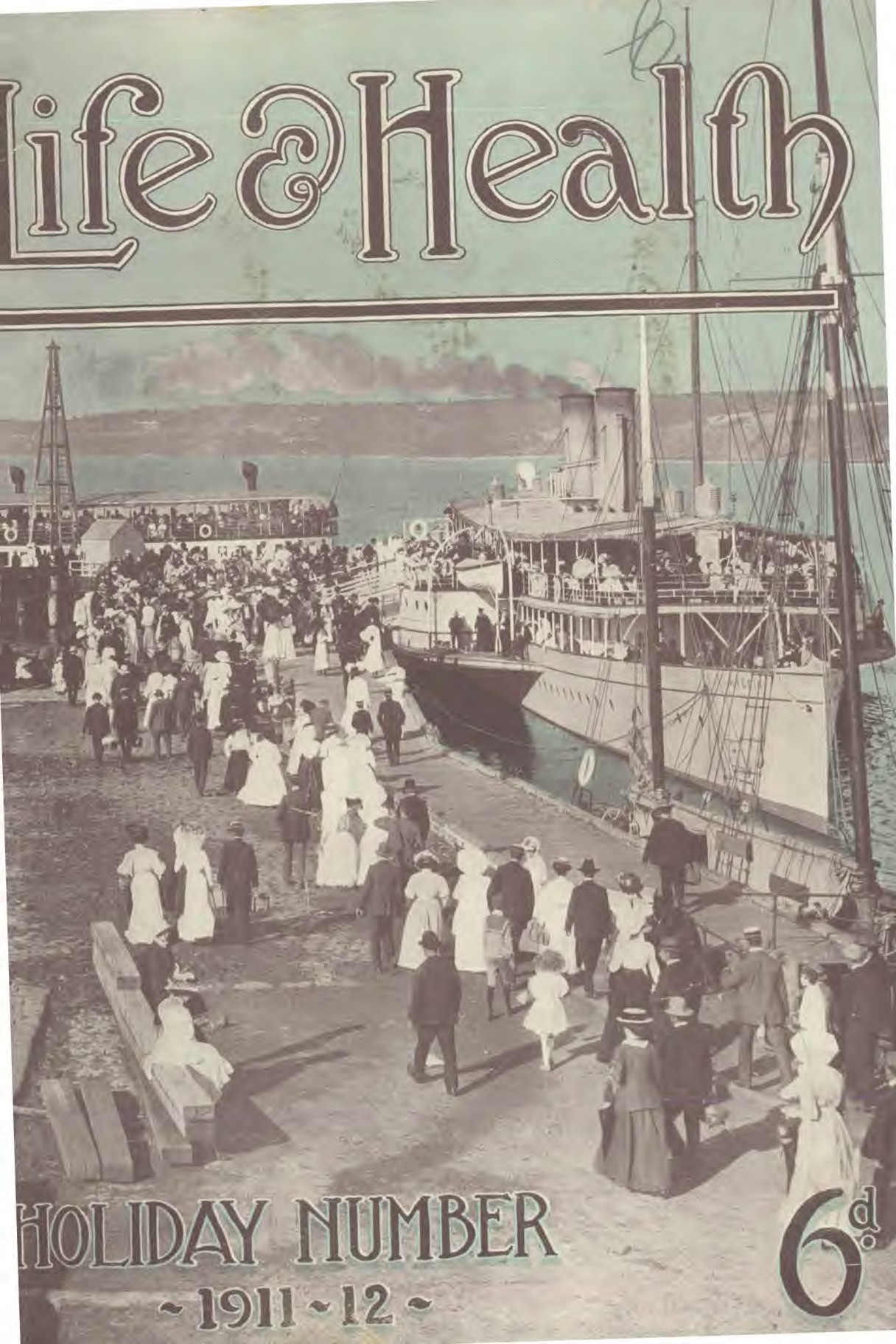
Life & Health



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THE TALK OF THE OFFICE

"In proportion as society refines, new books must ever become more necessary."

WITH this number the first volume of LIFE AND HEALTH is completed. The success which has attended our efforts to circulate good reading matter on healthful living has been far beyond our anticipations. Sheaves of letters from all parts of the Commonwealth have been sent to us by those who have profited by reading this magazine, and even some of our advertisers have been loud in their acclamations concerning the sterling value of LIFE AND HEALTH as an advertising medium, showing that our readers peruse the whole of the magazine from cover to cover.

Our plans for 1912 are not sufficiently mature to make any definite announcement, but we can safely say that our readers may expect a continual improvement both in the appearance and matter of the magazine.

We take this opportunity of thanking the numerous readers who have, by recommending their friends to subscribe to LIFE AND HEALTH, materially aided us in securing such a large circulation.

Have you ever caught a cold and wondered where and how you got it?

You cannot remember that you have been imprudent in the matter of exposure; in fact, knowing how liable you are to catch cold, you have been extremely careful to avoid exposure, and yet, in some way, you have contracted a cold.

Your eyes run water, you sneeze violently, and use a number of handkerchiefs, each one of which soon becomes very irritating to the red and tender nostrils; your breathing is more or less obstructed, and you feel miserable generally. Having in mind many unsuccessful attempts to cure a cold, you resign yourself to your fate, resolved to let the disease take its course.

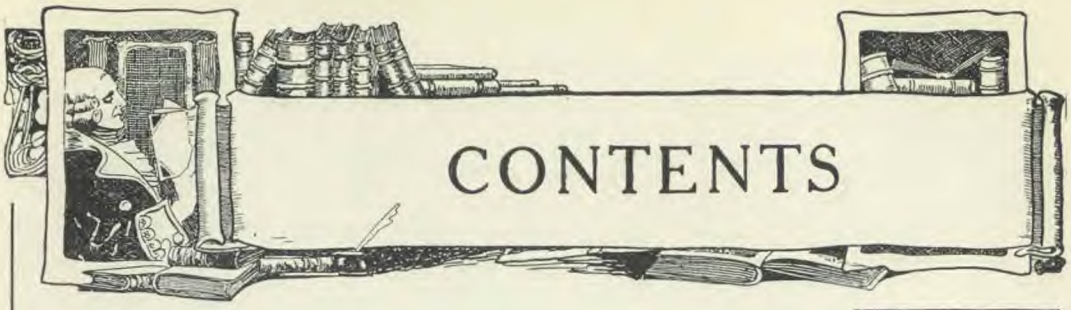
Your experience with your family physician has been disappointing, and you have wondered how it is if the doctors are unable to cure a simple cold, where the trouble is apparently in plain sight, that they can have any better success with diseases of the lungs or liver or kidneys, where the trouble is entirely out of sight.

You have tried many "sure cures" suggested by well-meaning friends, and have found to your disappointment and chagrin that they afforded but temporary relief at best. You have probably learned that "cough mixtures," while they relieve the irritation, often tie up the secretions and add to your real danger.

You have almost reached the conclusion, perhaps, that a cold comes as a matter of course, and must be borne as an affliction of Providence.

If you have had some such experience, or if you or any of your family are at times annoyed with colds, we have a little book, "Colds: Their Cause, Prevention, and Cure," written for you; and it is hoped that the suggestions made may enable you not only to treat successfully all colds, but so to live that you will not be susceptible either to colds or to any of the common ailments.

You will find all further particulars on page 384.



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F. C. Richards, L.R.C.P. and S., Edin.

Our cover design is from a photograph by Mr. Sears, of Mornington Jetty, Port Phillip Bay (Victoria).

A SHADY NOOK AT LORNE (VICTORIA)

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Vol. I, No. 6 **Melbourne, Victoria, Australia** December-January, 1911-12

The Great White Plague

Part 2

ITS CAUSES.—THE BACILLUS.

BACILLUS is a Latin term, meaning "a rod." Hence the Koch tubercle bacillus is a rod-shaped germ whose minuteness may be judged of by the fact that in length it measures about one seven-thousandth of an inch. It is very tenacious of life, possessing great resistance inside and outside of the body. In the sputum of a tuberculous patient, which is one of the chief sources of the germ, it may exist in countless millions. The dried sputum of such a patient, when pulverised and distributed through the atmosphere in dust-like particles, can be the source of a great multiplication of victims to the disease.

As the disease is so universally prevalent it can be easily understood what abundant opportunity there is for anyone to become infected. It prevails in almost all parts of the globe. As a rule it is most prevalent in the warmer countries, and is found to be less so as the colder regions are approached, being rarely found among the inhabitants around the poles. In the altitudes of Alpine air the germ rarely exists.

Among cold-blooded animals, such as reptiles and fish, it is almost unknown. Warmth favours its development, consequently in domesticated animals, chiefly the cow, the germ is most widely distributed. It is from the cow that nearly all the milk is derived, and considering also the large proportion of this animal's meat consumed, the widespread occurrence of the bacilli is obvious.

Wherever the population is massed together, as in large cities, the tubercle bacillus is constantly present, but, on the other hand, rural districts are not exempt. It is astonishing to find even among people who follow active, open-air occupations as farming, suffering from tuberculosis. This is due to unhygienic conditions under which they live in their homes at night, and which counteract what healthful benefits they might derive while in the fields during the daytime.

In the body the most common site of attack is the lungs. In children it attacks the glands throughout the body, particularly the neck and the abdomen. The joints, the bones, and the coverings of the

brain are also affected. According to the resistive power of the body the germ produces its destruction with more or less rapidity. Different varieties of the bacilli exist, the two most common being the "bovine" and the "human." Recently it has been confirmed by the British Royal Commission that most of the tuberculosis in human beings is caused by the "bovine" type of the bacillus, that is, the tubercle bacillus derived from the cow, either by means of the milk or the flesh.

In adults the germ attacks chiefly the lungs, from which organ it is most difficult to eradicate the disease after it has gained a foothold. The "bovine" bacillus, however, has been discovered upon persons who were not affected with the disease. This is explained by the fact that the body's resistance was sufficient to withstand the attack of the germ.

Apart from the body, the germs can exist almost indefinitely when under favourable conditions. Drying does not destroy them. They will live in ice. Many strong chemical substances will not kill them. The most powerful, natural agents in their destruction are the direct rays of the sun, fresh air, and boiling water.

Indirect Cause

Much difference of opinion exists as to whether consumption is hereditary or not. So far this remains an unsettled question. One fact is approved of by all, and that is, the offspring of consumptive parents are the most liable to contract the disease sooner or later in life. They inherit a constitution whose resistive powers are below the standard, but do not necessarily have the disease transmitted to them before or during birth. They are considered to become tuberculous more easily than those born of healthy parents.

Through the influence of other infectious diseases, such as measles, whooping cough, scarlet fever, influenza, pneumonia, etc., the disease finds ready entrance. Neglected and repeated attacks of "colds" are very often its forerunners. In this way the resistive power of the system is lessened, and the bacilli find a ready field to work and multiply.

It is particularly noticeable that among the various races the negroes, American Indians, and Italians are more prone than others to become tuberculous, especially when removed from their natural environments to more civilised communities.

No age is exempt. It may occur at any age of the individual, though it is most prevalent between the ages of twenty and thirty years.

The weaker sex is more susceptible to the disease. Women are accustomed to more sedentary habits than men. They are more confined as a rule to duties within the house than are men, and are often fatigued and overworked and physically strained by their maternal cares. Thus they are more easily attacked than are men by the disease.

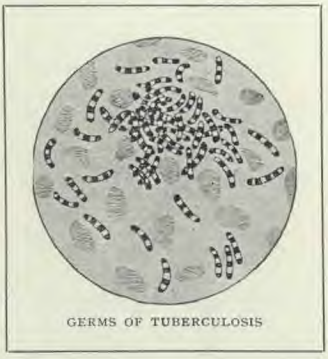
Climate has some influence. Where the climatic conditions are more variable, where the atmosphere is moist, soil humid, and the district marshy, cold, and damp, the predisposition to the disease is increased. The mountainous and arid climate is most favourable.

Those whose occupation exposes them to an atmosphere continuously laden with noxious particles of dust, irritating vapours, etc., are liable to take the disease. Unsanitary surroundings, intemperance, poor ventilation, and overcrowding are among many causes which pave the way for consumption.

No person can be said to be absolutely free from the germ. In a great many cases it lies dormant, ready for an opportunity to attack any part of the body. This favourable opportunity is brought about only by a lowered vitality, induced by one or more of the foregoing indirect causes. Besides these may be mentioned, injuries. A blow upon the knee may set up a tuberculous inflammation in that joint. A blow upon the chest may so injure the lung tissue as to start the disease there. A head injury may induce a tuberculous disease of the brain, leading to a fatal termination.

Direct Causes

In perhaps the majority of cases the disease results through the germ gaining entrance into the air-passages by inhaling dust containing them. The dried sputum of tuberculous patients when pulverised can be carried long distances through the atmosphere. Careless expectoration of such persons gives rise to great danger of spreading the infection. Some consumptives expectorate over a million germs a day. By one single cough such a person may eject particles of saliva into the air-passages of another. By means of eating-utensils, public or even private drinking-cups, etc., the germ travels from one to another unseen and unsuspected. That ever-present pest, the house-fly, no doubt can account for much untold misery brought to many people through this dreadful malady.



