me, and when I turned to run, he was standing very near me. Then I knew that it was impossible to escape. He was carrying with him the limp forms of many of my old acquaintances, and he had a string of squirrels hanging like a bloody girdle, from his waist. But I experienced a thrill of joy, even in my terror, that

Little Gray was not among the gory trophies.

"The hunter tied a rope around my head, and sat down to rest," continued Red Betty. "Shortly the other men came up, and I saw with horror that their day's work had not been without its results. They were dragging after them the dead bodies of some of my Deer friends, among them the poor fellow who had run past me in his mad race in the early morning. The hunters had also bagged numerous birds, and I wondered that it was possible for them to look so pleased and laugh so merrily after such a horrid carnival of blood.

"When they saw me, they were quite astonished, and one of them said: 'Well, Dick, caught a stray, have you?'

"'Yes,' replied the man who had found me, 'yes, I wouldn't wonder if the silly thing had strayed from the herd Mr. Riggs shipped over the river in the summer.'

"'His farm is n't more than a mile or two from your place, is it?' asked the first speaker.

"'It is not far, and—I declare, Bill, she's a pretty little beast. I dare say Riggs will be glad enough to pay me well for my trouble in capturing her. I'll have Sam drive her over in the morning. I remember Mr. Riggs's telling me he had carelessly lost a young red heifer which was quite valuable.'

"'O well, Dick, you're in luck; Riggs will pay you well for finding her.'

"Then," continued Red Betty, "I learned my fate. I was very glad, for I knew that I should not have to die immediately.

"The next morning the boy Sam drove me over to my new home; but I congratulated myself that I had at least enjoyed one sweet, pleasant summer, the memory of which could never be taken from me. Mr. Riggs was very glad indeed to see me.

“‘Yes, this is my little Red Betty,’ he said kindly to the boy; ‘I was very careless to lose her. I did not miss her until I had turned the herd out to pasture, when I got home, and I never could imagine how she strayed from the others. But *I* knew very well,” said Red Betty. “I knew *how* and *why*. Then Mr. Riggs paid the boy some money, and he went home.

“I was turned into a large field where there were many others of my kind, and here we were kept for a long time. Mr. Riggs was quite kind to us; during the cold winter nights he tied us in nice, warm sheds. But Mr. Riggs had one fault. Though he was naturally a tender-hearted man and a kind master, he did not refuse to do a very dreadful thing for money.

“One day there were a number of his cattle taken quite sick. Master did what he could for them, but when he found that he could not save them, he sold them to some men who offered him money, when he knew that the men would drive the poor creatures, who could scarcely walk, at once to the slaughterhouse, and you, kind lady, and others who are as unsuspecting and dainty as you, would eat their diseased carcasses. One of these animals told me herself, that, although she was looking well and was in good flesh, she was feeling so weak and feverish that she could hardly walk. I did not know until a long time afterward where they were going when they were driven away.

“One day in the winter, when I went up to the tub by the shed to get a drink, I heard a peculiar, chattering noise, which sounded wonderfully familiar. I looked around, and there in the yard of the house where my master lived, I saw a queer little box with a wheel in it, and to my surprise there was my friend, Little Gray, turning the wheel as fast as his tiny legs could go.

“He saw me and at once began telling me his story. He had been caught and put into the box by a boy who lived with Mr. Riggs. He was very homesick, he assured me, and wiped his eyes with his little paws, as I had often seen him do before when recounting the cruelties of the human race. He said he could not imagine why he was shut up and deprived of his liberty, for he knew he was of no value to the boy who caught him.

“I was sorry enough for my old friend,” said Red Betty, “but could do nothing to help him. I saw that he pined day after day for his liberty, and at last one cold morning when I came up to see him, after I had got my drink, the little fellow was lying stiff and dead on the bottom of his cage, which to him had been only a prison.

“One evening late in winter, when the snow was on the ground, and the thick crust upon it glittered with frosty diamonds, I heard a moan of agony coming from the barn. As the door was open, I stepped inside and looked around. There on a little pile of hay in the corner lay a beautiful young fawn. I was very much surprised,” said Red Betty, “and stepping close to her side, I thought to ask her if she was ill, and why she was here, so far from her home; but I saw at once that the poor creature was terribly wounded. Her tender throat had been so mangled that she was quite unable to raise her head. O, how the poor thing moaned in her agony! I asked her how she had been wounded, for I knew that people do not hunt deer for their value so late in the winter, and I felt sure Mr. Riggs was not so cruel as wantonly to torture a helpless animal.

“I could scarcely understand her, for she spoke with great difficulty. She said she had wandered from her mother’s side the day before, when suddenly a hunter came along with his dogs. She ran wildly,

but the crust on the snow broke at every step, and cut her tender legs cruelly, while it was quite strong enough to bear the dogs. So they soon overtook her, mangling her so fearfully that she could not walk. The man then came up; and was just going to cut her throat with his gleaming knife, when my master, Mr. Riggs, overtook him.

“‘Why do you hunt and kill the poor creatures *now*?’” said he. “‘Neither their flesh nor their skin is of any value at this season.’” The cruel fellow declared he did it only for sport. Then master asked that he might carry the poor little animal home with him, thinking she would perhaps recover.

“‘I must tell you, dear lady,” said Red Betty, earnestly, “‘that ever since that day I have had a feeling of great respect and regard for Mr. Riggs. Indeed, he seemed to be much more tender hearted than when he first bought me from my mother’s master.

“‘Finally, just as I was about to leave her, the poor fawn said faintly: ‘I will bid you farewell, Red Betty, for I shall not see you again. O,’ she moaned, ‘if I could only see my poor mother once more before I die!’”

“‘Then,” said Red Betty, “‘I thought of my own mother, and I could scarcely sleep all night, wondering where she was, and if I should ever see her again.

“‘Next morning I hurried to the place where the fawn lay, and asked her if she felt any better, but she neither spoke nor moved. I came close to her side. Her beautiful liquid eyes were dull and glazed, and even in death wore a look of agony which it was pitiful to see. The ragged wounds in her slender throat gaped hor-

ribly, and the beautiful sides were flecked with clots of blood. People sometimes say that we poor animals do not have feeling and emotions, but I tell you, dear lady, when I left the spot where that innocent, murdered creature lay, tears blinded my eyes.

“‘But,” said my strange companion, “‘I suppose I should hasten my story, for the time is passing, and I may be missed at any moment,” and Red Betty sighed hopelessly.

“‘That winter and the summer and winter succeeding passed away, and I still stayed on the farm of Mr. Riggs. Every now and then one of my companions would complain of not feeling quite well, but still the men came with their pails every morning and evening to milk them, for master supplied a milk cart, and I suppose he feared that if he did not furnish all the milk that was needed, the man would not buy of him any more: and so, lady, you may be astonished, but I have seen those men milking animals that were quite sick and feverish, and that disliked to stand even long enough to be milked. As I have told you, master could not bear the thought of losing any money, otherwise I am sure he was a kind and good-hearted man.

“‘At last there were three or four nice-looking animals found dead in their stalls, and after that, master kept a sharp lookout on the whole herd, so that, as I have told you, he could drive the diseased ones away to the butcher.”

That Red Betty had been telling only the simple truth I was convinced, even in my dream; for I remembered that I had only recently read enough in the papers to verify her statement.

SUMMER CLOTHING.

BY ANNE E. TABOR.

FROM a health point of view, summer underclothing should not be so great a problem as winter wear, because the clothing is of lighter weight; however, the same precautions should be taken for joining garments, to bring the weight on the strong portion of the body.

as much freedom as possible. At all seasons of the year, union suits, combination suits, or waists and skirts joined at the division line by buttons and button-holes or seams, make the best possible underclothing.

The following are just a few hints on



The numerous bands found on ordinary summer garments at the waist line or over the soft tissue of the body should be avoided so far as possible by the student of healthful dress, as the body is in no better condition to stand being imposed upon by lighter garments during the hot weather than it is to endure the greater weight when the weather is colder. There is never a time when clothing should not be carefully studied and the body given

summer dresses, and upon the importance of joining the outer clothing comfortably, and yet so as to preserve a generally conventional appearance. The many ideas advanced by dress reformers with decided notions do not reach those women who desire to wear their clothing in a healthful manner without the change's being conspicuous. Every woman desires to preserve her health, and would gladly do so if she could know she were doing this

without in a sense boring her friends who have keen conventional tastes.

It is a fact that the real point at issue is scarcely grasped,—“that clothing is truthfully a protection to the body, and not simply an ornamentation.” It will be a work of art when clothing shall be made into an “ornamental protection.” This desirable solution of the dress question is not out of the reach of any woman who is willing to put forth an effort in her own behalf.

The present style of conventional dress affords a most favorable opportunity for sensible women to take advantage of the situation, and make a fixed public habit of present conditions. Shirt waists and skirts, two-



pieced suits, namely, jackets and skirts, bring the lines of adjustment in clothing at the desirable points on the body. This, together with the wearing of soft girdles, crushed belts, ribbons, makes it possible to overcome all difficulties. Any woman can easily do all that remains. She need not be even an ordinary seamstress; she must simply know how to sew on buttons and make button-holes, or to sew on hooks and eyes, or, it

may be, to sew some garments together. Ready-made clothing, when fitted, needs only this additional work to solve this dreaded problem in its worst form.

The conventional idea of joining waists and skirts in the back reaches only the point of appearance, and not the more vital one of protection. When the body is well poised, the weight should be equally distributed from all points, and

this can be done only by joining the clothing at all points. The joining of clothing in the back does not answer the needs of the body; it does not lift the weight of the clothing from the soft tissues. A woman whose clothing is unsupported, must hold her body in an unnatural position to support it,—a position in which she can not preserve a correct poise, and hence can not present a good appearance. Clothes must be so constructed as to allow the person to preserve the natural poise of the body, and yet maintain the general desired appearance.

The accompanying illustrations will give a good idea of the effect of summer

clothing from a health standpoint. The first illustration represents a linen dress, which can be laundered without detriment. The skirt can be worn with other waists if desired. The second is the same pattern in another style of material, a cream-colored brilliantine, the yoke, girdle, cuffs, and drop skirt being of ashes of roses silk. The skirt is also suitable to be worn with a thinner waist. The third illustration represents a white organdy made over pink taffeta linings, perfectly joined, and made according to the principles of truly healthful dress, all bones having been omitted and the garment being buttoned at the point of joining.

A RULE OF FOOD SELECTION.

BY A. W. HERR, M. D.

ALL food stuffs are composed of carbonaceous elements; *i. e.*, foods rich in carbon, an element which by its combustion produces heat and force in the body; of nitrogenous elements, *i. e.*, foods rich in nitrogen, an element which goes to repair the loss occasioned by tissue waste in the body; of mineral salts, which are necessary in the construction of bone and nervous tissue in particular.

Those foods which will best supply the system with these elements in an assimilable form are needed. What are they?

Nature, in her laboratory, has produced such an abundance, her menu is so elaborate, that, seemingly, it renders the question somewhat difficult; and unless we succeed in discovering some rule by which to judge, we shall be inclined to take the usual advice of the doctor and "eat anything." However, in eating anything and everything we are in danger of selecting foods that are innutritious or lacking in some food element, and of making wrong combinations.

In attempting to answer the question, What rule of food selection shall we adopt? let us consider how nature proceeds in the production of her foods. First, she takes the plant of the tree fully formed, and through its roots supplies moisture, nitrogen, and mineral salts in solution; through its leaves she gathers oxygen and carbonic acid gas for the formation of carbon; and through the chemical influence of the bright rays of the sun, she compounds starches, oils, and albumins. Through the *prolonged* action of the sunlight these elements are further elaborated; the oils and the albumins are more fully formed, the starches are converted into cane, maple, or fruit sugars, and all are rendered more completely digestible, according to the amount of sunshine received. And, perhaps, in these last words is the secret, the rule, we are seeking. We know that all force and every manifestation of energy upon the world is communicated to it from the sun, and the nearer heaven the food is formed, and the longer it stays there,—

in other words, the more sunlight there is absorbed, the nearer does the food approach perfection.

Fruits and nuts, therefore, most of which grow upon trees, should be the best of foods; then cereals, which wave in the breeze and make obedience to the sun. Next in order of food value would come the vegetables, which grow near the ground, and the tubers, which grow just beneath the surface; then animal products, as eggs and milk; and last, if we choose to include it, flesh food, which in reality is but the nutriment of vegetables and grains obtained second hand. However, we do not deem it at all essential for health or necessary for the proper nourishment of the body that the vegetable should become animalized before being eaten.

Let us study our rule,—*that which grows nearest heaven*—and see how well we can make the application to individual food stuffs.

Of the fruits, those which grow upon trees, as the apple, banana, cherry, peach, pear, date, fig, prune, and perhaps we may include the grape, are easier of digestion than the gooseberry, cranberry, raspberry, and tomato, which grow on shrubs or near the ground.

Of nuts, the same is true, the peanut, a tuber, containing less nourishment and being more difficult of digestion than the almond, the pecan, the beechnut, or the English walnut. The cocoanut, the common walnut, and the butternut, while growing upon trees and containing a large amount of nutriment, have thick shells and husks, which prevent, to some extent, the free action of sunlight upon them, hence they are not so digestible.

Of the grains, rice, which grows in a sunny climate, is easier of digestion than cereals, which grow in a colder, cloudier climate. We conclude, therefore, that those foods and those people that grow the nearest heaven are the best.

SUMMER SALADS.

✓ BY EVORA BUCKNUM.

THE salad is the prince of the menu, and although the dinner is perfect in every other detail except the salad, the affair will be voted a failure if that is poor," wrote Thomas J. Murray, at one time professional caterer of the Astor House, and we find the great majority of the same opinion.

The salad, moreover, is not necessarily a combination of indigestible vegetables and irritating condiments. Most palatable salads may be made of luscious fruits and crisp and easily digested vegetables, with no mustard, pepper, or vinegar. Since acids hinder the digestion of starch, the vegetables must, of course, be those without starch, such as lettuce, endive, feticus, asparagus, celery, cab-

bage, cauliflower, cucumbers, radishes, carrots, and beets. The potato, being composed almost wholly of starch, ought never to be used in a salad. To my mind, there is no greater crime in the dietetic calendar than the making and serving of a potato salad.

One special advantage in salads made of suitable vegetables or of fruits is that they furnish the bulk, which satisfies, without burdening the digestive apparatus with too large quantities of proteids. I have known many people to condemn nuts and nut preparations, saying they did not agree with them, when the trouble was that they were eating three or four times as much of them as their systems could take care of. The fact



THREE FRUIT SALADS.

that we require only about one sixth or one seventh as much of the nitrogenous as of the carbonaceous element in our food is, perhaps, as generally known as any fact of science.

Fruit salads may be served for the middle course of a dinner, or as a dessert, or as the principal dish of a simple luncheon. They should be served in cups or glasses of some kind. A doily on the plate, with a flower (a wild flower, if possible) or a fern leaf, completes the service.

In the illustration we have the strawberry and banana salad in a sherbet cup, the pineapple and orange in an ice glass, and the pineapple and celery, with a candied cherry on top, in a bell-shaped tumbler. A few days ago I saw a combination of five or six different fruits served in a tall brandy glass at one of the most fashionable lunch-rooms in Chicago.

Lettuce, the most universally used of salad plants, should be fresh and crisp and tender, and with the facilities for raising it, there is no reason why it may not be so the year around. After it is gathered, keep it in a cool place, but not where the wind will blow upon it. An hour or two before serving, it should be washed and thrown into a pan of ice water, to remain until served.

If it is allowed to stand out of the water for ten or fifteen minutes, its crisp-

ness is destroyed, and it becomes a subject of dissatisfaction rather than of pleasure.

Marred leaves should not be served whole. They may be shredded with the fingers rather than with a fork, just before serving, or the leaves may be rolled up and cut into pieces like rolled jelly cake, with the shears or a sharp knife, and these pieces lifted with the fingers and allowed to fall in graceful shapes on the dish for a garnish.

Lettuce served with salt and lemon juice is enjoyable with some dishes, and there is nothing more refreshing and appetizing than what we call—

Lettuce Lemonade Salad.—This consists of a plate of crisp lettuce leaves, and a generous portion of dressing made by stirring together, until the sugar is dissolved, equal quantities of lemon juice, sugar, and water.

Mint Lemonade Salad.—This is the same as the lettuce lemonade, with a few leaves of shredded fresh mint scattered among the lettuce leaves, or put into the dressing five or ten minutes before serving. Basil, fennel, or tarragon may be substituted for the mint. Lemon points, or slices of lemon, may be used for garnishing any of these salads of lettuce and lemon juice.

String Bean and Celery Salad.—This is one of the universal favorites among

summer salads. Cut tender celery, in the proportion of one-half cup of celery to one cup of lemonade, into eighth-inch pieces, and let it stand in the lemonade dressing for an hour or more. Serve on a leaf of lettuce over young string beans which have been cooked in salted water until tender.

Celery Salad.—Celery salad is made by using double the quantity of celery to the dressing, and serving without the beans.

Cucumber and Tomato Salad.—Place sliced crisp cucumbers irregularly on a leaf of lettuce. On

these lay slices of ripe red tomatoes, and serve with plenty of salt and lemon juice. The delicate green of the cucumber, over the lettuce of another shade, with the red of the tomato, is a pretty combination.

If yellow tomatoes are obtainable, they will add to the effect.

Cucumber and Radish Salad.—Slice together fresh, crisp cucumbers and radishes, and serve them with lemon juice and salt, with a garnish of lettuce or parsley and a slice of lemon.

Tarragon Fruit Salad.—Add about one teaspoonful of chopped, fresh tarragon (I wish I might hope that all my readers had gardens of herbs this summer. I am luxuriating in mine) to one-half cup of the lemonade dressing, and serve it over strawberries, cherries, currants, red raspberries, ripe tomatoes, bananas, or oranges.

Tarragon is, of all flavors, the most delightful.

With the tomato, the water in the dressing may need to be left out, and more sugar and a little salt used.

Tomatoes make pretty salads, but they have a tendency to give a flat taste to the dressings.

Mint, in the proportion of one teaspoonful to the cup of dressing, is second to nothing but tarragon over the same fruits. It is especially fine over orange. Basil and fennel may be used in the same proportion as tarragon.

Almond Dressing.—This dressing is incomparable. Rub two slightly rounded tablespoonfuls of almond butter and two of sugar smooth with one-half a cup of water. Let this boil up over the fire, then



STRING BEAN AND CELERY SALAD.

add two tablespoonfuls of lemon juice and one-fourth teaspoonful of salt. Strain through a wire strainer, and cool. Apple salad with this dressing is a great favorite, and all of the following combinations are delightful: Apple and celery, apple and banana, apple and orange, apple and pineapple, orange and pineapple, red raspberry and banana, strawberry and banana. Three very fine combinations which I have just lately tried are celery and banana, celery and orange, and celery and pineapple.

Almond Dressing No. 2.—This is not cooked. Stir one tablespoonful each of almond butter and sugar smooth with one-fourth cup of water, and one and one-half teaspoonfuls of lemon juice, adding a trifle of salt.

This may be served over strawberries, oranges, bananas, raspberries, and pineapples, or combinations of these fruits.

Flavored with orange, by paring off a little of the thin yellow rind, taking care not to get any of the white, and allowing it to soak in it for a time, it is especially fine over mellow ripe bananas; and with a little chopped mint, it is good with strawberries, raspberries, cherries, and tomatoes.