GERMS OF TUBERCULOSIS

Strange and yet true is the remark once made that "the consumptive in himself is almost harmless, and only becomes harmful through bad habits."

In regard to children their greater susceptibility to other infectious diseases renders them particularly liable to develop some form of tuberculosis.

Besides the risk of inhaling the germ from the air, there is that of infectious food. The British Royal Commission tells us enough in regard to this. One of their conclusions after much experimentation only confirms a well and long-established belief, that "cow's milk is the largest source of infection," and "one-half of the children which die of abdominal tuberculosis is due to the 'bovine' bacillus alone." Even the meat of such infected animals is dangerous. The lower mortality from this disease among the Jewish race is ascribed to their careful meat inspection.

But we cannot say that such infected food is due wholly to disease in the animal. In the preparation and transportation of milk and various food-stuffs for market the bacillus finds lodgment therein by means of sputum and uncleanly handling by people who are suffering with the disease. This fact cannot be ignored even by the common expression, "What the eye does not see the heart cannot grieve." Unfortunately the heart does grieve. Many thousands and millions of hearts are grieving to-day on account of these things which they did not see and would not see. A. V. H.

(To be continued)

Music as a Medicine

AT the Manhattan Asylum, on Ward's Island, U.S.A., says an exchange, experiments have been carried out for months in the treatment of all forms of insanity or mental disturbances with music, the violin, harp, and piano, sometimes with one, two, and again with all three instruments. Band and orchestra concerts are also given at stated intervals, usually one hour's séance daily, sometimes on the lawn, again in the ward halls. Whenever a patient is found who has musical talent, even to the slightest degree, it is encouraged in every possible way.

Thus the patients are mentally occupied and lifted out of self, as they are encouraged to play at times for others whose appreciation is a source of enjoyment to the player. Experiments were made with individuals suffering from various forms of mania, and effects carefully noted. Of the number so treated, thirty-eight per cent recovered and thirty-three per cent were improved. Seventy-two per cent of the whole number treated were markedly benefited.

One case of chronic mania is reported which was so violent at times that she was confined in a straight jacket. Chopin's Nocturne quieted her at once. Another case, one of melancholia, considered in-

curable, through the influence of music was greatly benefited, becoming first more intelligent, then affectionate, and finally quite talkative.

The Bible story tells how David played for Saul during his illness so that Saul was refreshed and made well.

Over-Eating

THERE can be no doubt that the general tendency in modern times is to eat too much, that is, more than is necessary for the maintenance of the energy and nutrition of the system. The act of eating, to those with fairly healthy digestive organs, is decidedly pleasurable, and this leads not only to excessive consumption of food at the ordinary meals, but also to the partaking of tid-bits between meals. Children especially are guilty of eating between meals, and parents are often astonished, and even sceptical, when told that this habit really injures the health of the child. The writer has frequently noticed children whose health has improved immensely when they have been restricted to the three regular meals. The stomach and the digestive organs generally require a period of rest between meals in order to store up energy for future use, and unless this law be recognised trouble must ensue.

There are many causes for the habit of over-eating. Many feel that good food can never do one harm, and that the more you eat of it the stronger you will be. A kerosene lamp turned moderately high will give a good light, but give the wick an extra turn, and you will find instead of more light you have less, the surplus inflammable material exposed in the wick is not burned but wasted, deposited on the sides of the glass as unsightly soot. It is exactly the same when too much food is taken. The working-man on the Sunday takes the same, if not a greater, quantity of food than on working days, and wonders why he is so sleepy and lacking in energy. The fact of the matter is, the workings have been clogged with soot, waste products have accumulated in the system at a faster rate than they can be got rid of. What must be the state of the system when over-eating is not confined to one day of the week, but the whole seven? The greatest danger arises from excess of animal food, and this is the special characteristic of the Australian people. Compared with other nations the consumption of butcher's meat with us is enormous. Dr. Phillip E. Muskett, of Sydney, states that the average consumption of meat in Japan is $2\frac{1}{2}$ lbs. per capita; in Great Britain, 107 lbs.; in the United States, 150 lbs.; but in Australia it totals 233 lbs. Over-eating and its dangers are, however, by no means confined to animal food. Excessive use of the best of foods will result in serious troubles.

Horace Fletcher has shown that insufficient mastication is a cause of over-eating, and that often double the amount of food is taken than is required for the general nutrition of the body. True appetite, the demand of the system for food, is situated in the gustatory nerves of the mouth, and when these are satisfied the appetite naturally ceases. If, however, the food only receives half the attention it should receive in that organ, it follows that it will take double the amount of food to give satisfaction, consequently the digestive organs and the system generally will suffer from the effects of the surplus. If we desire to maintain or regain our health, we must eat for strength and energy and not for the mere pleasure of the palate. "Blessed art thou," says the Scripture, "O land, when thy king is the son of nobles, and thy princes eat in due season, for strength and not for drunkenness."

When more food is taken than the system can properly utilise, the result is a clogging of the works, a "drunkenness," not from wine but from food. Excess of wholesome food, as well as improper food, will always do harm. Sometimes the result is immediate, in the form of acute dyspepsia, biliousness, headache, and flatulence; sometimes it is more remote

and shows itself in the form of catarrh or ulcer of stomach, dilatation of stomach, duodenal dyspepsia,—what may be called chronic biliousness,—colitis, constipation, or diarrhœa; sometimes the result is more remote still, as in rheumatism, gout, various forms of inflammation of kidneys or liver, chronic pharyngitis, etc. By over-eating the system becomes overloaded with the by-products of imperfect digestion, and there is frequently a feeling of weariness, poor memory, and disinclination for work of any kind. After a night's rest these symptoms abate, but a hearty breakfast starts the ball rolling again. A fast for one, two, or even three meals has often a wonderful effect in brightening the intellectual faculties; it gives the system a chance to throw off its "soot," its "physiological ashes." The writer has met many "no breakfast" men and women, and all have testified to increased mental power and ability to do their work as the result. A better result still would be obtained by the omission of the evening meal, for the tired system does not digest and assimilate food so well as when fresh and freed from waste products after a night's rest. This applies, of course, only to hearty eaters. There are many who do better on three lighter meals.

Over-eating often leads to loss of body weight, because the digestive organs have become deranged and the powers of assimilation very much retarded. A diminution of the food taken will often result in actual gain of weight. Where the digestive organs are fairly healthy, however, it is easy to increase one's weight by over-feeding, but this does not necessarily mean increased nutrition; it is often due to an accumulation of fat in and around the tissues. A certain amount of fat is good, but excess is very injurious. Fat should represent stored-up energy and not a dragging weight. A steam-engine is supplied with fuel sufficient for its journey, and perhaps a little extra in case of emergencies, but there would be a decided disadvantage in loading it with two or three times the amount of fuel required. Fat people are not healthy, they have too much useless material to carry about, and their hearts and other organs are not equal to it. Every physician recognises that a fat patient is a difficult one to treat, and the prognosis or outlook is commensurately unfavourable. The useless storing up of fat in the system is accompanied by enfeebled circulation and impaired nervous activity. It is certainly safer to give an anæsthetic to a patient with organic heart disease than to one enfeebled by the deposition of fat. Nothing is gained by a mere increase of weight which does not mean increased nutrition. It is strength and energy and not mere weight that is wanted.

Even the consumptive by excessive feeding can put on an enormous amount of fat. One or two stones may even be added to the normal weight. The patient is pleased undoubtedly by the turn of the scales, but, unfortunately, the typical afternoon temperature often runs to the same high level, the breathing is even more difficult, and the hacking cough is in no way lessened. Consumptives undoubtedly require an increased quantity of food to combat the continual wasting away of their tissues. They require wholesome, fatty foods for oxidation to save the burning away of the permanent structures of the body. They require an increased amount of nitrogenous food to repair the burnt-up tissues of the body. They, however, do not want a stone or more of useless fat which they cannot possibly utilise for the well-being of their system, and they would be wise to avoid the digestive troubles which often ensue from the use of excessive quantities of food taken with the idea of simply increasing their weight. It is not weight but strength that the consumptive requires.

W. H. J.

DEEP breathing has been proved scientifically to have a good restraining effect upon the progress of tuberculosis even after the disease has started. Tuberculosis advances most rapidly in parts of the lungs little used.

DOMESTIC MOSQUITO MALARIA MOSQUITO YELLOW FEVER MOSQUITO

The Mosquito and Diseases of Warm Climates

THE mosquito has slain its tens of thousands. So hostile to man is this insect that no one who is interested in human health and welfare can afford to be without some knowledge of mosquitoes and the part they play in the dissemination of disease.

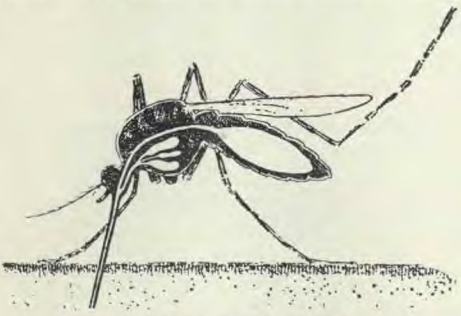
It has been proven beyond doubt that the mosquito is the carrier of that scourge of tropical lands, malaria. It has further been conclusively established that the mosquito inoculates man with yellow fever—the fatal "yellow jack" of soldiers and sailors. The mosquito also causes dengue fever. If we are to prevent these diseases, the rôle played by mosquitoes in their dissemination must be understood. Not only so, but the habits and life of this insect must be studied in order that its breeding places may be broken up and malarious districts rendered healthy by the extermination of this pest.

Perhaps no other disease, if we except cholera and the plague, has so terrorised the world as yellow fever. And with good reason, too, for in eight epidemics in Spain 130,000 lives were lost. In America, a single epidemic occurring in one city caused fully 5,000 deaths.

Malaria, yellow fever, and dengue are probably all due to the presence of parasites in the blood. In the case of malarial fever, these parasites may be seen, and have been carefully studied. The parasitic causes of the other two diseases are likely too small to be seen even with the aid of the most powerful microscope. The weight of evidence, however, favours the idea that the invisible causes of these diseases are ultra-microscopic parasites. When the mosquito draws blood from a person who is suffering from one of these diseases, these parasites are taken into the insect's salivary glands. The mosquito is then ready to pass them back to man. The time required for the complete development of the malaria parasite in the mosquito is about fourteen days. The yellow fever parasite requires a day or two less. As the mosquito draws blood from healthy victims, saliva containing parasites is injected into the blood. Thus these diseases are transmitted first from the blood of the sick to the mosquito, thence back from the mosquito into the blood of healthy persons. Thus epidemics arise which inspire terror, paralyse trade, and depopulate entire cities.

How to Detect Dangerous Mosquitoes

Fortunately, not all mosquitoes are carriers of yellow fever and malaria. A particular kind of mosquito transmits yellow fever, a distinctly different kind conveys malaria. The common domestic mosquito is incapable of carrying either of these diseases, though during the past few years evidence has been accumulating



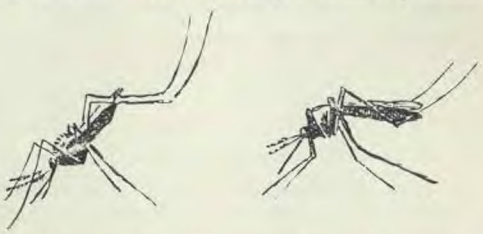
MOSQUITO DRAWING BLOOD

which definitely proves it to be the carrier of dengue fever. In our illustration the three varieties of mosquitoes with which we are concerned are placed side by side for purposes of comparison. Females only are shown, as they alone do the biting. Males of all varieties of mosquitoes are known by their finer plumage and vegetarian habits. The following points of difference may be noted:—

1. The Malaria Mosquito.—The long-legged, spotted-winged swamp mosquito is the carrier of malaria. There are about twenty species of this mosquito, but all belong to the single genus *anopheles*, and all are very similar in appearance. So, for practical purposes, but one kind of mosquito carries malaria, and this mosquito is so different from all others that anyone should be able to recognise it at first sight. The two characteristics which mark the malaria mosquito are (a) its resting position; and (b) the comparative length of its sucking tube and inner pair of feelers. In the malaria mosquito, the sucker and feelers are of almost equal length. In all other female or biting mosquitoes, the feelers are much shorter than the sucker, always considerably less than half its length. A careful comparison of the accompanying drawings will serve to fix this point in mind. The males of all varieties of mosquitoes have long feelers, but as has already been stated, they are easily distinguished from the females by their more elaborately feathered palpi (inner feelers) and antennæ (outer feelers); and, further, by the fact that they do not bite. They are not, therefore, directly concerned in the transmission of malaria.