Orange Dressing.—Three-fourths cup of orange juice, one-fourth cup of lemon juice, three tablespoonfuls of sugar, and the thin yellow rind of one eighth of an orange. Stir all together until the sugar is dissolved, then remove the orange rind, and the dressing is ready to serve over strawberries and bananas, bananas and oranges, apple and red raspberries, red raspberries and bananas, pineapple alone, pineapple and bananas, pineapple and strawberries, pineapple and raspberries, and red raspberries and currants.

Lemon Custard Dressing.—This may be used when a thicker dressing is desired. Flavor three fourths of a cup of sugar with the oil of the lemon rind, according to directions on page 354, *JUNE GOOD HEALTH*. Put four or five tablespoonfuls of lemon juice into a cup, and fill it with water; put this, with the flavored sugar and three eggs, into the inner cup of a double boiler. Beat all well together and cook, stirring the same as a custard. Have the water in the outer boiler a little below the boiling point, at first. Add one-half teaspoonful of salt; cool, and serve over lettuce or fruits.

A lemon pie filling, without starch, may be made the same as the above, by using two whole eggs, and the yolks of two more, reserving the two whites for the meringue.

For those who have not yet discarded milk and cream from their cooking, the—

Cream Dressing is convenient. Beat

together in the inner cup of a double boiler one-half cup of thick cream or one-third cup of thin cream, one and one-half tablespoonfuls of sugar, and one egg or the yolks of two. Cook as for custard, remove from the fire, and add one and one-half tablespoonfuls of lemon juice and a little salt. Cool, and serve over any of the combinations of fruit used with the almond dressing.

Never use starch of any kind for thickening salad dressings.

The mint used in flavoring foods is always *spearmint*.

In preparing oranges for salad, cut them, with a thin, sharp knife, each side of the membrane that divides the sections, leaving the membrane out entirely; then cut the section into two or three pieces.

Strawberries are nice cut into quarters.

Pare, quarter, and core apples; cut the quarters into slices lengthwise, about one fourth of an inch thick in the thickest part. Then take three or four of the slices up together and cut them, across, into pieces about as wide as the slices are thick. When a very little is prepared, perhaps half an apple, mix with it some of the dressing to prevent its turning dark, and continue to do this until it is all prepared. Use only choice, tart, fine flavored apples. Ben Davis and his relatives will not make any better salads than they do sauce or pies.

Bananas are best cut into quarters lengthwise, then sliced across. They, too, should have the dressing mixed with them at once.

To be sure of nice, ripe bananas, I always buy them ahead, and keep them until they become mellow.

Very ripe cherries, after being pitted and after standing for a time with sugar (in the proportion of one-half cup to each quart of pitted cherries) sprinkled over them, may be used without cooking, but

they are better if stewed a few minutes, and cooled.

Cherries, with just their own juice and a little chopped mint or tarragon, are excellent.

Pineapple should be prepared for salads the same as for canning (see "June Specialties," June GOOD HEALTH). Combined with red raspberries or with perfectly ripe currants, it is excellent.

When used with the cooked almond dressing, with which it is most delightful, it should be drained very dry (the juice goes into a nectar).

In most of the combinations, equal quantities of the different fruits are used; but if desired with pineapple, a larger proportion of other fruits may be taken.

Never use mint or any other flavor with pineapple. We use that for its own unequaled flavor.

While these salads are more suitable for summer than those made with oil, they are equally desirable for all seasons of the year.

Nut Straws.—For the nut straws, like those lying on the plate in the illustration, take two parts of nut meal to one part of pastry flour, add a little salt, and just enough ice water to make the particles hold together. Roll out, without kneading, to one fourth of an inch in thickness, then cut into strips one fourth of an inch wide. Bake in a quick oven, to a delicate cream color. The length may vary from five to eight or nine inches.

From three to five of the straws may be tied together with a delicate colored narrow ribbon, and served with each plate, or they may be served on celery dishes.

The Greatest Crime He Ever Committed.

In the "Life of Colonel John Sobieski," just published by J. L. Douthit & Son, of Shelbyville, Ill., occurs the following suggestive incident:—

"It is the saying among the French that an Englishman will arise on a beautiful morning,—which they occasionally have in England,—and say: 'This is a glorious morning. Let us go out and kill something.' But I [Sobieski] never had a fondness for the murder of animals, birds, or even fish.

"Some years ago I was stopping with a friend, a doctor in a little town in Illinois, and he proposed that we go out and kill something. So, giving me a musket, and taking one for himself, we started for a small grove about two miles from his house, but failed to find anything to kill. The squirrels, which were our objective game, had evidently got an inkling of our

coming, and kept out of sight. After an hour or so spent in the forest, we started to return to the house.

"Sauntering leisurely along under some tall elms, I heard a bird singing, and looking up, I saw a wee bit of bird perched upon a lofty limb, singing very sweetly. Without a moment's thought and without the slightest idea that I could hit so small a mark (for I had none of the spirit of murder in my heart), I up with my musket and banged away. I saw some feathers fly, and the little songster came dropping down from branch to branch, and fell at my feet. I stooped down and picked it up. It was a tiny little thing, not much larger than my thumb, of a yellowish green color, as beautiful as it could be. Then like a flash the thought came upon me: What a contemptible deed I had done. Here was one of God's beautiful creatures that had just as much right to existence as I, and its life, doubtless, was as sweet to it as mine was to me,

and at that very moment that it was singing its beautiful songs to make the world more pleasant and glorious, I had brutally shot it to death.

"I carefully buried it among the leaves, and then promised myself that I would never again wantonly destroy life. I then begged my friend, who wore a pair of very heavy boots, please to kick me over to his house. This he refused to do. But I returned to his home a wiser and sadder man.

"I regard this the greatest crime I ever committed."

A Vegetarian Victory.

Another world's bicycle record has been broken, this time by a woman, Miss Margerita Gast, who rode one thousand miles in one hundred and thirteen hours and twenty-three minutes. Not only this, but Miss Gast accomplished the feat easily and without the slightest overexertion. Her physical and mental condition at the close was superb. She had gained three pounds in weight during the ride, and at the finish her pulse was 84, her temperature $98\frac{2}{3}^{\circ}$, and her heart beat 72. She declared that she thought she could have ridden five hundred miles farther without feeling fatigue. Miss Gast herself attributes her success entirely to her training as a dancer in her native land, Bavaria, and to her diet. She said:—

"When the idea of a thousand-mile ride was first suggested to me, I said at once that I should never think of undertaking it if, by breaking the record, I should endanger my health or subject myself to any serious discomfort.

"Through my friend, Mrs. Elizabeth Sullivan, who is one of the greatest century riders of America, I was introduced to Will Brown, of Valley Stream. He assured me that if I would agree to eat only the food that he directed, I could ride ten centuries as easily as one.

"Three years ago physicians in Brooklyn told Mr. Brown that he had consumption and could not live long. About the same time he read Tolstoi's argument in favor of eating no meat. He has lived on vegetables only ever since, and recently was able to make the two-thousand-mile record for the world's championship.

"To-morrow I shall eat the first meat I have touched for two weeks. From the first day of my training, two weeks ago, I lived in the little shed back of West's Hotel, which Mr. Brown had arranged for me. He and Mrs. Johnson were the only persons whom I was allowed to see.

"Mrs. Johnson prepared all my meals during my ride, and fed me while I lay on my back on a plank in order that my back and arms might be spared even the slight exertion of feeding myself.

"I had three dinners and three lunches during every twenty-four hours. I ate strawberries, oranges, asparagus, and raw new potatoes. It was to eating vegetables that I owe my championship."

Russia's Battle with Alcohol.

It is not generally known that the land of the czar is trying to rid itself of the drink evil. The progress made in this struggle is shown graphically and forcibly by one section of the Russian exhibit at the Paris Exposition. This is described as follows by Louis E. Van Norman, in the *New Voice*:—

"It is a handsome room handsomely decorated, portraits of the czar and czarina of Russia and Russian flags appearing prominently. The walls and a number of show-cases are covered with photographs depicting how temperance measures have improved the conditions of life in the land of the czar. These photographs are from life, and many of them are of the 'before and after taking' order. These, especially, are very striking. A

small village, near Ekaterinburg, in the Ural district, is shown at periods of six months. The first photographs show squalor, misery, dirt, ruin, the inevitable quass (the Russian peasant's drink) jug being everywhere in evidence. The last photographs, taken after the temperance organization had been formed for eighteen months, show a marked, almost incredible improvement. Some of the individuals, taken 'before and after,' are also striking monuments to even moderation."

Because He Sung So.

A few days ago we noticed a little boy amusing himself by watching the frolicsome flight of birds that were playing around him. At length a beautiful bobolink perched on a bough of an apple tree near where the urchin sat, and maintained his position, apparently unconscious of his dangerous neighbor.

The boy seemed astonished at his impudence, and after regarding him steadily for a minute or two, obeying the instinct of his baser part, he picked up a stone and was preparing to throw it, steadying himself for a good aim. The little arm was drawn backward without alarming the bird, whose throat swelled, and forth came nature's plea: "A-link, a-link, a-link, bob-o-link, bob-o-link, a-no-sweet, a-no-sweet, I know it, I know it, a-link, a-link, don't throw it, throw it, throw it," etc. And he did n't. Slowly the little arm fell to its natural position, and the stone dropped. The minstrel charmed the murderer.

Anxious to hear an expression of the little fellow's feelings, we inquired: "Why didn't you stone him, my boy? You might have killed him and carried him home." The little fellow looked up doubtfully, as though he suspected our meaning; and with an expression half

shame, half sorrow, he replied: "Could n't, 'cos he sung so."—*Kindergarten Magazine*.

The Significance of Tuberculosis.