Concerning the resting position of the malaria mosquito, attention need only be called to our illustration. From this it will be seen that the head of the malaria mosquito is in line with its body, and that the straight line formed by body and head sets at an acute angle with the surface on which the mosquito rests. In the case of all other mosquitoes, a smart bend in the thorax throws the body out of line with the head into a plane parallel to the basic surface. This position of rest at an angle distinguishes the malaria carrier from all other varieties of mosquitoes, rendering it easy of recognition by even a novice, and at some little distance.

As a rule, malaria mosquitoes bite only after nightfall. They are not strong fliers, no instances having been recorded of flight exceeding half a mile from breeding places. Nor are they ordinarily found

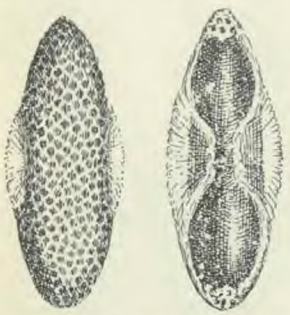


MALARIA MOSQUITO COMMON MOSQUITO

at high altitudes, their home of choice being low-lying, swampy land.

All species of malaria mosquitoes make every effort to enter houses. They hibernate in the adult stage in outbuildings, cellars, etc., and have been seen during the winter months covering the inner walls of cellar storerooms so thickly that their bodies touched over a space of several square feet.

2. *The Yellow Fever Mosquito.*—Yellow fever has been proved to be carried by only a single species of mosquito. *Stegomyia calopus* (also known as *Stegomyia fasciata*, and formerly as *Culex fasciatus*). *Stegomyia calopus* is a rather small and very handsome mosquito, dark in colour, with silvery white bands on the legs and palpi, silvery spots on the sides of the thorax and abdomen, and conspicuous, lyre-like silvery stripes upon its thorax. In the British West Indies it is known as the striped-legged mosquito. It is also known as the day mosquito, because it is most active and bites chiefly by day. It is a domestic mosquito, being seldom found far from human habitations. It breeds in chance accumulations of water about houses, the female depositing approximately fifty eggs at one time. These eggs are very resistant, and will withstand drying for a period of at least three months. Kept thoroughly dry for this length of time they will hatch on being placed in water. Normally the eggs will hatch in from twelve to seventy-two hours, depending on the temperature of the water. After escaping from the egg, the larva grows very rapidly, reaching the pupa stage in as short a time as six days. Development is most rapid in foul, stagnant water containing some sewage. The minimum duration of the pupa state is forty-eight hours. It is, therefore, possible for the mosquito to develop from the egg in as short a time as eight and one-half days. This allows for the egg-stage twelve hours, larva six days, pupa two days. The yellow-fever mosquito is very long-lived, an adult female having been experimentally kept alive for 150 days. In the dry season, and during the winter, such a length of life is certainly common. After an epidemic of yellow fever a new outbreak from infected mosquitoes is, therefore, possible within this period.



PUPÆ OF THE MOSQUITO

3. *The common or domestic mosquito,* which lives about houses in all parts of the civilised world, belongs to the genus *Culex*. The type of the genus is *Culex pipiens* of Linnæus, the larvæ, or "wrigglers," of which are the common inhabitants of domestic supplies of rain water. The mosquito lays its eggs on the surface of the water in an irregular, raft-shaped mass. The usual number of eggs deposited by a single female is from two hundred to four hundred. The entire egg mass is about one-fourth of an inch in length. In warm weather the eggs hatch in from sixteen to twenty-four hours. The larvæ issue from the underside of the egg mass, where they remain for a few hours. They are very active, and wriggle often to the surface to breathe, air being drawn through a tube near the tip of the tail. The wriggler matures in about seven days, when it becomes the pupa. The pupa stage lasts about two days. At the end of this time the full-grown mosquito emerges, using the pupa shell as a boat in which to ride until its wings are dry enough to enable it to fly.

"WRIGGLER" OR LARVA OF MALARIAL MOSQUITO

Methods of Mosquito Destruction

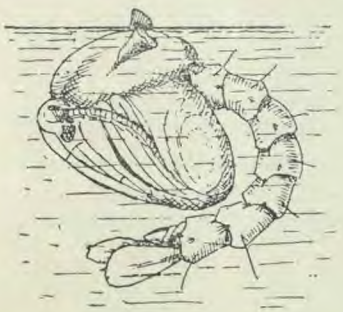
The life history of all varieties of mosquitoes is similar. All pass through the egg, larva, pupa, and adult stages, and all require still water to enable them to breed. Effective methods of mosquito destruction may therefore be directed to the prevention of breeding by the drainage of ponds and swamp lands, the flushing of gutters and sewers, the screening of cisterns and other sources of domestic water supply, and the covering with kerosene oil at

intervals of less than ten days of water holes which cannot be drained.

Each householder is largely responsible for his own mosquitoes. Their breeding-places should be destroyed so far as practicable or possible, and it should be borne in mind that anything that will hold water in an undisturbed state for a period of eight days or longer may serve as a breeding-place for mosquitoes. Thus broken bottles, old tins, hollow stumps, and open receptacles of all sorts containing water, or capable of catching water during a shower, may be utilised by the ubiquitous mosquito as a nursery for her young.

The Prevention of Mosquito-Borne Diseases

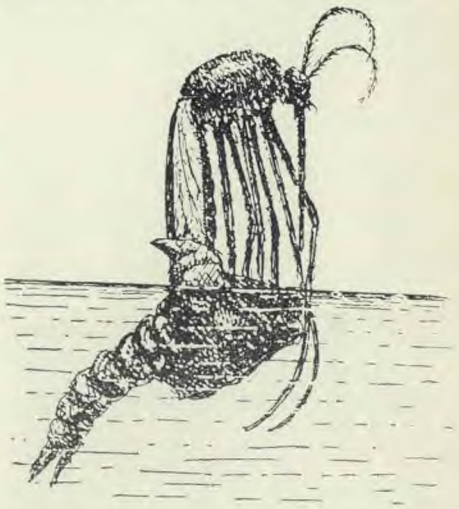
The prevention of mosquito-borne diseases lies in the destruction of this insect pest. Destroy the malaria and yellow-fever mosquitoes, and these diseases will cease to exist. Destroy the domestic mosquito and dengue fever will cease to disturb trade and render miserable millions of dwellers in warm climates. Many instances might be cited to show how quickly and simultaneously these diseases disappear with the vanishing mosquito. Thus by the destruction of the mosquito yellow fever which for a century was the



PUPA OF MALARIAL MOSQUITO

scourge of New Orleans and other American cities has been entirely banished. In a similar way the Panama Canal Zone, the Roman Campagna, and other places, have been freed of malarial fever. With the intelligent co-operation of the people equally good results may be achieved in other places. An interesting example of the ease with which a district may be freed of disease due to mosquitoes is furnished by the Medical Officer of Health at Port Said, Egypt. He writes:—

"Egypt has always been subject to periodical epidemics of dengue or dandy fever. In some of the towns the disease seems to be endemic, but sudden outbursts occur which spread all over the country. The disease presents the same characteristics as in



ADULT MOSQUITO EMERGING FROM PUPA

other parts of the world, and rarely gives rise to much difficulty in diagnosis. During epidemics the classical symptoms are very evident, including the pains, the apyretic period, and the rashes, which are sufficient to differentiate it from influenza. When pandemics of the disease occur in Egypt, every town is invariably attacked, and few people escape. The death-rate, however, is very small, though the debility and cardiac depression following an attack occasionally account for the sudden deaths of a few individuals who before were healthy. Since the discovery of the means of the transmission of malarial fever, it has been suggested by various writers that dengue fever is also conveyed from the sick to the healthy by the mosquito. Apparently Graham, of Beyrout, was the first to bring forward strong evidence of this, and he named *Culex fatigans* as the culprit. Since that date, further and conclusive evidence has been brought forward to support this statement.

"Dengue fever used to be as prevalent in Port Said as in other parts of Egypt, up to the year 1905. An epidemic of the disease occurred in this town during the summer of 1904, and in the spring of 1905. This epidemic spread through all the towns of Egypt, and was most severe. The hospitals were full of cases, and other patients actually contracted the disease during their stay in the institutions. In Port Said almost everyone suffered from an attack, and the place was regarded as fever-stricken and unhealthful. The town was full of mosquitoes, including two species of *Anopheles*, *Culex fatigans*, and *Stegomyia* in abundance. These mosquitoes were breeding in cesspools under the houses, in basement-cellars flooded

with sewage, garden-fountains, barrels containing water, etc., and were a veritable pest day and night, summer and winter.

"In May, 1906, a campaign against mosquitoes was instituted in the town as a general sanitary measure, with funds subscribed by the Egyptian Government and the Suez Canal Company; the support of Prince d'Arenberg, president of the Canal Company, and Sir Horace Pinching, late director-general of the Egyptian Public Health Department, having been obtained. Two mosquito brigades were formed—one for the European, and one for the native quarters of the town; and the oiling of all stagnant water was practised once every week. Cesspools were rebuilt and cellars filled up, with the result that within three months the mosquitoes were reduced to a negligible quantity, and mosquito nets largely dispensed with. Now, after two years, mosquitoes have become so rare in the town that they can be ignored; and malaria, though never very prevalent, has completely disappeared. But dengue fever has disappeared also, no case having been treated in Port Said since July, 1906. During the early part of that year, before the mosquito extermination work began, dengue fever appeared as usual. Thirteen hundred cases were treated in the hospital alone during April and May; and then as the mosquitoes disappeared the disease stopped, and has not recurred since. In September, 1906, a severe epidemic raged throughout Egypt, beginning at Assuan, and running rife in Cairo and Alexandria. It appeared in all the other towns, but Port Said and Ismailia remained free from it, no case occurring in either place. During the autumn of 1907, it again passed through Cairo and other parts of Egypt, but again Ismailia and Port Said escaped. Formerly the wards of the hospital in this town were full of cases of 'fever' during the summer months, but now the beds are used for other cases, which no longer contract fever, although the mosquito nets have been removed. The extinction of the mosquito is greatly simplified in Egyptian towns owing to the dry summers, and the results can easily be watched. Port Said has a population of fifty-six thousand, and Ismailia ten thousand. The cost of the mosquito work in the former town is 1s. 6d. per head of population per year, while in the latter it is nearly 1s. 6d. per head, owing to extensive irrigation works which have to be regularly dealt with.

"It would seem, then, that the extermination of the domestic mosquito means the prevention of dengue fever, which, although not a very fatal disease, is one which causes endless misery in warm climates, besides being a great hindrance to trade."

Individual protection consists in keeping away from the mosquito. One may live in a malarious swamp without contracting malaria, provided the nights from sunset to daylight are spent inside a tightly screened house. This was done in the Roman Campagna by Doctors Sambon and Low, of the London School of Tropical Medicine. A better method consists in living, or spending the nights, above the mosquito level.

In the case of yellow fever, in order to transmit the disease, the mosquito must bite a yellow-fever patient during the first four days of the disease. Twelve days must elapse from the time of biting before the mosquito can transmit the disease to another person. The prevention of yellow fever, therefore, consists in the careful screening of the patient during the first four days of the disease, and the destruction of all mosquitoes that have been in the room with the patient during this period.

F. C. R.

Sears, Photo.

Plough and Pitchfork versus Pills and Powders

By Harvey W. Wiley, M.D., Ph.D., etc.

Chief Chemist, U. S. Department of Agriculture.

SOME of the readers of this article may not associate the words therapeutics and materia medica with tillage and Mother Nature; but it is my purpose to show that in the cultivation of the soil is found the best of healing agencies, and that Mother Nature is the wisest nurse known to man.

Therapeutics treats of the modes of healing, while materia medica describes the healing agencies. If you have time, look through the next book you see on the subject of therapeutics, or materia medica, and note the hundreds of things which are suggested for alleviating, modifying, or remedying diseased conditions. First, you will see drugs by the hundreds, from acacia to zingiber, with all the intermediate steps. How learnedly all these are described, and how useful, or useless, they may be for anything we may know! Their origin, their preparation, and their properties are set forth in great detail. You will find described in one or the other of these books the quantities of these remedies which should be used for each specific purpose, how they are to be administered, how often and under what conditions, the effects which they produce, or which it is supposed they produce, or which it is desired that they should produce; but you will look in vain through all these learned treatises for the most common, the most accessible, the most desirable remedy of them all; namely, the plough and the pitchfork, typifying that long series of remedies which are offered freely and bounteously to everyone who seeks them on the farm, in the forest, and in the garden. The names of these agricultural remedies are not as numerous nor as classical as those composing that vast array of substances which make up the pills and powders of the pharmacist and the physician, but their number is respectable enough.

Let us contrast the *farm-I-see* and the *pharmacy* for a short time. We will suppose that the patient whom we are treating at the present time is still able to go about. There are many thousands more sick people on the streets than in beds, and many, many more diseases which are making their way in secret than those which are being combated by physicians. Every disease to which flesh is heir must have a beginning, and it is these beginnings which pass unnoticed and unremedied until they have developed alarming stages, producing visible effects.

The sanitarium which I am offering to you is for those who still have a certain amount of mental and physical vigour, and who would resent being sent to a hospital or an apothecary. These are the men and women who are in need of heal-

ing, and who would benefit from contact with the plough and pitchfork. How many of these poor unsuspects, for instance, have ever seen the rising sun? I should like to take them for a moment up to the mountain, on a crisp October morning, as I once saw the treatment applied, putting them early to bed with the understanding that they should be

Sears, Photo.

CLEARING THE LAND

called with the first markings of the dawn to look at the spectacle of the sunrise, full of beauty, which cannot be seen in the city, and which is rarely seen by those suffering from any of these unheralded diseases.

I do not think any man or woman whose life is spent away from the land, no matter what his wealth or his state, mental or physical, ever fails of benefit by coming frequently into touch with the soil. If it is only to dig in the yard it is something. Those who have no back yard, substitute for it a little box on the window sill with a pinch of earth, which they can till and plant with flowers and shrubs. So strong is the instinct of humanity to touch the soil that even the most crowded tenements cannot extinguish it. Perhaps it is better that one should own the spot of soil which one touches, but this is not absolutely necessary.

Better than the window sill, or the backyard, is the real garden, where the soil may be turned with the plough as well as with the spade, and where the touch of the soil may be not solely for adornment and beauty, but also for the production of useful edible products. Much can the garden do toward healing the sickness of both mind and body, and sickness usually embraces both. Because Hygeia is a guardian of the mind and body and requires adoration from each, the worship of this goddess can be per-

formed only by real contact with the soil, and such worship must involve every part of the human unit.

It is not the purpose of this article to describe all the diseases which the touch of the soil can heal, because that would require an enumeration of the whole list, but simply to indicate the more subtle diseases which approach with padded foot and cat-like step, and which attack one unawares, diseases of slow progress and hidden dangers, errors of the mind and disorders of the body which the strong man or strong woman puts aside with disdain or disregard. These diseases often vanish or are stayed by the touch of the soil.

Go into the forest and cut the fire-wood, or clear the land for planting the orchard, and you destroy the progress of the tubercular bacillus, ward off or arrest the stages of Bright's disease and diabetes, strengthen the body to resist the typhoid germ, and in the burning of the scrub, you will fill the air with that empyreumatic fragrance which carries healing to the suffering organs. Even if you burn the scrub from the windward side you cannot fail to get some benefit from the healing volatile odours which are produced. One of the sweetest scents of spring to those who live on the farm is the odour from the burning briars and debris of the winter's wood getting, always having a care to keep the fire out of the forest, to prevent those destructive conflagrations which wreck and ruin the growing trees.

Lime is said to have healing properties. When you are in touch with the soil, you have to be more or less in touch with lime, for if you would grow with success such crops as clover, lucerne, peas, or beans, you must use lime liberally on the soil, for these plants do not grow in an acid environment. Many are the new fangled ways of applying lime to the soil by previously grinding and sometimes slaking it, but there is no process equal to the old-fashioned way of taking thoroughly burned lime, in pieces of its original size, and applying them in little heaps of about one-half bushel each, regularly over the field, and allowing them to remain until thoroughly slaked. Then with a shovel, if the wind is not too high, the finely separated lime, in practically molecular form, is scattered evenly over the soil.

Sears, Photo.

SEEDING AND HARROWING

Sears, Photo.

REAPING

Even if the wind is low some of the finer fragments will tickle the nostrils and the throat. In some localities it is believed that if children are taken to the gas works where lime is used to purify the gas, and are allowed to breathe the air of the purifying room where some lime dust is found, they will be made immune to diphtheria and croup. Whether this is true or not, the scattering of lime in the early morning, when the dew is still on the ground, is one of the delightful exercises which a man in touch with the land will have an opportunity to enjoy, and while feeling the benefit which he is deriving from the exercise, he will be looking forward to the luxuriant fields of clover and other crops which his labours are making possible.

Many of the benefits of the touch of the land are not directly in the healing of disease, but they are rather in the domain of prophylaxis, for it is just as important to avoid disease as to secure a remedy when it is once established. The man who comes to the soil, especially if he comes from the city, is insuring himself against disease. The insurance, too, is of a nature not nearly so expensive as that which he takes out in an insurance company, and a more frequent patronising of the farm by the insured man would do more than anything else to increase the profits of the company, for these incursions into the fields and forests certainly tend to postpone the day of disease and dissolution.

Much, however, depends upon the mental attitude of the man who holds the plough. If he follows it under stress he gets no sense of joy from the odour of the turned sod, and the performance of his work is not securing to him its full value from a health point of view. The man who handles the plough and the pitchfork with no sense of enjoyment loses the desirable effects of his task just in proportion to his sense of its tedium. That is why country life does not always benefit the farmer.

The man who lives on the farm the year round must not be forgotten. This man might better take his recreation in the city. It is not a good thing to remain upon the farm every day in the year. The circle of vision becomes restricted, and it is not best to be so much alone.

But I am writing more particularly for those who come to the land as a recreation and as a health resort, in the hope that more of those who are able to get the benefit of the country will do so than at the present time. There are hundreds and thousands of people now living in cities, engaged in wearying occupations, pleasure by those who seek recreation from city occupations and fatigue. Nothing, to my mind, seems more helpful in the prevention of disease and the restoration of health, than these excursions into the country. The work which is undertaken is not a task but a pleasure. It brings into healthful exercise every muscle and every emotion. There is scarcely any task which is undertaken on the farm, from milking the cow to the finishing of the straw stack, which does not bring every muscle of the body into play and excite in the mind a lively interest which works miracles. A man can

Sears, Photo.

CARTING AND STACKING

the subjects of worry, mental and physical, who could easily give a week or a month each year to pastoral pursuits. They could follow the sheep and cattle from the pasture and into the folds, if nothing else, and could get from exercise of this kind more benefit than from golf or tennis, or from any set method of doing things. In fact there is no occupation connected with farm life which may not be entered into with profit and go away from his desk broken down with worry and fatigue, discouraged and despondent, and after a few days spent in the country recover the resiliency of both mind and body.

I do not by any means wish to discourage the exercises of the city man in the gymnasium or his own room, swinging Indian clubs, bending the body back and forth, exercising with the trapezes, rings, and parallel bars, or at games of tennis and

golf. All are doubtless helpful, but to my mind none of them can compare in efficiency to following the plough, or handling the pitchfork, hoeing the corn, assisting in shearing the sheep, harvesting the wheat, scattering the lime, burning the brush, and living for a day or two next to the heart of Nature, close to the fragrant soil, feeling the pulse of life in the growing crops.

Finally the farm stands waiting as Nature's sanitarium for that man who has broken down altogether under the strain of city work, and for whom dyspepsia, neurasthenia, or kindred ills, have made life no longer worth living. Such a man's salvation lies in giving up his business entirely, cutting loose from the city and the sedentary life, and going back to the land for good. Many a life might be saved that way, and many a painful existence made happy and useful, where pills and powders are utterly worthless. It takes a good deal of will power, perhaps, and close figuring sometimes, but if it means good health, it's worth it.—*Country Life in America.*

The Poisons of Soils

CONSIDERABLE evidence has been accumulated during recent years to show that the cause of the failure of some soils to produce satisfactory crops may be ascribed to unfavourable conditions produced in the soils by the plants themselves. It is thought that during the growth of the plant certain unknown organic substances are given off which, when they accumulate in the soil to any extent, are harmful to the further growth of plants of the kind that produced them. It is possible that some of the benefits known to arise from systematic crop rotation may be explained on this basis. These harmful substances seem to be disposed of rapidly by certain soils, usually those in which organic matter is readily converted into humus. Other soils, usually marked by a lack of the brown carbonised organic matter, do not seem to possess this property of removing harmful products to such a degree. This idea is in accord with common experience, that dark-coloured soils, well filled with organic matter, are very productive.

In connection with the study of these poisonous organic productions, it has been found that they may be destroyed or at least rendered harmless in a variety of ways. Barn-yard manure or decaying organic matter, such as a green crop of rye or cowpeas, turned under, has a very marked effect in freeing the soil from them. Almost all of the common commercial fertilising materials act more or less in the same way. Commercial fertilisers for soil improvement have, therefore, another value besides adding plant food. Thorough and complete airing of the soil will often destroy or overcome these poisonous substances. The beneficial effects of ploughing and of thorough surface tillage are thus explained, in part at least, on the basis of the thorough aeration secured. When the same crop is not grown oftener than every three or four years on the same land, the injurious substances a crop throws off seem to have time to disappear before the same crop is grown again; hence the benefit from crop rotation. When the soil is well supplied with humus there is seldom any trouble from this source, and the same crop may be grown year after year with good yields, though continuous cultivation of the same crop may invite injury from certain insects and fungous diseases which live over in the soil or in the remains of the crop and offer injuries to the soil against which it is not always possible to provide remedies.

Sears. Photo.

THOUSANDS OF PEOPLE NOW LIVING IN CITIES COULD GIVE A WEEK OR A MONTH EACH YEAR TO PASTORAL PURSUITS WITH ADVANTAGE TO THEMSELVES (See page 343)

Beauty Culture Out-of-Doors

By M. E. Olsen

BEAUTY as well as health is the offspring of outdoor life,—a fact which the young woman should not forget. The formative influences of nature, though too subtle to allow of close analysis, are none the less powerful. Wordsworth has given fitting expression to a great truth in those incomparable lines describing the rearing of a natural girl:—

"The floating clouds their state shall lend
To her; for her the willow bend;
Nor shall she fail to see
Even in the motions of the storm
Grace that shall mould the maiden's form
By silent sympathy"

"The stars of midnight shall be dear
To her; and she shall lean her ear
In many a secret place
Where rivulets dance their wayward round,
And beauty born of murmuring sound
Shall pass into her face.

"And vital feelings of delight
Shall rear her form to stately height,
Her virgin bosom swell."

Richard Jefferies has tritely remarked that "it takes a hundred and fifty years to make a beauty—a hundred and fifty years out-of-doors." "Open air," he continues, "hard manual labour, or continuous exercise, good food, good clothing, some degree of comfort,—all of these, but most especially open air, must play their part for five generations before the beautiful woman can appear. These conditions can only be found in the country, and consequently all beautiful women come from the country. Though the accident of birth may cause their register to be signed in town, they are always of country extraction."

N. J. Caire, Photo., Melb.

HOLIDAY TIME, SANDRINGHAM, PORT PHILLIP BAY

Active outdoor habits are necessary to maintain beauty as well as to create it. There is nothing better than a brisk morning walk to give brightness to the eyes and colour to the cheeks. Let toilet preparations be used in any quantity,

a clear, transparent skin is impossible without sufficient outdoor exercise to maintain a good circulation. If we desire beauty that, instead of quickly fading away, matures and takes on added richness and depth, we must look to the outdoor girl to furnish it. She alone is in the possession of—

> "Health and the joy that out of nature springs,
> And freedom's air—blown locks."

Beauty of form, in many ways more important than that of the features, is naturally dependent on well-rounded physical development. The lithe willowy figure which some young women covet, is not to be attained by tight-lacing, a custom ruinous alike to beauty and to health, but is the result of an outdoor life combined with judicious physical culture. Moreover, vim, vivacity, and that indescribable *esprit*, without which beauty itself is cold and unattractive, spring from a well-developed and naturally vigorous body.

It is a mistake to suppose that outdoor exercise is unnecessary for the young woman whose daily work indoors, perchance in department store or factory, involves physical strain. When one stands behind a counter displaying goods or talking to customers till weary in mind and body, there is vast difference between such exhaustion and the healthy tiring of the muscles through open-air exercise. The latter prepares for restful, refreshing sleep; not so always the former. No amount of labour indoors, especially in buildings where the ventilation is not the best, will take the place of the morning constitutional or other regular outdoor exercise. On the other hand, activity in the open air will impart solidity and strength to the muscles, and fit them to stand the strain indoors.

While the young woman needs physical recreation in the open as much as the young man, she should be careful to avoid undue exertion. Such games as golf and tennis are useful in that they quickly disengage the mind from the accustomed work in school, office, or factory; but there is always some danger in the midst of the excitement which competitive games inspire, of incurring overstrain. It is well to make it a rule, in playing games of any sort requiring physical exertion, to stop short of exhaustion.

For the majority of women, walking is the best and safest all-round exercise. Swimming is a fine second, being admirable as a means of acquiring a good bust development and a graceful carriage. Garden-making also is a delightful recreation, which may well occupy some spare hours during the spring and summer.

Beauty Sleep

ALTHOUGH it is true, in a certain sense, that beauty is only skin deep, it is certainly not true in another sense. Real beauty signifies clearness of skin, wholesomeness of tone and of colour, and an air of perfect health—just as much as it is indicated by any contour or outline of the features. Real beauty cannot be possessed by any woman who does not possess a clear skin, free from pimples, blackheads, etc., and unless her body is possessed of a certain amount of vitality and animal spirits. If the system is full of energy, that is at least one great step toward a clear, healthful skin, and so, toward beauty.

"OPEN AIR BOYS HAVE NO DIFFICULTY TO SLEEP AT NIGHT TIME."