"The relation of tuberculosis to life insurance," says the *Medical Review*, "is formulated by a recent writer as follows: Life insurance companies should decline any person who has or who might have been at any time affected with tuberculosis in any form; any applicant with a family history of tuberculosis who may at the time be suffering with, or who may, at some previous period of life, have had, pleurisy, hemoptysis, chronic bronchitis, scrofula, or curvature of the spine; any person with a history of tuberculosis, pleurisy, hemoptysis, congestion of the lungs, or recurring attacks of bronchitis; any dyspeptic person, the issue of tuberculous parents, if he did not get well after a course of appropriate treatment; any applicant with a family history of tuberculosis or living under unhygienic conditions, if the circumference of chest and his weight are much below normal; any applicant under thirty-five or forty years, if both his parents were tuberculous, and if he is not of strong constitution; any applicant who from his antecedents or his constitution might be looked upon as a candidate for tuberculosis; any applicant, the issue of tuberculous parents, who lived in intimate contact with a consumptive."

Cold Comfort for Beer Drinkers.

For some years a decided inclination has been apparent all over the country to give up the use of whisky and other strong alcohols, using as a substitute beer and other compounds. This is evidently founded on the idea that beer is not harmful, and contains a large amount of nutriment; also that bitters may have some

medical quality which will neutralize the alcohol it conceals.

These theories are without confirmation in the observation of physicians. The use of beer is found to produce a species of degeneration of all the organs; profound and deceptive fatty deposits, diminished circulation, conditions of congestion, and perversion of functional activities, local inflammations of both the liver and kidneys, are constantly present.

Intellectually, a stupor, amounting almost to a paralysis, arrests the reason, changing all the higher faculties into a mere animalism, sensual, selfish, sluggish, varied only with paroxysms of anger that are senseless and brutal.

In appearance the beer drinker may be the picture of health, but in reality he is most incapable of resisting disease. A slight injury, a severe cold, or a shock to the body or mind will commonly provoke acute disease, ending fatally. Compared with inebriates who use different kinds of alcohol, he is more incurable and more generally diseased. The constant use of beer every day gives the system no recuperation, but steadily lowers the vital forces. It is our observation that beer drinking in this country produces the very lowest kind of inebriety, closely allied to criminal insanity. The most dangerous ruffians in our large cities are beer drinkers. Recourse to beer as a substitute for other forms of alcohol merely increases the danger and fatality.—*Scientific American*.

If You Wish to Cool a Room.

Under the above heading we find in an exchange this:—

“If you wish to cool a room, wet a cloth, the larger the better, and hang it up in the room. If the ventilation is good, the temperature will sink ten or fifteen degrees in less than an hour.”

This calls to our remembrance that at the time President Garfield was shot, we saw in the morning paper that he was suffering terribly from heat. As soon as we arrived in town, we went at once to the principal telegraph station on State Street, and telegraphed the president's private secretary at Washington to cool the president's room by hanging across it cloths constantly wet with ice water, and the next morning (or the second) had the pleasure of seeing in our paper that the president had been greatly relieved by this process.—*Our Dumb Animals*.

Night Air: An Old Soldier's Story.

“Night air? Yes, sir, I object decidedly to night air; but it is the night air that is shut in with one in a tight sleeping-room.

“During the Civil War I slept out without protection of any kind for more than a year. At one time I carried a rail half a mile to sleep on, so I'd not have to be in the mud. I had not been in a bed for two or three years when, on returning home, my wife closed my windows on retiring, for fear I'd catch cold; and I caught a cold that night, and I was three weeks in breaking it up. That was the quickest and hardest cold I ever caught. Afraid of night air? Yes, sir, I am, of that kind of night air.”—*Pacific Health Journal*.

The Treatment of Hiccough.

The case is recorded, says *Progrès Medical*, of a girl six years and a half old, who suffered from persistent attacks of hiccough. M. Noir, on seeing her in one access, which had continued for six hours and a half, drew out the tongue and held it protruded for the space of a minute and a half, which calmed the spasms as if by enchantment. They did not reappear.

EDITORIAL.

COW'S MILK AND INFANT FOODS.

It is an interesting fact that the free use of cow's milk is chiefly confined to the most civilized nations, primitive tribes making but little use of it as an article of food. The use of milk in its ordinary fresh state is almost wholly confined to the English-speaking race. Those savage or half-civilized tribes that use milk employ it in the form of curd, obtained by putting milk over night in a gourd. In Tartary, milk is curdled by the addition of a ferment. Yeast is sometimes used, producing the well-known kumyss. Another very peculiar ferment is also made use of to produce a finer and more agreeable preparation known as kephir. Germans use a great deal of ordinary sour milk, the same being true of most of the nations of southern Europe. Milk taken in this way is much more digestible than ordinary milk, for the reason that the curds formed are soft and easily broken up; whereas, the curds formed in the stomach by the action of the gastric juice upon fresh milk are tough, and difficult of digestion,—just such curds as may be seen at any time in the huge vats of a cheese factory. The retention of these curds in the stomach gives rise to fermentation, and, in many cases, putrefactive processes are set up by the filth germs which find their way into milk in great numbers. Whenever the gastric juice produced by the stomach is deficient in quality or quantity to such a degree that its normal antiseptic action is prevented, and therefore the germs taken into the stomach are not killed, these putrefactive processes take place. The absorption of the poisons produced thereby results in sick-headache, nervous headache, and especially in the condition known as biliousness. Thousands of persons annually lose their lives because of bowel and other troubles occasioned by the putrefaction of milk in the stomach and intestines.

A few weeks ago, the writer, while addressing a large audience on the subject of diet, improved the occasion to test the general effect of milk on the average consumer. The question asked was, "How many present have observed that they are made bilious by the use of milk?" More than one third of the audience promptly raised their hands.

Any other article of food which would make one third of all the people sick, would be discarded as unwholesome. The other two thirds who do not recognize that they are injured are, nevertheless, in many instances, without doubt, more or less harmed. An unconscious damage is being done, the extent of which may not become apparent until years later in the form of rheumatism, neurasthenia, or some constitutional disorder. The gravest ailments have very small beginnings, and the writer does not doubt that to the extensive use of cow's milk may be fairly attributed many evils which are ordinarily charged to other causes, such as overwork, adverse climate. Many hundreds have found relief from headache, bad taste in the mouth, biliousness, constipation, and other ailments by the disuse of milk, substituting oleaginous nuts, such as almonds, hazelnuts, pecans, and various nut preparations.

The injurious effects of milk are most readily seen in children. Their feeble bodies are quickly sickened by the poisonous substances formed when milk is decomposed in the stomach and intestines. The tough curds resulting from the use of cow's milk are very different from the soft, friable, coagulated form which results when the gastric juice acts upon the natural diet of a young infant,—mother's milk.

It ought to be generally known that cow's milk is not a substitute for mother's milk. Cow's milk is the proper food for calves, as their digestive machinery is constructed for

the digestion of coarse grass, herbs, and such things, and hence can cope with the tough curds formed by the action of the gastric juice on cow's milk. The injurious effects of cow's milk are generally known, although not sufficiently appreciated. Most old nurses resort to the use of oatmeal gruel, Flour Ball, and various other devices for so modifying cow's milk as to increase its digestibility. The result aimed at is to avoid the formation of tough curds, and many lives are saved by these various means. The enormous sale of infant foods is another evidence of the general recognition of the evils of cow's milk. Few babies fed upon cow's milk escape injury therefrom. This fact has led to the development of vast industries devoted to the manufacture of substitutes for cow's milk. These infant foods may generally be divided into two classes,—farinaceous and lacteal.

The farinaceous products are commonly made from flour which, by exposure to the action of diastase and heat, is so modified that the starch is largely transformed into dextrin. These dextrinized foods are much more acceptable to the infant stomach than

ordinary farinaceous preparations, for the reason that the saliva of the young infant is much less active in digesting starch than is that of adults.

The lacteal infant foods consist chiefly of evaporated milk. While these have the advantage that they do not form hard, tough curds in the stomach, they nevertheless contain casein in large quantities, and in a form which readily undergoes decomposition. Most of these infant foods are a decided improvement upon milk taken in the ordinary way, but the farinaceous infant foods are deficient in bone-making and blood-making elements, and the milk contained in infant foods makes them objectionable for the reason that the casein readily undergoes decomposition in the stomach, giving rise to biliousness, flatulence, constipation, and other distressing disorders. A need which has long been recognized is an infant food of purely vegetable origin, containing all the elements of nutrition in the proportion in which they are found in milk. Such a food may be the means of saving thousands of young lives every year.

THE PHILOSOPHY OF ILL HEALTH.

WHEN Tommy eats green apples, complains of stomach ache, does not want any dinner, not even cake or mince pie, his mother sends for the doctor. The doctor gives him a Dover's powder, which puts him to sleep. But his stomach goes on ailing just the same, although he does not feel it, and in the morning he has inflammation of the stomach. Another doctor is summoned, who, after examining the boy, passes down a stomach tube, and washes the green apples out of his stomach, and he gets well.

What, then, is the disease? It is not the green apples, for they are the cause of the disease; it is not the stomach ache; but it is the effort of nature to get rid of those green apples. What did the boy need? He did not need that Dover's powder to stop the pain and put his stomach to sleep, with all those fermenting, decomposing green apples

in it; but he needed a deluge of water poured into his stomach to wash it out. If his mother had made him drink half a dozen glasses of water, his stomach would have overflowed, and the apples would have been carried off. That was what was done by means of the stomach tube. Suppose the boy had been so sick that he had vomited,—should he have been given medicine to stop the vomiting?—Not at all; for vomiting is nature's method of getting rid of the green apples that were making the trouble.