Sleep Creates Energy

The human body more nearly resembles the electric motor than it does the steam engine; it receives its energy during sleep, and we wake up in the morning refreshed by the night of quiet, sweet slumber. No matter what may be the trouble with us—whether it be a headache, a cold and pain, or a fit of "the blues"—we always have a kind of innate feeling of assurance that we shall wake in the morning well and active and full of energy, and with our viewpoint changed and rendered normal. Nor are we mistaken in this kindness on the part of nature. Almost invariably we find that we awaken in the morning with a feeling of freshness and vigour that gives to life a new colour and zest. The more healthful and refreshing the sleep, the more physical and mental energy we have upon arising, the more can we enjoy life and its possibilities. And the more radiant the expression, the clearer the skin, the more really beautiful is the woman.

How, then, may we increase the life-giving power of our sleep; how may we spend the hours of rest and sleep most wisely and profitably, so as to get the greatest benefit from the time allowed? Many may think that this makes no difference, that "sleep is sleep," and that the kind or quality of sleep makes little or no difference—if, indeed, there *is* any such difference at all. But this is by no means the case. It is true that we know so little about sleep, in its true nature and essence, that we cannot always give as minute instructions as might be desirable; but there are certain general rules that should be followed, and even particular rules for particular occasions.

How to Sleep

First, a few words as to the hygiene of sleep. The sleeping room should be as

roomy as possible, well aired and well ventilated, and it is best to have at least two windows in it. At night these windows should be opened both top and bottom, except in the bitterest weather, when they may be opened at the top only. If it is a choice of opening them at the top or the bottom, by all means open them at the *top*, for the reason that cool air always has a tendency to descend, and the hot air to ascend. But have as much air as possible at all times in any case. The next point to be considered is the light. Never sleep with an artificial light in the room unless absolutely necessary. When you retire, pull up the blinds, and let the morning sunlight and air stream into the room. It will wake you up a little earlier, perhaps, but that will do you good, and a brisk walk before breakfast will perform wonders on occasion.

About Bedclothes

Then, never have too many or too heavy bedclothes on the bed. Rather sleep too lightly clad, wake up with the cold, and pull on something warm early in the morning, than sleep too warm all night. Feather beds are an abomination, and cannot be too strongly deprecated. The bed should be more or less hard, while yielding to the body. That is the only hygienic bed.

Be careful not to sleep too warm; nothing will deplete and exhaust one more than a stuffy bedroom and too many warm bedclothes. You will wake up in the morning with tired, heavy eyes and a feeling of general listlessness, instead of sprightliness and buoyancy. Do not have heavy bedclothes, and wear no flannel at night—nothing but linen.

Sleep with the head rather low. Use only one pillow, not too soft. The Japanese use a sort of hard roll for a pillow that fits into the curve of the neck, and it is said that the grace of carriage of the Japanese woman's head is due to this fact.

Never go to bed with cold feet; warm them up with a few exercises, or a warm foot-bath followed by a plunge in cold water. Then dry them quickly and get into bed at once. Do not sleep on the back; lie on one side—preferably the right, on account of the heart—or, better still, on the front of the body, with the head turned to one side. If the head is feverish on going to bed, bathe it in cold water just before retiring.

Preparing for the Night

Never eat a hearty meal before going to sleep. The stomach should be virtually empty when you retire to rest. It is very good (especially for the complexion) to drink a glass or two of water on going to bed, and another immediately upon waking in the morning and before breakfast. A warm bath just before retiring is very beneficial; it soothes the nerves, and draws the blood down from the head into

A WALK BEFORE BREAKFAST WILL PERFORM WONDERS

the body, thus removing one of the chief causes of insomnia.

What is to be done to cure insomnia, should such exist? Insomnia is almost invariably a symptom of another disorder, rather than one in itself; but there are certain palliative measures that may be

applied with good effect in most cases. I shall mention a few of the most important.

Sleeplessness

First of all, let me warn the patient what *not* to do. Never take drugs or sleeping powders unless absolutely necessary and as a last resort. They have a tendency to make the patient rely upon them, and soon he or she has formed the habit, and will be unable to sleep at all without some soothing drug. This is a very harmful, in fact, dangerous state of affairs, and should be avoided by all means. Sleeping powders should be taken only on the advice of a physician.

Insomnia results, in the majority of cases, from irritability of the nervous system, and particularly the brain, causing an excess of blood to be retained in the head. The prime object in nearly all such cases is to withdraw this blood from the brain, when it will be found to quieten down and permit of sleep. This may be done in any of the following ways:—

Take a warm bath just before retiring.

Bathe the feet in warm water, finally splashing cold water over them for a moment at the end of the bath. Dry rapidly, and get into bed.

Have a hot-water bottle at the foot of the bed.

Take a few exercises just before retiring.

Take deep-breathing exercises. (This is a very good measure if the air is pure.)

Compose the mind; make it blank, and think of nothing. By concentrating on *nothing*, in this way one can frequently induce sleep.

Counting and such measures may suit some people; I personally have never seen a case in which it was found to be efficacious.

How Long Should We Sleep?

How much sleep does one require? That varies largely with the individual. As a general rule it may be said that the thin, active, wiry persons require more sleep than their stouter and more phlegmatic brothers and sisters. They frequently take less, owing to their greater activity, but they require more, in reality. As a general rule a man requires from six to eight hours; a woman from seven to nine hours, and a child from nine to twelve hours. Children do not get nearly enough sleep, as a rule. Most children need less food and more sleep. As a rule they are vastly overfed and have too little sleep. Sleep is the great energizer, and they should be allowed all they crave. They will never want too much if they are free from disease; and all they crave they should have.

THE OUTDOOR LIVING ROOM

The Great Beautifier

To return more definitely to the subject of this paper, I strongly recommend to women—and particularly young women—to make a practice of going to bed *very* early at least once or twice a week. Continued loss of sleep will have the ultimate

effect of draining the vital reservoirs and causing premature old age and loss of health and of beauty almost sooner than anything else.

As soon as the vitality becomes depleted, the face shows it; lines begin to appear, which will develop into wrinkles, unless taken in time and properly treated. Sufficient sleep will check this in the initial stages. Many of the world's most beautiful women claimed that they retained their youth and beauty because they always insisted on their regular hours of sleep, and it cannot be doubted that we should see more well-preserved women to-day if they followed the good example of their ancestors in this respect. The drawn, haggard expression and the feeling of "tiredness" would soon disappear if a week of early retiring were insisted upon. —*Hereward Carrington, in Woman's Home Companion.*

Wonders of Modern Surgery

BY a remarkable operation in the New York Hospital for Deformities, Dr. S. W. Frauenthal, an eminent American surgeon, used a man's shin bone to make a new leg for a woman. Dr. Frauenthal states that the grafting has been very successful, and that she will soon have as sound a leg as any nature ever made. The patient, a servant girl named Katherine Neary, aged 35, was admitted to the hospital with her left leg from the knee to the foot swollen to twice its normal size. Several eminent surgeons in other New York hospitals where she applied for treatment said that amputation was the only cure. The woman protested against amputation, and gave her consent to Dr. Frauenthal to try a new bone grafting process, with which Dr. Carrel, of the Rockefeller Institute, has recently been experimenting on animals. Dr. Frauenthal's problem was how to remove the woman's tibia, or shin bone, which was badly diseased, and replace it with a healthy bone. He secured from one of the New York emergency hospitals the left leg of an unknown man, who had died, and who was destined for a pauper's grave. The leg was carefully pared, and the tibia thoroughly cleansed and preserved in a saline solution. The operation occupied three-quarters of an hour. The flesh was cut from the tibia, and a section of bone eight inches long was removed, leaving part of the bone remaining at the top and bottom to give an anchorage for the new tibia. This was cut a fraction of an inch longer than the length removed from the bone, and was hammered into position and held firmly by pressure at both ends. The skin was restitched, leaving an open wound measuring an inch and a half, to be closed later by grafting skin taken from other expatients. After the operation ended, and while the patient continued unconscious, she was lifted upright and made to bear heavily on the new leg, which bore the pressure well, doing away with the necessity for the use of stiff bandages as supports. Dr. Frauenthal says the new bone will grow into the remains of the other at the top and bottom junctures, and as the flesh gathers around, and the blood resumes circulation, it will become an integral part of the limb, without any sign of lameness.—*Selected.*

Where Is My Blood?

THE average person carries about with him something like two gallons of blood. The moment we begin to eat, the larger part of this total amount of blood runs to the stomach so as to help in the digestion of the food. There is not enough blood left to do special work in any part of the body. The same thing happens when we do brain work. The brain immediately draws to it something like two-thirds of the total blood so as to help it in its work, and again not enough blood remains in any other part of the body for active work.

If we exercise, the same condition prevails. The muscles called into play immediately call to the blood to help them do the active work asked of them. In other

words, the bulk of the blood can never be in two active places at the same time. Thus, if we exercise immediately after eating, the blood is called to the muscles before it has finished its work in the stomach, and leaves that work undone and the food undigested. The same condition is true if we do active brain-work either while eating or directly after eating. The blood is asked to be in two places at one time, and that it can not be, as there is not enough to go around.

The lesson of the blood is very simple if we look at it in this way—it can do but one thing at a time and do it well. And the woman who wants to be healthy should ask herself, "Where is my blood now?" and then see to it that it is not taken away from one piece of work before it has finished that work, or to do two things at the same time. And after all, the lesson of the blood is the lesson of life—we can only do one thing at a time and do it well. —*Ladies' Home Journal.*

The Value of Trees to a City

A CITY forester who is endeavouring to interest all citizens to help in the work of city beautification gives the following twelve reasons why trees should be planted and properly cared for:—

Trees are beautiful in form and colour, inspiring a constant appreciation of nature.

Trees have an educational influence upon citizens of all ages, especially children.

Trees encourage outdoor life.

Trees purify the air.

Trees cool the air in summer, and radiate warmth in the winter.

Trees improve climate, and conserve soil and moisture.

Trees furnish resting-places and shelter for birds.

Trees enhance the value of real estate.

Trees protect the pavement from the heat of the sun.

Trees counteract adverse conditions of city life.

Trees create sentiment, love of country, State, city, and home.

Trees enhance the beauty of architecture.

It has been calculated that a single tree is able through its leaves to purify the air from the carbonic acid arising from the perspiration of a considerable number of men, perhaps a dozen or even more. The volume of carbonic acid exhaled by a human being in the course of twenty-four hours is put at about 100 gallons; but by Boussingault's estimate, a single square yard of leaf-surface, counting both the upper and the under sides of the leaves, can, under favourable circumstances, decompose at least a gallon of carbonic acid in a day. One hundred square yards of leaf-surface then would suffice to keep the air pure for one man, but the leaves of a tree of moderate size present a surface of many hundred square yards.

Aid to Husbands' Memories

THE United States Government is undertaking a cure for men who forget to mail their wives' letters. The post-office department, as an experiment, has installed mail boxes in street cars in the city of Washington. If it works well in the capital, this aid to bad memories will be extended to other cities. The idea is that with a mail box staring him in the face while a man is on his way to his office, there is no excuse for his carrying a letter in his pocket more than three or four days. Thus far the post-office has provided no relief for the wife whose husband forgets to bring home the butter or order the coal.—*Selected.*

Isolation and Disinfection

In Two Parts

PART I—INTRODUCTORY

THE diseases considered in this article are those most prevalent among us, such as typhoid, scarlet fever, and diphtheria; but the instruction given as to dealing with secretions and excretions, and the caution enjoined as to the utmost care being used to avoid spreading infection, will apply to other diseases as well as those specially mentioned.

TYPHOID FEVER, or enteric as it is also called, is usually contracted by healthy persons in the prime of life from those suffering from the disease; but no age is exempt from its attacks. The infection is spread by the disease germs present in the bowel discharges and in the urine.

SCARLET FEVER, or scarlatina, is a very "catching" disease. Children below the age of fifteen are most susceptible to its attacks. The disease is generally conveyed to others by the breath of the person who is ill of it, or by secretions from the nose, throat, and ears, and by the small particles of skin thrown off from the body during "peeling." The opinion prevails among some people that scarlet fever is not a very serious complaint. This is a dangerous error, which may cause people to be negligent of the proper precautions to be taken to arrest the spread of the disease. While in some epidemics the mortality has been no higher than one in a hundred cases, in others the average has been as high as one in every three attacked.

DIPHTHERIA, like scarlet fever, is also very "catching." As a rule it confines its attacks to young children. The infection is given off in this instance in the secretions from the nose and throat. The throat symptoms of the malignant form of scarlet fever, the disease just mentioned, resemble those of diphtheria very closely. The presence of other cases of scarlet fever in the neighbourhood will usually assist in making a correct decision.

Where the mild form of any of these diseases has been taken, it may be difficult to place under confinement the person attacked, who does not feel very sick, if at all. Therefore, children should be carefully guarded against those having sore throats, and those so affected should not be permitted to go to school, or to meetings of any kind, until the soreness of the throat has entirely disappeared.

As soon, therefore, as anything unusual or peculiar is observed in the appearance or manner of the child or even the grown person, it would be well at all times to be on the alert. There will be cases, however, in which, in the early stages of the disease, there will be nothing to arrest the observer's attention; but the grown

person will usually be able to analyse his own strange feelings, and describe them intelligently to his unsuspecting friends, so that an impending attack of a serious complaint, infectious or contagious, may often be prepared for before the disease has had time to make much headway. The child, however, may be "sickening" for some dreadful disease, and be innocently playing with its companions as usual, all unconscious of its own dangerous condition or risk to others.

When, therefore, a child is observed to be unusually restless and petulant, or vomiting; or if there is a suspicious little cough, a sore throat, tenderness and swelling at the angle of the jaw, or feverishness, or chill, a reddened face, no desire for food,—any of these symptoms alone should put parents on their guard, and cause them to deal with the emergency without any hesitation. The unusually flushed face referred to, which is a very important symptom, should be remembered, as it may gradually disappear. The cough or sore throat may of themselves be very suggestive of typhoid, scarlet fever, or diphtheria; and if the case is dealt with in time, it may result in saving the child's life, or from what are known as "after effects," so very serious in some instances as to be a lifelong calamity. Or promptness may be rewarded by sparing the district of an epidemic to which there might have been many victims.

Where scarlet fever or diphtheria has been contracted, especially so when taken in its mild form, the unwilling child may have to be taken from its comrades in the street or playground of the school, and isolated. Not feeling sick, the child may protest vigorously, feeling that its liberties are being unjustly interfered with. Should the child live and retain all its organs in good condition, especially the sense of hearing; or should the kidneys remain unimpaired, it will be thankful for the wise restraint placed upon it in its younger days. Deafness, disease of the ears, dropsy, and inflammation of the kidneys, may also follow and leave their results throughout life.

The same remarks apply to typhoid in its mild form. The grown person, which is the age at which this disease is usually taken, may be able to get about, and may strenuously object to confinement; but he is nevertheless running great risks in so doing, not only for the present, but afterwards, and is also endangering the safety of others who may be less fortunate than he in combating disease.

In all suspicious cases the physician should be called without delay to settle doubts, and, if necessary, to direct in the management of the case.

While waiting the arrival of the doctor, as time is precious, preparation could be begun at once for isolation, and the patient be given a gentle laxative and a rectal injection to cleanse out the alimentary canal, and ensure as easy and safe a passage as possible through the expected attack. A. S.

In Praise of Lemons

LEMONS in hot weather are not only refreshing, but beneficial. The great value of the acid salts of lemons lies in their solvent properties of the lime salts of the blood and of the precipitated calcareous deposits in the mouth and through the tissues of the organism. Electricity, says Mr. J. C. Richardson in *Health Record*, has the property in many cases of throwing these excesses of lime out of the blood, but the cure is never permanent, and can only be satisfactorily treated by a system of positive removal through the kidneys or skin. And for this purpose lemons judiciously used, so as not to upset the mouth or digestive functions of the stomach and intestines, are an ideal fruit.

A REVIEW of modern medical progress by Dr. John Shaw Billings strikes Prevention as its dominant note. To-day the aim of the great physicians is not simply to restore health when lost, but the maintenance of health while still unimpaired.

Water as a Healing Agency

By D. H. Kress, M.D.

WATER as a therapeutic agency has been employed for ages. The ancient Hebrews, Egyptians, Greeks, Persians, and Romans all recognised its value both in health and disease. The association of water with healing is illustrated in the case of Naaman the Syrian, who was commanded by the prophet, "Go and wash in Jordan seven times;" also in the command by Jesus, "Go, wash in the Pool of Siloam;" and by the famous water resort, Bethesda, where the sick gathered "waiting for the moving of the waters." Eminent physicians have in the past been enthusiastic advocates of water as a therapeutic agent. No one man, however, has done more in modern times to call attention to its virtues than the Austrian peasant, Vincent Priessnitz. Priessnitz, fortunately, from youth up lived close to the heart of nature. He was a close observer. Early in life he noted the effect changes of temperature exerted on plant and animal life.

THE FAMOUS WATER RESORT, BETHESDA, WHERE THE SICK GATHERED "WAITING FOR THE MOVING OF THE WATERS."

The following incident made a lasting impression upon his mind, and convinced him that water was of value in the treatment of disease: His attention was one day arrested by seeing a roe which had been wounded in the thigh, drag itself with difficulty to the source of a spring. He witnessed how it placed its wounded thigh in such position as to have it completely covered with the flowing water. He watched the repetition of this procedure at intervals until the injured member was restored to usefulness.

At the age of eighteen he himself sustained a serious injury as the result of an accident. Surgeons pronounced his life in imminent danger, and predicted that if recovery took place he would remain an invalid for life. He then made use of his previous knowledge, and began the use of cold-water bandages and compresses, changing them at frequent intervals. This treatment he kept up until he was completely restored to health.

His faith in water as a remedial agency was now fully established. Whenever and wherever he heard of anyone having sustained bruises or sprains, he recommended the use of water, and in many instances administered the treatment himself. Later he employed water in the treatment of rheumatism, gout, and other diseases, with equal success. He acquired a reputation in his neighbourhood as the water-cure doctor. His reputation spread to other parts, and finally became world-wide. He found it necessary to erect a mammoth sanitarium. Men, women, and children came to this famous water cure from great distances, to be healed of diseases which refused to respond to other measures.

The doctors at that time made use of powerful drugs about the action of which they knew little or nothing, and strictly forbade the use of water. As a result they lost many cases. Priessnitz's prosperity naturally created prejudice and feelings of jealousy, which later resulted in opposition and actual persecution. Once he had to appear at court. Many of

those whom he had treated were requested to appear as witnesses. Among them was a certain miller, whom the doctors in the neighbourhood had given up. The magistrate ordered the miller to state how he was cured, to which the man, who looked well and hearty, replied: "They have all helped me,—the doctors, the apothecaries, and Priessnitz. The two former helped me to get rid of my money, and Priessnitz helped me to get rid of my illness."

An Effective Pain Killer

The Fomentation

By Mrs. Elsie M Shannan

THE majority of people know of no other means of relieving pain than the taking of opium, laudanum, or some much-advertised "pain-killer," all of which in many homes may be found in the family medicine-chest. In the absence of these drugs a doctor is usually sent for, and the sufferer remains in agony until his arrival; whereas the application of a simple remedy, the fomentation, would give almost instant relief in the majority of cases. The opiates do relieve pain for a time by benumbing the nerves; but they do not remove the cause of the trouble, and so cannot be regarded as a cure. Then, too, we must remember that opium and other "pain-killing" drugs are highly poisonous.

The fomentation, or local vapour-bath, is used in place of the old-fashioned poultice, and has the advantage of being clean, light, and quickly prepared. Its uses are many. It is beneficial in all cases of local pain, such as colic, indigestion, sore throat, neuralgia, pleurisy, swellings, bruises, sprains, and injuries. It also quickly relieves deep-seated congestion by drawing the blood from the affected part to the surface. If the local pain is accompanied with great heat, and there is evidence of acute inflammation, the cold compress may give greater relief than the hot. Experience teaches that there are few painful affections which are not benefited, if not entirely relieved, by the fomentation. A weak stomach, a sluggish liver, and inactive kidneys are all stimulated to activity under its influence.

In the application of fomentations but few articles are required, and these such as are found in every household. They include boiling water, two pieces of thick, soft flannel, and one or two Turkish towels. An ordinary single blanket makes four large fomentation cloths. Prepare the patient for the treatment by removing all the clothing from the affected part. The feet should be thoroughly warmed before the treatment is begun. Then have the patient lie down on a bed or lounge. A good plan is to place a blanket, or in very warm weather a sheet, on a bed, and wrap it about him, bringing it over the fomentation after it is applied. Now place one of the pieces of dry flannel (one or two thicknesses) on the skin over the affected part. This is to allow the heat of the fomentation to reach the skin gradually, and to prevent burning. Take the other cloth and fold it lengthwise into about eight thicknesses, grasp the two ends, one in each hand, and dip the middle portion into the boiling water, holding it there for a few seconds until hot and well saturated. Now ring out as dry as possible by twisting the ends in opposite directions, and by pulling out lengthwise. Repeat the process of twisting and stretching until the cloth is wrung quite dry. If the cloth is not wrung as dry as possible, there is danger of burning the patient, also of making the bed damp. This wringing of the fomentation cloth should take only a few seconds. Quickly open out this wet flannel to the desired shape, and enfold it in the dry piece, covering it well and folding up the ends. A piece of oilcloth or of rubber sheeting makes a good covering to prevent the escape of steam; it also helps to keep the

bedclothes dry. If the room is cold, the bed covers should be drawn up and tucked in snugly at the patient's shoulders.

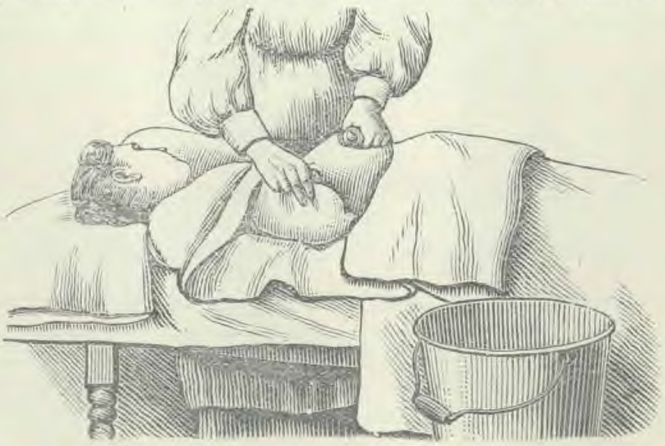
The water from which the cloth is wrung must be kept at the boiling-point until the last cloth has been applied. Water that is cool enough to bear the hands in is of no use. A small oil-stove in the patient's room will save many steps.

Ordinarily, the fomentation will require renewal at the end of about five minutes. When it is renewed, the dry cloth should be left in place, while the other is again wrung out and replaced as quickly as possible to avoid cooling. A better plan is to provide two sets of cloths, having the second fomentation ready before the first one is removed. Usually three or four changes will be sufficient for one treatment, though it may need to be repeated several times in the day. Sometimes continuous applications for several hours are necessary in cases of acute pain, or when the symptoms return as soon as the fomentation is removed. In such cases it is well, every half-hour, to replace the fomentation with a small towel, wrung out of cold water, for a minute or two.

After the removal of the last fomentation, the part treated should be wiped with a cloth wrung out of cold water; then well dried and rubbed briskly with a little oil. If the patient is perspiring, he should be given a cool sponge-bath all over, or dried well with a towel, and allowed to cool off before leaving the bed or going outside. If the cold sponging aggravates the pain after the hot treatment, as it does at times in cases of rheumatic joints, gout, and neuralgia, avoid it; but dry well, and cover the part with cotton-wool, or with warm, dry flannel, to exclude air.

The patient's feet should be kept warm during the fomentation, and the head cool; otherwise the good effect of the treatment may be lost.

In case of emergency, or where one is unable to get boiling water, the flannel may be wrung from cold water, and placed in the oven or on a sheet of iron over an open fire, or between two folds of newspaper on the top of the stove, turning it over occasionally. The wet cloth will protect the paper from burning, and the paper keeps the cloth clean, and holds the steam, which collects and heats the cloth to boiling heat. A second cloth should be heating, ready to apply when the first is removed. Or the wet cloths may be wrapped around a hot stovepipe, or placed



WRING THE FOMENTATION CLOTH AS DRY AS POSSIBLE

in a steamer, or wrapped around hot stove-lids, pieces of hot iron, bottles of hot water, or rubber bags. Moist heat is usually much more effectual than dry heat. If flannel cannot be procured, cotton cloths may be used, such as Turkish towels, but they are not so satisfactory.

While the cloths must be decidedly hot, great care must be taken not to blister the skin. This is especially important with children and aged persons, also with the insane or paralysed. Blistering can always be prevented by oiling the parts well before applying the first fomentation, and by occasionally slipping the hand underneath the fomentation, and raising it from the skin for a few seconds.

In order to accomplish good, the fomentation must be as hot as can be borne, and large enough to more than cover the affected part.

Treatment of Boils

BOILS have nothing to do with constitutional states, but are due to local infection with staphylococci. We see them breaking out as small epidemics at times. Some rowing crew composed of young men in superb physical condition develops such an epidemic. One of their number contracts a boil on his hand, and others of them get boils from handling the oars. Surely here is no vice of constitution, but a pure infection. Boils are most often seen on the back of the neck. Surely there is no constitutional condition conceivable that would cause them to limit themselves to that region. They appear there simply because the back of the neck is subject to slight traumatism, as from the rubbing of a rough collar or a collar button, and this gives the chance for the pus organisms to find entrance into the skin. Boils are frequently seen in diabetes, in which there is a grave constitutional disorder. But they are seen frequently also in scabies, in which there is no question of a constitutional disorder. In both instances their presence is due to the slight traumatisms of the skin caused by the scratching to relieve the itching, and the consequent opportunity for the entrance of the pus organisms.