Let a person who has a cough take "Consumption Cure," "Cherry Pectoral," or some similar nostrum, and though the cough may be stopped, he has not helped himself. The cough is to clear out the lungs. One may have catarrh at the back of the throat, and cough. That cough is to get rid of the mucus in the throat. A cough of any kind

is always an indication of some morbid condition of the system which needs relief.

Sneezing is one of nature's methods of curing a cold. When a person sneezes, he does not sneeze simply with his nose, but with his whole body, from the top of his head to the tips of his toes; and that shock

sets the heat-making processes at work: it stirs up the fires of the body, as it were, and thus makes heat. When one has a chill, sneezing is nature's method of warming him up, and curing him. So it is with other maladies. What we know as disease, is really the effort of the body to heal itself.

Faith as a Healing Power.

If you wish to get well, you must have faith, you must believe that you are going to get well. If you are haunted by a contrary notion, dismiss that thought from your mind, for the very belief that you are not going to get well is an important factor in keeping you sick.

When a man starts out in a line of business, and is afraid he will fail, he is certain not to prosper, for the reason that his fears paralyze his efforts, and prevent his taking the decided stand that it is necessary to take in order to win.

Fear is a paralyzing agent. On the other hand, hope is a wonderfully inspiring power. Men have sometimes said, "I will 'get well,'" and have recovered by sheer pluck. Some men get well because they will not die. The man who insists that he will live, very probably will, other things being equal; that sort of pluck will win. It is necessary to think health and to talk health. Do not allow any one to talk disease to you. When any one asks you, for example, if you feel as well as you did yesterday, say to him, "Let's talk about the weather,"—be polite if you can. Some time ago a lady said to me, "What shall I do? People follow me around and ask me what is the matter with me, and if my doctor knows the name of my disease." Say to such people, "I consult my physician about my disease,"—be as polite as you can. A boy came to me one day and said, "Doctor, what shall I do? The old ladies come around me and say, 'Poor boy, I'm sorry for you. If I were your mother I would take you home.'" Said he, "I wish you would tell me what to do. These women discourage me so that I am afraid they'll kill me." I

replied, "When such people come around you and tell you you look bad, and are going to die, say to them, 'Get thee behind me, Satan! I will not think of such a thing; I will not tolerate the thought that I am going to die.'" "

It is an important thing, I say, that you should fix your mind on getting well. Be determined to get well. Have a great faith beyond this, even. Believe that God wants to heal you. Do not believe that nature desires to destroy you. God and nature are one, and God works to heal you. Make up your mind to co-operate with him; get into the right road, and stay in it, and live in it. Make up your mind to think health and talk health and work for health, and by and by you will get health.

Water-Drinking for Children and Old People.

Children and old people, and persons whose occupations are such as to induce perspiration need to make very free use of water. Children require water in larger amounts than adults, for the reason that their rapid growth necessitates the reception, circulation, and excretion of a larger amount of material in proportion to their weight and age than is required by adults. It should be borne in mind that in a rapidly growing boy or girl the process of assimilation and disintegration is more than ordinarily rapid. Small parts are made larger, not by additions to the exterior as in the case of trees, but by complete reconstruction. The enlargement of the growing part involves changes in its minutest construction, so that during the process of growth the body is rapidly renewed; and for this renewal, water is indispensable,

as it is the vehicle both for bringing in new material and carrying out the old or effete matter which has served its purpose in the vital economy.

Old persons require more water than younger persons under the same conditions, for the reason that disintegration is rapid, and it is therefore necessary to encourage in every possible way the elimination of waste substances, so that the process of degeneration and senile changes may not be hastened by their accumulation within the body, and the risk of acute disease and sudden collapse may not be increased.

Whenever perspiration is induced by either heat or exercise, water should be used freely, so that the blood may not be unduly thickened and its volume diminished, as this may cause collapse from heart failure.

Work and Worry.

Worry kills ten where work kills one. Perhaps we may say that wholesome work never kills. Worry, if long continued, will completely break down the strongest constitu-

tion and the most iron-like nerves. Speculators and other men who take great chances never die of old age. Among persons of this class suicide and insanity are exceedingly common. Suicide may generally be looked upon as the act of an unbalanced mind. Peace of mind and peace of heart are necessary for perfect health. Real contentment comes only from a consciousness of harmony with God. The man who has surrendered his will to the will of God, who has sought and found the divine order of life, and who walks in it not from a sense of duty while constantly longing for by- and forbidden paths, but because he finds peace and happiness and joy in it,—this man is of all men best prepared to live, and is most certain to enjoy length of days. He has within him a perennial fountain of youth, a living stream of life which washes out the works of time, renews his youth like the eagle's, and becomes a well of water springing up out of the full years of a long, joyous, and useful life into a broadened, deepened, and infinitely extended life beyond.

ANSWERS TO CORRESPONDENTS.

Rheumatism in the Knee.—L. E. H., Ohio, asks what to do for rheumatism in the knee.

Ans.—Apply a fomentation twice a day; after the fomentation apply the heating compress (for a description of which see page 472, this number) to be left in place until the next fomentation.

Apples — Walnut Meats — Stomach Trouble.—Mrs. S. M., Ohio: "1. What causes a sick feeling after eating raw apples in the morning? 2. Are walnut meats more digestible baked for several hours than eaten raw? 3. Is catarrh of the duodenum indicated by acute pain in the right side of the stomach and extending down to the duodenum? 4. What is a remedy?"

Ans.—1. There may be gastric irritation, which is aggravated by the malic acid of the apple. Such cases are very rare, however.

2. No.

3. This pain may be due to catarrh of the duodenum, but is more likely the result of catarrh of the stomach or its consequences.

4. A fomentation applied over the affected side for twenty minutes twice daily, using a heating compress in the interval.

Frequent Micturition.—P. B., Washington: "1. What causes frequent micturition, aggravated by the use of fruits? 2. What is a remedy?"

Ans.—1. The cause may be irritation of the bladder or excessive secretion of urine.

2. A prolonged sitz bath at 90° is recommended, also the wet girdle worn low.

Dyspepsia.—J. M. B., Montana, has had dyspepsia for one year. He can not digest starchy foods; tongue is coated; mucus in stools; is constipated; is much reduced in flesh. "1. Please advise as to water-drinking. 2. In the use of electricity for general tonic effects, how long should the application be continued? 3. Should the stomach tube be used? 4. Is a test meal necessary for prescription in this case? 5. Is the use of a hot water bag sufficient? 6. After a month's use of the hot enema, the mucus has considerably lessened. Should the enema be continued? 7. Will an ordinary dry cell battery suffice for treatment?"

Ans.—1. Avoid water-drinking at meals except as far as necessary. Drink half a glass of cold water half an hour before meals.

2. Ten to fifteen minutes daily.

3. Only in case it is specially indicated.

4. It will certainly be of great assistance in making a diagnosis upon which to base a prescription.

5. The hot water bag may be of benefit, but more vigorous treatment is required.

6. Yes, but the temperature should be lowered until water at 70° may be employed for the enema. Water bathing of some sort should be applied in connection with the local application.

7. Yes, if the number of cells is sufficient. Thirty to forty cells would usually be required.

Carbonated Waters.—N. J. R., Maryland, asks if seltzer or other carbonated waters are wholesome.

Ans.—The saline ingredients of these waters are unnecessary, and unwholesome for continued use.

Arnica-carboline — Peanuts.—S. H., Michigan: "1. Is Arnica-carboline (a pile cure salve) harmful? 2. How are peanuts blanched?"

Ans.—1. We know nothing of the ingredients of this nostrum.

2. By drying in an oven until the skins are loosened so that they may be easily rubbed off. They are then either blanched by hand or passed through a machine which rubs off the skins.

Lentils — Macaroni.—J. W. B. asks: "1. What are lentils? 2. What is macaroni?"

Ans.—1. Lentils are leguminous seeds resembling beans, but much smaller, and of a somewhat different flavor.

2. Macaroni is dried flour paste made in the form of hollow stems, and can be obtained at any grocery store.

Disagreeable Odor.—T. E. J., Illinois, asks: "1. Does a disagreeable odor about a person indicate disease? 2. What is the value of fasting as a curative power?"

Ans.—1. Not necessarily. It may indicate a lack of cleanliness.

2. In fevers, obesity, and some forms of auto-intoxication, fasting is a valuable method of combating the morbid condition present.

Cold Lunch.—S. E. C., Utah, asks what we would recommend for a cold lunch.

Ans.—Zwieback, granose biscuit, ripe fruit, and a handful of nuts. The writer can recommend this heartily as a complete lunch which can be obtained almost anywhere on the face of the earth.

Ko-nut — Food — Swollen Knees — Water-Drinking.—L. E. S.: "1. Is Ko-nut a free fat? 2. Is it healthful to use in cooking? 3. Is it digested in the stomach? 4. Is Ko-nut as good as cod-liver oil for producing flesh? 5. Do you teach that children under six should eat nothing hard? 6. When the knees and ankles swell and are painful after a walk of a mile, and the knee pans are grown fast at the lower edge,—all results of typhoid fever,—what can be done? 7. When water-drinking hinders digestion, how can one drink the three or four pints daily which you advise?"

Ans.—1. Yes, it is a separated or unemulsified fat.

2. The writer does not commend it.

3. No. Separated fats diminish the formation of hydrochloric acid, and interfere with stomach digestion.

4. There is little difference between Ko-nut and cod-liver oil. Sweet cream is better still.

5. By no means. As soon as children have teeth, they should begin to make good use of them.

6. Fomentation to the joints, followed by the heating compress or pack to be worn during the night, and the daily cold sponge bath are to be recommended. (See Midsummer Number.) Massage and electricity would be serviceable. A visit to a sanitarium would be advisable.

7. If the diet consists largely of fruits and nuts, it will not be necessary to drink so much water.

Caking of the Bowels.—E. D. B., Pennsylvania, asks if there can be a caking of the bowels so high in the intestines as to be above the reach of cathartics or cholagogues.