It need not surprise us that boils are as frequent as they are. The surprise is that they are not more frequent, the special fungus being so common that it is often found on damp cloths hung up in a room. The only explanation of their comparative infrequency is that, as in ringworm of the scalp, there is some peculiarity of the tissues of some individuals that makes them more susceptible to infection, while the majority of individuals are protected by an absence of such peculiarity.

For a quarter of a century I have treated all boils, no matter where located, according to the method taught me by my friend, Dr. George H. Fox. Scores of such cases have been treated by me both in public and private practice with uniform success.

For the treatment of boils all that is necessary is a small piece of stick sharpened to a fine point, a little absorbent cotton, a ninety-five-per-cent solution of carbolic acid and a five- or ten-per-cent ointment of salicylic acid. As soon as the boil has pointed, and it has usually done so when the patient comes to us, a small bit of the cotton is wound about the pointed stick, dipped in the carbolic acid and bored into the softened point of the boil. This gives a chance for the pus to escape, and thoroughly disinfects the cavity of the boil. The boil is not to be squeezed. The surface of the skin in the neighbourhood of the boil is then washed over with peroxide of hydrogen, or a solution of bichloride of mercury, one in one thousand, and the salicylic acid ointment, spread on old washed cotten or linen cloth or several thicknesses of gauze, is laid over the boil and the adjacent region. That is the end of that boil, as a rule. If it is a very large boil, the operation may have to be repeated the next day. The ointment is to be kept constantly on the affected part for a week. Of course, a few new boils may appear for a few days in the region, the result of the infection of the skin follicles before this treatment was instituted. They are to be treated in the same way, and a cure will soon be attained.

There is no question that warm poulticing will relieve the pain of a boil, because it relieves tension of the skin. If such a dressing is thought to be necessary, there is no harm in using compresses of hot boric acid solution. It is not necessary if the boil is punctured with pure carbolic acid, because the acid produces anæsthesia in a few moments. Many times have I seen patients who have been kept awake for nights by the throbbing pain of the boil, go home and sleep quietly after the carbolic acid has been used.—*George Thomas Jackson, M. D.*

BABIES in Central Park, New York, are tagged with the request, "Please do not kiss me, I do not like it. It is harmful." Such tags may prevent the transmission of much disease.

Mumps

No Laughing Matter, but a Really Serious Disease

MUMPS is not the exceedingly simple disease that it was once supposed to be. While the exact germ that causes it is as yet uncertain, there is no question that it is a germ disease. It is highly contagious, and sometimes does a great deal of damage.

Here, for example, is a mere list of some of the things that may follow this disease. It is true that most of them are rare, but owing to their danger great care should be taken to prevent them. Without giving any of the technical possibilities, consider the dangers of the following: high fever and delirium, inflammation of the brain, paralysis, rheumatism, mania, inflammation of the kidneys, heart-disease, deafness, and blindness. Deafness, by the way, is not at all rare following this trouble.

Several of the other glands of the body may become infected by this disease, especially in older patients. Mumps is, for the most part, a disease of children; but it may and does attack adults, and is usually far more severe in these older patients.

The treatment of this disease should not be attempted without a physician. Owing to the fact that it is very contagious, it should be strictly quarantined. —*Ernest F. Robinson, M.D.*

How Much Fresh Air?

FRESH air, and especially fresh air in the bedroom at night, has by dint of incessant warning and preaching at last become the goal of all thinking people.

Hygiene is so powerful a goddess today that even custom and fashion must bow down to her, in theory if not in practice. There is danger here, for when people begin to credit themselves with virtues they do not possess, or to mistake decent theories for proper practice, they cease to advance in wisdom or health.

Some people take to the fresh air only as a timid bather takes to the water. They have heard that it is good for them, and they think that they think it is; but in reality they detest it, and regard it as full of threat and peril.

In a cross-examination of any dozen people as to what each regarded as a ventilated bedroom, the results would vary from a room too cold for a self-respecting St. Bernard dog to sleep in, down to one to which air leaked in from an open crack in some adjacent bathroom or corridor.

Sometimes inquirers show by their questions that they really desire to do right, hygienically, if only they knew how to begin. For these there is a motto for their banner—"Be bold, be bold, and evermore be bold!"

What constitutes bad air in a bedroom? The answer to this is, any air that has been rebreathed.

To what extent should the window be kept open in cold weather for one in ordinary health? The answer to this is, to the same extent that it should be kept open in all weather, and in all states of health —*wide*. Futhermore, when it can possibly be managed, window should be spelled with an "s." Fortunate is the sleeper who has one on at least two sides of his room. Let such a person fear no draughts, for these are the friends of mankind. Bad air and draughts do not live together. Neither do colds and draughts, hard as many people find it to believe this.

It is not wise to feel cold, neither is it necessary. It stands to reason that with wide-open windows in winter, warmer coverings will be needed. A properly ventilated bedroom will be of the temperature of the outside air, or very nearly so, and summer blankets will not avail.—*Youth's Companion.*

A SERIES of experiments recently conducted by the United States Department of Agriculture show that undrawn poultry decomposes more slowly than poultry which has been wholly or partly drawn. In either case the number of bacteria was found to be overwhelming even when the flesh still appeared to be wholesome.

Fever Diet

WHEN the body is in a feverish state there are destructive processes going on. The muscles, nerves, and other tissues are being burned up, and the resulting waste products must be eliminated through the already weakened organs.

The various systems of the body are out of order, the digestive tract particularly being affected. The patient has loss of appetite; the stomach fails to take care of ordinary food because the secreting glands are working at a disadvantage; the liver, a most accommodating organ, becomes sluggish; the bowels, ofttimes overloaded, refuse to rid themselves of their burden, or else act too frequently, being over-sensitive through irritation.

With the foregoing facts in mind we are enabled to deal intelligently with the needs of a fever patient as regards his nourishment.

There must be a sufficiency of food to replace the waste that is taking place in the body. At one time it was considered best to feed the fever patient very sparingly, but experience has shown that such a procedure is weakening. It also has a detrimental effect on the mucous membrane of the stomach. However, the nourishment given must not increase the fever. This often occurs when the digestion is very poor and the patient has been overfed.

Very often one can judge by the desire of the patient as to the quantity of food to be given, although this is not an absolute rule, for the appetite may be perverted. The meals should not be abundant, small quantities of food taken about three hours apart, or according to the direction of the physician, giving better results. It is wiser not to feed the patient during the night if it can be avoided.

Next we must consider what food is suitable. It must be that which is easily digested and quickly converted into the tissues of the body, and should leave no bulky residue in the bowels.

Since the fever has a destructive effect on the nitrogenous tissues it would appear reasonable to expect that an abundance of nitrogenous, or flesh-forming foods, would be the most appropriate, but this is not the case. Such foods are too stimulating, and they leave too much waste matter, which floods the circulation, overburdening the organs, especially the kidneys.

One authority has said, "There was a time when it was customary to overload weak stomachs with meat extracts, meat jellies, concentrated broths, consommés. In this way there was introduced into the patient's blood, already charged with the waste products of the fever, not the essential part of muscular tissue as was supposed, but an excess of extractive and irritant principles, the dissimilation of which remained imperfect and fatigued the stomach, liver, kidneys, and heart. . . . Broth is a condiment rather than a food."

Solid foods which require much mastication tire the patient, therefore it is advisable to allow only semi-liquid or liquid diet. This diet includes vegetable broths, soups of barley, rice, and cereal gruels, purées of potatoes, carrots, parsnips, tomatoes, peas, and beans. (By purées are meant foods which have been thoroughly cooked and put through a colander to remove seeds, skins, and other fibrous parts.) The flours of legumes—peas, beans, lentils—are a little harder to digest, and it is best not to give them if there is much fever.

Many of the patent foods may be used, such as Benger's, Nestles, Mellins, malted milk. We have found particularly beneficial granose flakes and biscuits, cornflakes, granola, and malted nuts.

It is necessary to be liberal in the administration of fluids. Not only do they relieve thirst, but they serve to flush out the kidneys, which are loaded with waste products. For this purpose nothing is better than pure water and fruit juice.

During the season, when juicy fruits, as grapes, strawberries, currants, raspberries, blackberries, etc., are in, every sensible housewife should see that the juices from these are bottled so that they will be available in time of sickness. If fresh or bottled fruit juices are not on hand, dried fruits may be used by boiling for some time one part of dried fruit with four or five parts of water.

Fruit juices make a very pleasant change in the dietary, the acid flavour of oranges and lemons being very agreeable. They purify the blood, which tends to become acidified during the fever, and they act as intestinal antiseptics.

Milk is a food frequently used in fevers, but if the temperature is high it cannot be borne well. It should be skimmed and diluted. Many patients can take artificial buttermilk, which proves beneficial. As other substitutes for milk, malted nuts, whey, or albumin water may be used.

If there is considerable irritation in the stomach and bowels all foods should be carefully strained to remove seeds, skins, or other fibrous material.

The mouth of the patient should be cleansed frequently, and the bowels should be regularly relieved.

Meals for the sick should be daintily served. See that the tray is furnished with the cleanest of linen and the prettiest of china available. A fresh flower on the corner of the tray brings cheer to the patient.

Foods to be served hot should be *hot*, and foods intended to be cold should be *cold*. Lukewarm foods are not tempting.

Give small servings, rather having the patient ask for more than to be nauseated by seeing a heaping plateful.

The following recipes may be helpful to those who have to deal with fever patients:—

General Rules for Making Cereal Waters.—If grains are used take two tablespoonfuls to one quart of water. Boil continuously from four to six hours. Keep the quantity of fluid up to one quart. Strain through coarse muslin.

Albumin Water.—White of one egg, one-half pint of cold water previously boiled. Break the egg into the water and stir thoroughly with a fork. Strain through coarse muslin. Add a pinch of salt.

Fruit juices may be added to the above to vary the flavour.

Whey.—Add two teaspoonfuls of pepsin or essence of rennet to milk, stand in a warm place. Break up curds with a fork, and strain off. If half a pint of whey is wanted use about one pint of milk.

Artificial Buttermilk.—Use "lactosa" tablets (directions in packet).

Apple Water.—Take two baked apples, add one cup of boiling water. Cover, and let it stand until cold, then strain, and add lemon juice and sugar to taste.

Fruit Lemonade.—Fruit juices of any kind added to strong lemonade make a refreshing beverage. Boiled water cooled should be used.

Egg Lemonade.—Beat a fresh egg thoroughly, add two tablespoonfuls of lemon juice and two dessertspoonfuls of sugar, or more if desired. Gradually add a cup of cold water, and stir until smooth and well mixed. Strain and serve.

Rice Milk.—Cook thoroughly two tablespoonfuls of rice in a pint of milk. Rub through a sieve, season with salt or sugar as desired.

Barley Gruel.—A piece of lemon rind added to barley gruel half an hour before it is done gives it an agreeable flavour.

Toasted Cornflake Gruel.—One pint of water, one cup of toasted corn flakes. Boil together for fifteen minutes. Salt to taste. Granose biscuits or flakes may be used in the same way. A little tomato juice makes a nice savoury.

Tomato Gluten.—A pint of strained tomato and three tablespoonfuls of gluten meal. Season to taste. Boil together until thickened. Serve hot.

Granose Flakes toasted in the oven and then served with strained tomato, fruit juices, or cream, make a very tasty dish.

Fruit Sauce.—Six tablespoonfuls of any kind of fruit juice, half a teaspoonful of cornflour. Blend starch with a little cold water, and pour into hot fruit juice. Boil several minutes to cook the cornflour. Sweeten if desired. It may be poured over slices of *oven* toast—bread toasted in the oven until thoroughly dried through. E. M. H.

SIR FREDERICK TREVES has spoken of "the extraordinary habit people have of taking drugs when they are ill." "If you picture," he said, "the environment of a doctor . . . you see a room with a multitude of shelves, covered with bottles from floor to ceiling. Those bottles are rapidly vanishing, and the time is not far distant when they will be reduced to an extremely small number. The empty shelves will be replaced by simple living, suitable diet, plenty of sun, and plenty of fresh air."

THE habit of viewing things cheerfully and of thinking about life hopefully may be made to grow up in us like any other habit.—*Smiles.*

A COW in Missouri, belonging to the College of Agriculture, a part of the university of the State, gave in six months 17,088.8 pounds of milk, thus beating the best record by 1,458 pounds. Her name is Missouri Chief Josephine. If used for butter the milk will produce between three and four pounds daily.

DR. MORRIS H. RICHARDSON, with an extended reputation as a surgeon, in delivering a lecture recently in the Harvard Medical School, stated that cancer on the lip is largely due to the stem of the clay pipe, and also the cigarette, both of which remove portions of the membrane from the lip and thus make a seat for the cancer.