Ans.—No.

Fuming the Stomach with Hydrochloric Acid.—A subscriber in Canada asks us to explain the method of fuming the stomach with hydrochloric acid as an antiseptic.

Ans.—No such thing is advisable. Such an operation would be likely to result in death, even if it were possible.

Cooking Peanuts.—A subscriber wishes to know how to cook peanuts properly.

Ans.—Peanuts should be cooked the same as beans, but require longer cooking. To get rid of the strong peanut flavor, the water may be turned off at the end of the first hour of cooking, and replaced with fresh water.

For thorough cooking, the peanut should be boiled for ten to twelve hours. The latter part of the cooking may be in the oven.

Itching Toes — Wash for the Teeth — "J. B. L. Cascade."—O. H., New York: "1. Can you suggest a remedy for itching between the

toes? 2. What is a good antiseptic wash for the teeth and mouth? 3. Do you recommend the 'J. B. L. Cascade'? It is an instrument by which as much as four quarts of water may be introduced into the bowels at a time."

Ans.—1. There is probably an eczematous eruption. Thoroughly cleanse the parts with soda water—a teaspoonful to the pint—and apply zinc ointment; or the application of a powder consisting of one part boric acid to three parts starch may be more serviceable.

2. Ten drops of essence of cinnamon to half a glass of water. Stir thoroughly with the brush while using. There is nothing better.

3. No. Excessive distension of the bowels is exceedingly injurious. The ordinary fountain syringe with water at 70° is the best means of administering the enema when needed. Cold water increases the tone of the bowel, and prevents the relaxation and dilatation which results from the use of large quantities of warm water.

Tonsillitis.—J. M. B., Oregon, asks what diet is advisable for a two-year-old child who has a badly diseased throat, the result of tonsillitis.

Ans.—A diet consisting of fruits, grains, and properly prepared nuts. Granose, granola, zwieback, rice, ripe fruits of all kinds, stewed fruits without cane sugar, and the avoidance of pastry and condiments of all sorts. Malted nuts is a food to be highly commended.

Bronchitis—Eyesight—Tapeworm—Spring Medicine—Rheumatism.—A Tennessee subscriber asks: "1. Can you advise a simple remedy for a sixteen-year-old boy who has had bronchial trouble since a child? 2. He has a crooked eye, which grows worse, and the sight more defective with time. Is an operation necessary? 3. Is there any sure cure for tapeworm? What? 4. What simple home remedy will purify the blood? 5. What will improve the appetite? 6. Can a man thirty-nine years old, whose father is a rheumatic, avoid the same trouble? How? There are slight symptoms of rheumatism already."

Ans.—1. The daily cold bath, cold mitten friction or cold towel rub, and the chest pack to be worn at night. (See Midsummer Number.)

2. Consult an oculist.

3. Yes. Pelleterine de Tanret is an excellent remedy.

4. Pure food, warm baths, cold morning baths, copious water-drinking.

5. Daily cold bathing (cold towel rub, wet-sheet rub). See Midsummer Number.

6. Yes, by an abstemious life, avoiding flesh meats and employing a dietary consisting of fruits,

nuts, and grains, avoiding coarse vegetables and bad combinations, living an active out-of-door life, and avoiding all sorts of depressing and injurious habits, such as smoking, the use of tea and coffee, etc.

Diet—Pimples—Catarrh.—R. H. A., Pennsylvania: "1. My diet is graham bread, beans, rice, and fruit. Is this sufficient? 2. What causes a gnawing sensation in the stomach about an hour before meals? 3. What causes pimples on the shoulders and face? 4. What do you advise for nasal catarrh?"

Ans.—1. Yes, if eaten properly and in proper quantity.

2. Gastric irritation is probably present. Apply a fomentation over the stomach at night. Follow this with an abdominal compress or a wet girdle to be worn over night. (See Midsummer Number.) Improve the general health by daily cool bathing, and adopt a careful non-irritating dietary.

3. The use of animal fats is a common cause. This difficulty is usually associated with indigestion.

4. The daily cold bath, with the use of antiseptic remedies by means of the Vaporizer or Nebulizer.

Teeth—Worms—"Cold-Blooded" People—Dr. Sloop's Medicine—Shortness of Breath—Urine.—Mrs. L. M. B., Iowa: "1. What causes the teeth to decay in children who do not indulge in sweets, take no medicine, and are otherwise well? 2. What will rid a child of worms? 3. What causes one to be 'cold blooded'? 4. What diet is best for such a person? 5. Do you recommend Dr. Sloop's (Racine, Wis.) medicine? 6. What treatment should a person take who experiences shortness of breath after the least exertion? 7. What causes a three-year-old child's urine to resemble tea in color, when the little one lives on fruits, grains, and nuts?"

Ans.—1. General constitutional feebleness.

2. Different kinds of intestinal worms require different treatment. You should consult a physician.

3. A feeble state of the constitution. Massage, abundant exercise in the open air, exposure to the sun, a nutritious diet, and short daily cold baths with vigorous rubbing are suitable remedies.

4. All the Battle Creek Sanitarium foods are to be commended, together with purées of peas, beans, and lentils, ripe fruits of all sorts, cooked fruits without cane sugar, browned rice, zwieback, and other dextrinized foods (granola, granose, and grānut).

5. No.

6. A physician should be consulted. It is probable that the heart is affected. The difficulty may

proceed from the lungs, and other grave organic maladies may exist.

7. The urine should be examined by a physician. The dark color sometimes indicates the presence of bile from obstructions of the bile ducts, but this condition, if present, is not due to the diet, but in spite of it.

Diabetes.—M. B., Wisconsin: "A lady sixty-four years of age has had diabetes for six years. 1. What treatment is advisable? Do you recommend a vapor bath cabinet for this ailment? 2. What diet is best? 3. Should she use tea and coffee?"

Ans.—1. The vapor bath is valuable in some cases of this sort, but not in all. If the patient is emaciated and feeble, the vapor bath should be avoided. A warm water bath is equally as efficacious as the vapor bath. Warm baths are depleting, and should be avoided in feeble patients. Short cold baths are beneficial. Abundance of exercise should be taken if the patient is in good flesh.

2. Starchy foods, vegetables, and mushes should be avoided. Acid fruits, nuts, and nut preparations, zwieback, buttermilk, eggs in moderation, and other wholesome foods.

3. No.

Peanuts—Almonds.—M. asks (1) why roasted peanuts are indigestible, and (2) what is the value of the roasted almond compared with the raw.

Ans.—1. Because the fat is set free, or separated, and difficult of digestion.

2. Almonds are digestible without cooking. If very slightly roasted, they are more palatable, but probably not more digestible.

Sick-Headache—Pain in the Left Side—Deimel Linen-Mesh Undergarments.—A. L., Wisconsin, asks: "1. What treatment and diet would you prescribe for one troubled with sick-headache? 2. What causes and what will relieve sharp pains in the left side? 3. What is your opinion of the Deimel linen-mesh underwear?"

Ans.—1. An aseptic dietary, consisting of fruits, grains, and nut preparations. Coarse vegetables and meats should be avoided, also tea and coffee. A fomentation over the stomach at night, followed by a wet girdle to be worn during the night, and fomentations to the painful part will relieve the pain. Washing out the stomach at the beginning of the attack will usually abort it. An exclusive fruit diet for a day or two, when an attack is threatened, will often prevent its occurrence. Persons subject to sick-headaches should especially avoid the use of milk and flesh foods.

2. The pain is probably located in the intercostal nerves. The most common cause is a prolapsed condition of the viscera, or enteroptosis. Relief is obtained in many cases by the use of an abdominal supporter. A fomentation over the painful parts is generally followed by relief.

3. We take pleasure in recommending it highly.

Whisky.—E. D. B., Pennsylvania, asks if diluted whisky will destroy germs in the stomach.
Ans.—No.

Distilled Water.—M. V., Minnesota, asks if distilled water is not "dead" water, and if some vital element is not destroyed by distillation.

Ans.—No. Distilled water is pure water, and is perfectly wholesome. The nonsense published in the newspapers upon this subject has not the slightest foundation in fact.

Nutcoa.—A. B. C. asks our opinion of nutcoa.

Ans.—We do not commend it.

Sulphur—Complexion—Weak Memory.
—C. B. E., Michigan: "1. Does sulphur injure the hair? 2. What will remove brown patches from the face? 3. What will strengthen a weak memory?"

Ans.—1. The application of sulphur in an ordinary form would not be likely to do the hair any harm.

2. If the patches are due to exposure to the air or the sun, they will rapidly disappear, or may be removed by a saturated solution of boracic acid in lemon juice. When deep in the skin, these patches are not so easily removed.

3. Memory-practice. The study of the Loissette system will be found useful.

Weak Heart.—A. S. J., Illinois, has been a vegetarian for three years, but now has serious heart trouble. 1. What foods will make red blood? 2. Which of the nut preparations are best?

Ans.—1. All foods which are easily digestible enrich the blood. Foods containing proteids in large amounts, such as nuts and nut preparations, are good blood-producers.

2. Protose, bromose, and malted nuts are perhaps the best.

Aluminum Ware.—J. H. L., Michigan, asks if aluminum ware is to be recommended in stewing fruit or in cooking fruit for canning.

Ans.—Yes.

LITERARY NOTICES.

WE have received "**Col. John Sobieski's Life Story and Personal Reminiscences**," written by himself. Colonel Sobieski is widely known for his labors and unselfish devotion to temperance and kindred reforms. His many friends will rejoice to learn that his romantic story and life as told by his own lips has been published. The book retails at \$1.50. Size and style of book : 300 pages, 6½x8, handsome cloth, library binding, with illustrations. J. L. Douthit & Son, publishers, Shelbyville, Ill.

"**Easy Steps in the Bible Story — From Creation to Sinai**," is the title of a new book of Bible stories, written by Adelaide Bee Cooper, and published by the Review and Herald Pub. Co., Battle Creek, Mich. One hundred and fifty specially prepared pen drawings, with numerous full-page illustrations, will delight the children, and at the same time help fix in their minds the main points in the beautiful narrative. A book of 160 pp. Price, in cloth, with stamped cover, 50 cents; in boards, 25 cents. Address as above.

Roland P. Falkner, in the July **Forum**, discusses the question, "Is Crime Increasing?" He says:—

"The American people have not accepted the conclusion that crime is increasing in the United States without the weightiest evidence in behalf of such a proposition. A review of the writers who have touched upon this subject seems to place the fact beyond question. In his standard work on 'Recent Economic Changes' (p. 345) the late David A. Wells said:—

"In the United States, while crime has diminished in a few States, for the whole country it has within recent years greatly increased. In 1850 the proportion of prison inmates was reported as one to every 3,448 of the entire population of the country; but in 1880 this proportion had risen to one for every 855."

The remarkable series of papers on "Decisive Battles of the World," which the late Stephen Crane has been contributing to the **New Lippincott Magazine**, is continued in the July number with "Vittoria," Wellington's early Spanish victory. The clear and picturesque writing serves to throw a vast deal of light on the English campaign in South Africa. Wellington's successes were not won by "frontal attacks," but by brains. These papers,

later to appear together in a volume, are the last work of the brilliant Stephen Crane.

McClure's Magazine for July has a capital short story of the California mines by Bret Harte, entitled "A Jack and Jill of the Sierras." William Allen White begins in this number a series of studies of the most conspicuous present-day political figures. The July sketch is of Mr. Bryan, "not as a hero or as a villain, but as a 'prosperous gentleman' without cherubic wings chafed by his suspenders, and without cloven hoofs under his respectable shoes."

Current Literature for July presents an unusually fine array of attractive intellectual refreshments. The department of "Modern Medicine, Surgery, and Sanitation" gives exceptionally valuable articles on "Loss of Hair" and the "Treatment and the Registration of Tuberculosis."

The July magazine number of the **Outlook** contains an interesting collection of pictures relating to the present Chinese crisis, including authentic portraits of the young emperor and of Kang Yu Wei, the famous leader of the Chinese reform party,—portraits obtained from Chinese sources, and, it is believed, never before published,—an excellent portrait of Mr. Conger, our minister to China, portraits of General Chaffee, the newly appointed American commander in China, Admiral Kempff, and Captain McCalla, and also a rare and interesting group portrait of the members of the Chinese foreign office, the Tsung-li Yamen.

Mrs. Cynthia Westover Alden is the latest addition to the editorial staff of the **Ladies' Home Journal**. She will apply her energies to a department that will be called "Sunshine," which is to be published in the interest of an organization already having a membership of eleven thousand. "The International Sunshine Society," as it is called, aims to put sunshine and good cheer into the lives of all. It has neither creed nor rules; its membership fee is a single act of kindness, and dues are paid in the same currency. Mrs. Alden is founder and president-general of the society, and it is her purpose to extend its well-doing to every section of our country; in fact, throughout the whole world, for its vast field is international.

The **Dial** is a generous and wholesome critic, and gives the busy person a concise and satisfactory epitome of new literary publications.

PUBLISHERS' DEPARTMENT.

AMONG persons of note at present registered at the Battle Creek Sanitarium may be mentioned the following:—

Rev. S. J. Van Meter, Clinton, Mo.; C. K. Adams, President of Wisconsin University, Madison, Wis.; Dr. J. J. Aye, Bowie, La.; V. G. Bell, missionary, Kingston, Jamaica; Dr. F. M. Bowyer, Bedford, Va.; Rev. Hector E. Clewes, Columbus, Ohio; Dr. W. H. Galloway, St. Louis, Mo.; W. N. Haldeman, Louisville, Ky.; Dr. A. Krebs, Eureka Springs, Ark.; Judge W. Kelso, Eagle Pass, Tex.; Chaplain C. C. McCabe, Omaha, Neb.; Dr. J. E. Markle, Winchester, Ind.; Dr. F. F. Parker, Stewart, Iowa; Dr. Wm. Spencer, Monticello, Ind.

INDIANAPOLIS, IND.,
July, 1900.

To Whom it May Concern :

I am a subscriber to GOOD HEALTH, and have received the Family Box of health food supplies given free, and take pleasure in recommending them. The magazine ought to be in every home,

and the box of health foods is worth more than the cost of the magazine.

L. B. CRABTREE.

Important Corrections.

On page 387 in July GOOD HEALTH, the Mid-summer Number, in the second column, twenty-eight lines from the top of the page, read, "If the temperature is 94°," instead of 110°.

On page 443, the second and third rows of figures in the table at the bottom of the first column should be transposed, to read thus:—

Number of feedings.....10..8..6...6
Amount of food daily, in ounces...10..12-16..18..24

WE have received from the North-Western Railway Company a very pretty souvenir of the North-Western Limited, which runs from Chicago to St. Paul and Minneapolis. The pamphlet is handsomely illustrated with striking scenes along the route, such as the Wisconsin River, Devil's Lake, Castle Rocks, Minnehaha Falls. The Chicago & North-Western passenger station, Chicago, is one of the

A non-poisonous antiseptic mouth wash,

one that can be safely left on the bath-room stand, is LISTERINE. Composed of ozoniferous essences, vegetable antiseptics, and benzo-boracic acid, LISTERINE is readily miscible with water in any proportion. A teaspoonful of LISTERINE in a tumbler of water makes a refreshing and delightfully fragrant mouth wash. Used at the morning toilet it effectively removes all agglutinated mucus which may have accumulated during the hours of rest.

An ounce of LISTERINE to a pint of water will be found sufficiently powerful for the general care of the deciduous teeth of children, while a solution composed of one part of LISTERINE, and three parts of water, will be found of agreeable and thoroughly efficient strength for employment upon the brush and as a daily wash for free use in the oral cavity in the care and preservation of the permanent teeth. Many users of LISTERINE employ it in its full strength and enjoy its pungency.

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THE Northern Pacific Railway publishes every year one of those beautiful souvenirs that are really almost troublesome at times, because no matter how crowded one's magazine tables are, he can not possibly make up his mind to throw away anything so artistic and delightful.

The Northern Pacific Railway has become noted

in connection with this annual publication, each issue being distinctly different from its predecessors in cover design, illustrations, and text. When it is remembered that, in the nature of the case, certain subjects, as, for example, Yellowstone Park, must be touched upon in each “**Wonderland**,” it will at once be seen what a task it must be to provide fresh reading matter and illustrations annually. That the company can do it without practically repeating themselves is the strongest possible testimony to the variety found, in every way, in the vast region traversed by this line.

“Wonderland, 1900,” is much larger than usual, and represents more extended travel, investigation, hard work, and expense than any previous number. It will undoubtedly prove valuable to libraries, schools, and reading-rooms, while for the household library table it will certainly not fall behind any other edition.

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a perfect liquid food, a rich blood maker and nerve feeder, an invigorating and easily digested diet for the sick, nature's simplest and best tonic for the convalescent, and the fruit of the vine for sacramental use.

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Dr. J. H. KELLOGG,
Surgeon-in-Chief
Battle Creek Sanitarium.

(From "GOOD HEALTH," December, 1899.)

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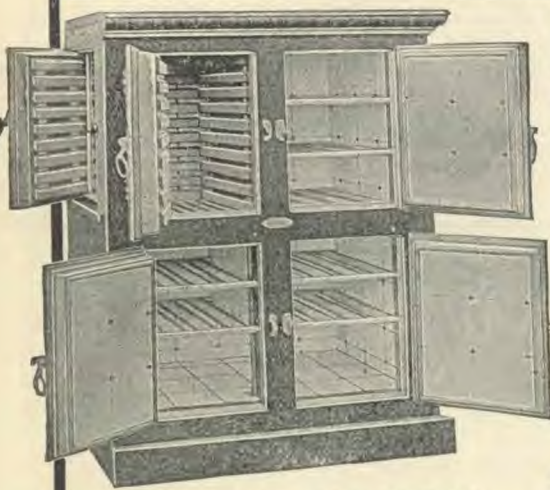
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This range is **FULLY EQUAL** in every respect to the ranges usually sold by agents from wagons or by stove dealers for double our prices. It is made of the best material money can buy, by the most skillful mechanics we can employ. Is the handsomest, most highly ornamented, and **BEST BAKING AND BURNING RANGE EVER MADE. WE GUARANTEE** every range to work properly. Illustrated circulars and personal letter with complete prices on all sizes sent upon request.

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In one operation on your kitchen stove,

**It Filters,
Purifies,
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Destroys
the Germs
of Disease**

and removes them, eliminates the poisonous gases, and aerates the water automatically.

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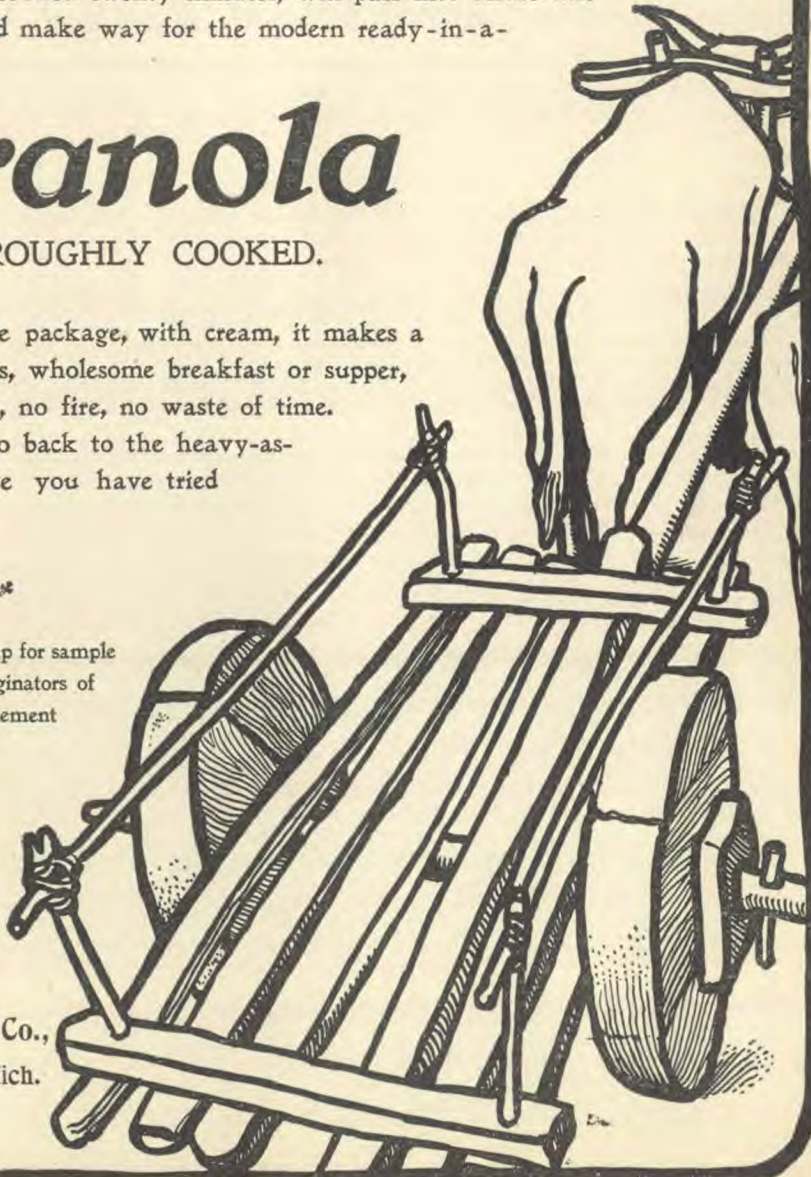
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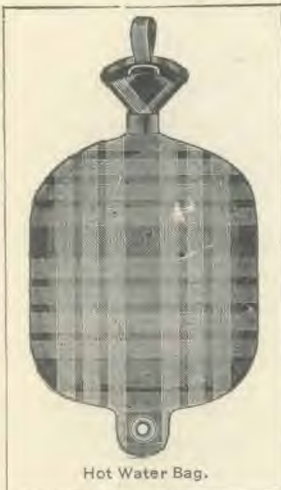
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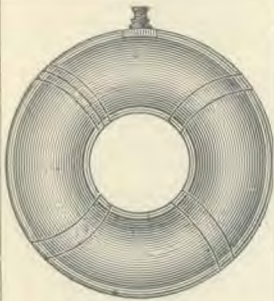


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While Nut Butter is free from the disease germs and bacteria of dairy butter, it more than takes its place in the ordinary bill of fare.

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Chicago	pm 9.35		a m 6.45	am 10.30	pm 8.00		pm 11.30
Michigan City	11.25		8.45	pm 12.05	4.40		am 1.20
Niles	am 12.40		10.15	1.00	5.37	pm 6.00	2.30
Kalamazoo	2.10	am 7.30	pm 12.10	2.08	6.52		4.10
Battle Creek	3.00	8.10	1.00	2.42	7.28	6.43	5.05
Marshall		8.25	1.30	3.03	7.51	7.10	5.30
Albion	4.00	9.00	1.50	3.30	8.11	7.50	5.52
Jackson	4.40	10.05	2.35	4.05	8.50	8.15	6.40
Ann Arbor	5.55	11.10	3.47	4.58	9.43		7.45
Detroit	7.15	pm 12.25	5.30	6.00	10.45		9.15
Falls View					am 4.37		pm 4.13
Suspension Bridge					5.17		4.33
Niagara Falls				am 12.20	5.30		4.40
Buffalo				3.13	6.14		6.30
Rochester				5.15	10.00		8.40
Syracuse				9.05	12.15		10.45
Albany				pm 1.30	pm 4.50		am 2.50
New York				12.16	6.15		7.00
Springfield				3.00	6.15		7.40
Boston					9.00		10.34

WEST	7	17-21	3	5	23	13	37
	*Night Express	*N.Y. & Ch. Sp.	Mail & Express	*News Express	*W'st'n Express	† Kal. Ac'n.	*Pacific Express
Boston		pm 2.00			pm 3.30		pm 6.00
New York		4.00			6.00		am 12.10
Syracuse		11.30			am 2.00		pm 12.25
Rochester		am 1.30			4.05		2.25
Buffalo		2.20			5.20		3.50
Niagara Falls					6.02		4.32
Falls View					6.34	pm	5.05
Detroit	pm 8.20	8.25	am 7.15		pm 12.40	4.35	11.20
Ann Arbor	9.43	9.23	8.40		1.38	5.45	am 12.50
Jackson	11.15	10.20	11.05	am 3.50	2.40	7.30	1.35
Battle Creek	am 12.40	11.34	pm 12.25	4.35	3.50	9.08	3.00
Kalamazoo	1.40	pm 12.10	1.20	5.15	4.28	10.00	3.55
Niles	3.15	1.22	3.55		6.05		5.05
Michigan City	4.25	2.20	4.45		7.05		6.01
Chicago	6.30	4.00	6.40		8.55		7.50

* Daily. † Daily except Sunday.
 Trains on Battle Creek Division depart at 8.05 a. m. and 4.10 p. m., and arrive at 12.40 p. m. and 6.15 p. m. Daily except Sunday.
O. W. RUGGLES, General Pass. & Ticket Agent, Chicago.
R. N. R. WHEELER, Ticket Agent, Battle Creek.

The Cincinnati Northern Railroad Co.

TIME TABLE NO. 3.

IN EFFECT SEPT. 24, 1899.

Trains Pass Battle Creek as follows:

WEST-BOUND.	
No. 21, Mail and Express	6.58 P. M.
No. 23, Accommodation	2.07 P. M.
No. 27, Local Freight	8.25 A. M.

EAST-BOUND.	
No. 22, Mail and Express	8.25 A. M.
No. 24, Accommodation	1.45 P. M.
No. 28, Local Freight	5.30 P. M.

Direct connections are made at Toledo with all roads diverging. Close connections for Detroit and Cincinnati.
J. L. READE, Ticket Agt., Battle Creek.
E. R. SMITH, City Pass. Agt., 6 West Main St.

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Passengers via this line avoid the annoyances incidental to transfer at the border, secure through Pullman Buffet Car Service, and more comfort than could possibly be the case otherwise.

Mexico is one of the very few combination summer and winter resorts on the continent.
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 236 S. Clark St., Chicago.

W. D. MURDOCK,
 Ass't Gen'l Pass. Agent,
 MEXICO CITY, MEX.

Pullman Buffet Car Service.

Chicago & Grand Trunk R'y.

E. W. Meddagh and Henry B. Joy, Receivers.
 Trains arrive and leave Battle Creek.
 Time Card in Effect June, 1900.
 WEST-BOUND FROM BATTLE CREEK.

No. 9, Mail and Express, to Chicago	12.15 P. M.
No. 1, Chicago Express, to Chicago	8.30 A. M.
No. 3, Lehigh Valley Express, to Chicago	3.50 P. M.
No. 5, International Limited to Chicago, with sleepers	2.15 A. M.
No. 75, Mixed, to South Bend	8.30 A. M.
Nos. 9 and 75, daily, except Sunday.	
Nos. 1, 3, and 5, daily.	

EAST-BOUND FROM BATTLE CREEK.

No. 8, Mail and Express, to Pt. Huron, East, and Detroit	3.45 P. M.
No. 4, Lehigh Express, to Pt. Huron and East	8.27 P. M.
No. 6, Atlantic Express, to Pt. Huron, East, and Detroit	2.25 A. M.
No. 2, Lehigh Express, to Saginaw, Bay City, Port Huron, and East	6.50 A. M.
No. 74, Mixed, to Durand (starts at Nichols yards)	7.15 A. M.
Nos. 8 and 74, daily, except Sunday.	
Nos. 4, 6, and 2, daily.	

A. S. PARKER, Ticket Agent,
 BATTLE CREEK.

FOR A SUMMER OUTING

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In effect June 21, July 7 to 10 inc., July 18 and August 2. One fare for the round trip from Missouri River to Denver, Colorado Springs, Pueblo, Ogden, and Salt Lake City. Return limit October 31, 1900.

For time tables and full information call on your nearest agent, or address—

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- 1-2 Pound NUT BUTTER.
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- 1-4 Pound FIG BROMOSE.
- 1 Package GRANOLA.
- 2 Small Pkgs QUAKER OATS.
- 1 Can PROTOSE and BEANS.
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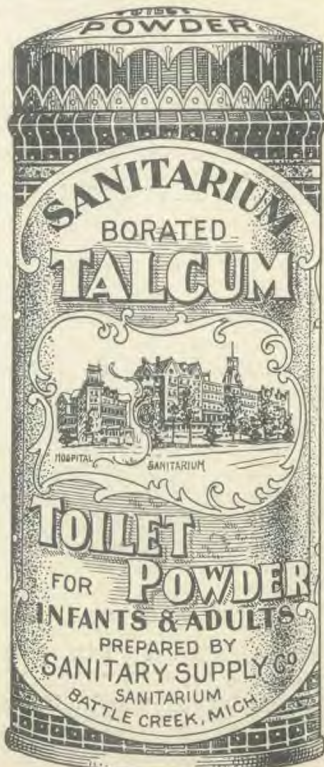
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