AS you move through life, let your influence be felt and your voice raised in behalf of dumb animals. They suffer like you, they hunger and thirst and wish for kinder treatment. They are helpless in the hands of man. God gave us dominion over animals that we might protect them, and be aided and made happy by them. Be lovers of animals, and help to protect them.—*Our Dumb Animals.*

Sane and Scientific Eating

By David Paulson, M.D.

THE entire problem of the feeding of the living machine has always been most interesting to me,—I might say almost fascinating. And the more study I have given this subject the more I have seen in it.

The human body may be properly called a living machine, for it acts in harmony with mechanical principles. Contrary to our old-fashioned notions, it neither creates energy nor manufactures material at all. It simply uses and transforms what is taken into it. Neither does the steam-boiler manufacture energy. It only liberates from the coal what the sun stored up in it generations ago. Likewise the human body only sets free the energy that already exists in the food.

The Human Furnace

The food eaten is the fuel for the human boiler. We take the food into the stomach; and the draught of air that consumes it, is received in through the lungs, and meets the digested fuel in the blood, tissues, and muscles, and there oxidizes or burns it up, developing both heat and energy. Whether you burn a pound of corn flakes in the stove, or fully digest it in your stomach, it will yield up exactly the same amount of heat or energy in either case.

To that extent the human body is an exact machine. But one great point of difference is that the human machine can keep on repairing itself year after year, while the automobile must be sent to the repair-shop. The principal reason why the human machine ever gets out of repair, is that it frequently has such reckless drivers. The average mortal tears down his physical machine more rapidly than it has capacity for repairing itself.

Dietetic Clinkers

Every furnace has a suitable provision for the removal of its ashes or waste products; and it is an equally important function of the human machine to eliminate its own wastes. In fact it is nearly as necessary for the human body to rid itself of its wastes as it is for it to be fed.

When waste matters accumulate in the stove, we say the ashes smother the fire, or that clinkers are accumulating. In the human body the same thing may spell rheumatism, nervous prostration, or Bright's disease. Such diseases simply mean the failure of the human body to rid itself of its own waste products. The scientific engineer studies these problems, and avoids the coal that has a tendency to form clinkers. But that same engineer perhaps never stops to think how much heat his food will furnish him, and whether or not it will fill his system with clinkers. More than likely he is perfectly satisfied if it only will tickle his palate while he is eating it.

But we are making progress. There is coming to be such a thing as sane and scientific eating; and it is certainly high time, for science has invaded almost every other realm of human activity.

Heat- and Energy-producing Fuel

Starch, sugar, and fat are the fuel that is used in the human machine to furnish the heat that the body is giving off all the time, as well as that for the work it is called upon to perform. Every time I move my arm, I expend some energy that was originally stored in the starch, sugar, or fat that I ate yesterday or at a more remote date.

The ordinary boiler is constantly deteriorating and rusting out, and so must ultimately be taken to the junk heap. But in the human body, hand in hand with a similar destructive work, there goes an equal constructive work. You who read these words have been almost entirely rebuilt within the last six months, except your bones and your teeth. Every day we take in with our meals a

few ounces of proteine, which the body uses as repair material.

Suppose every time the fireman threw in nine shovelfuls of coal he had to throw in a shovelful of iron filings to repair the boiler,—that would illustrate precisely what we are constantly doing. Nine-tenths of our meal consists of starch, sugar, and fat, which are burned up in the body to make heat and work. One-tenth of the meal should be proteine, or albumen, as it was formerly called, which the body uses for its own repairs.

In other words, the human body charges this ten per cent. of commission, and the payment *must be* made in proteine; but it also resents the tender of a higher rate than this, for it simply has to work overtime ridding itself of this excess. Recent scientific investigations are revealing the fact that the majority of our so-called modern disorders result from eating too *much* of this repair material; hence it becomes a vital question to know approximately what constitutes a balanced bill of fare.

The Backbone of a Meal

The various foods made from wheat, corn, oats, rice, etc., form the substantial portion of a well-balanced dietary. They are largely composed of starch. When digested this is changed to sugar. No one needs to worry about the sugar trust. Each one of us has a sugar-mill inside of him.

More than one-half of every loaf of bread is starch. In addition, nature has slipped into all the cereals about one-tenth of repair material. Thus ten per cent. of every slice of bread is gluten, which is proteine; and the body uses this to repair its muscles, nerves, blood, and even the most important part of the brain.

The grain family is deficient in fat. Most people seem to have discovered that instinctively, for they butter the slice of bread. From the standpoint of bodily requirements it makes but little difference whether this fat is in the form of butter, or cream, or olive-oil, or any other vegetable fat.

Fruits and Vegetables the Dietetic Storehouse for Mineral Salts

The cereal family is also short on some mineral salts. Hence the person who desires to have a well-balanced dietary not only adds fat to the dietetic foundation that is made of grains, but he also adds some foods that are rich in mineral salts. These salts are so important for human health that the wheels of life absolutely refuse to go unless they are reasonably supplied with mineral salts. In some way they seem to grease the wheels of life.

Vegetables and green garden products contain only a small amount of starch, about five per cent. on an average. More than four-fifths of their bulk is water and cellulose, or woody matter. But they are particularly rich in iron, which the body is compelled to have in order to make blood. They are rich in phosphorus, which the body uses to build up the nervous system. They contain lime, which is needed in the bones; and potash salts, which the body uses in making blood and other bodily fluids.

Fruits contain about as much digested starch or sugar as the vegetable contains starch. Outside of potatoes, which contain nearly twenty per cent. of starch, one could hardly afford to spend his time eating either fruit or vegetables merely to get nourishment, for he would have to eat almost a bushel basketful of cabbage salad, or a small bale of lettuce, in order to secure nourishment enough for a meal; and the same may be said of most of the fruits.

There is more water in a pound of strawberries than there is in a pound of milk. But because of the great importance of the mineral salts that nature has stored away in fruits and vegetables, they should form part of the daily dietary.

By way of repetition: Make the grain or cereal food products the *centrepiece* in your dietary. Then, because they are naturally deficient in fats, add cream, dairy butter, olive-oil, ripe olives, or some of the vegetable oils, to make good this deficiency. As the cereals are also short of some of the necessary mineral salts,

add fruits and vegetables, not neglecting those that can be eaten raw, such as lettuce, celery, chopped cabbage, etc.

Milk and Eggs

Milk contains about four per cent. proteine,—the curd; about four per cent. of fat; four or five per cent. of sugar; and about one per cent. of mineral, largely lime. The other eighty-seven per cent. is water; and after it has passed through the hands of some milkmen, it may even contain a larger amount of water. When milk is used in moderation the additional proteine will only serve to balance up deficiency of proteine in the fruits or vegetables. In fact, fresh cottage cheese is particularly valuable for patients who are suffering from autointoxication, as it does not decompose in the alimentary canal as readily as some other proteins.

Nearly three-fourths of the egg is water. Fifteen per cent. of it is proteine, and ten per cent. is fat. Thus it is comparatively a high proteid food, and, as is well known, decomposes easily. Hence those who are already suffering from autointoxication should avoid eggs. It is probably well even for persons in health not to eat more than one a day. The yolk contains the larger amount of fat and the less amount of albumin, and for this reason is probably the more wholesome part.

A Natural Meat Substitute

Nuts are the most nutritious food that God has made. Every pound of peanuts contains more meat than a pound of beefsteak. Every pound of peanuts contains one-fourth its weight in proteine, which is more than there is in a pound of meat. In addition they contain nearly half their weight in fat. Walnuts contain sixty-three per cent. of fat and sixteen per cent. of proteine. Pine nuts are very rich in both fats and proteine, and have the additional advantage that they are easily masticated. They are perhaps the most valuable nuts on the market, although they are as yet comparatively unknown.

From what has already been written, it must be plain that there is no great necessity for adding any large quantity of nuts to the ordinary bill of fare. It is well-balanced without them. Those who eat them to excess are certain to fill their system with an excess of building material, just the same as if they were using flesh foods. But nuts have these advantages over meat: they do not contain the ordinary waste products of meat, and there is no danger of contracting tapeworm or trichina or tuberculosis from eating them. So if one wants to add beafsteak to an ordinary, well balanced dietary, it would be better to take it in the form of nut products than from animals.

Eating Clinkers

He who adds meat liberally to the daily all-round dietary, is certain to overtax his eliminating organs in carrying off the resulting waste products. That is why the doctor always tells a patient that is suffering from Bright's disease that he must cut out meat. That is the first thing the doctor says to the man that has rheumatism or an attack of fever. I advise the same thing, only I recommend it a few years before the man is likely to have these diseases. If it is a good thing to lock the door *after* a horse is stolen, it is better to do it before.

The man that is doing the hardest kind of physical work will not suffer so severely from an excess of proteine food. His system is better able to eliminate the excess of waste products. But the sedentary man—he who is earning his bread by the sweat of his brains rather than by the sweat of his brow—will do well to investigate for a reasonable length of time the merits of a low proteine dietary. He will soon observe a clearness of brain and an increase of physical endurance that will be gratifying to him.

It is a great thing to eat and drink to the glory of God, and not to forget the Scriptural admonition, "When thou sittest to eat with a ruler, consider diligently what is before thee; for thou puttest a knife to thy throat if thou be a man of a craving desire." Prov. 23: 1, 2. (Jewish translation).

THE HOUSEKEEPER

Sanitarium Vegetable Gelatine

WE are sure our readers will be glad to learn that a superior substitute for animal gelatine is being placed on the market. Animal gelatine is at best not a pleasant thing to think about; indeed, if one were to think even a little of its source there would be a decided disinclination to partake of the dishes into which it enters. Thus the New South Wales Pure Food Act, 1908, specifies that:—

"(1). Gelatine sold for consumption by man shall be the clean, wholesome product obtained from skin, membranes, bones, and other collagenous bodies. A five per cent aqueous solution shall form a stiff jelly, and shall not become alkaline, or emit an unpleasant odour, after standing for two days exposed to the air at a temperature of 80 degrees F.

"(2). The preservative substance, or a preparation of the preservative substance, sulphur dioxide, may be mixed with gelatine in proportions not exceeding three and one-half grains of sulphur dioxide to the pound of dry, marketable gelatine sold for consumption by man.

"(3). There shall be written on or attached to every package which contains gelatine sold for consumption by man, a statement or label, on which shall be written in bold-faced sans serif capital letters of not less size than six points face measurement, the words 'For food.'"

A MODEL DOMESTIC WORKSHOP

The specifications of the Act are no doubt as good as could be made for such an unsavoury product. We believe that our readers, however, will prefer to use clean, wholesome vegetable gelatine instead of this derivative of animal skin,

membranes, bone, etc. Vegetable gelatine is put up in convenient packages containing sufficient to solidify eighteen breakfast cups of liquid. The package contains one and one-half ounces, but this is equal to three ounces of animal gelatine. Vegetable gelatine is guaranteed under the Pure Food Act, 1908, by the Sanitarium Health Food Co., Cooranbong, N.S.W., and may be obtained from all its branches.

Recipes and Directions for Use

Soak the gelatine in warm water for an hour or longer, then strain the water all off and add the gelatine to the fruit juice (or whatever liquid is used). Boil until dissolved in an enamelled saucepan, and then strain through a cheese cloth or a wine sieve to clarify. After the desserts have cooled, set on ice or in a cold place, and do not remove from the moulds till ready to serve.

Orange Jelly.—Put in an enamelled saucepan eight cups of orange juice, four cups of water, and two and a half cups of sugar. Let these come to boiling. Add one ounce of soaked gelatine. Let it boil ten minutes, or until quite clear and the gelatine is dissolved. Pour into moulds which have been wet with cold water, and set in a cool place.

Lemon Jelly.—Proceed as in Orange Jelly, substituting the juice of lemons and adding a little more sugar.

Mixed Fruit Jelly.—Six cups canned pineapple juice, one cup lemon juice, three cups orange juice, two cups peach or apricot juice.

To these juices add when boiling two and one-half cups of sugar and one ounce of gelatine (soaked). Cook till dissolved. This makes a very delicious jelly.

Banana or Other Fruit Moulds.—Prepare a lemon jelly. After it has been poured into the moulds, slice into it some ripe bananas, or other fruits may be used; such as strawberries, cherries, raspberries. Set on ice till ready to serve.

Moulded Fruit Salad.—Cut one tin of canned pineapple into small pieces, and slice six ripe bananas with it, also peel and slice some ripe peaches. Add to the juice of the pineapple one-half cup of orange juice and one cup of sugar. Add one-half ounce (one-third of a box) of gelatine. When cooked, pour over the fruit and set.

Mock Chicken Jelly.—Cut one pound of nut cheese into small pieces, and put into a double boiler, adding three cups hot milk, and two cups water, the yolks of three eggs, season with salt, celery salt, a little grated onion, and thyme. Cook together half an hour, and then strain. To every three cups of the broth add one-fourth ounce (one-sixth of a box) soaked gelatine. Pour into a square dish, and set in a cool place. Cut into squares and garnish with parsley.

Vegetarian Potted Meat.—One-half ounce (one-third of a box) vegetable gelatine, one-half pound protose, one quart dark bean broth, one teaspoonful of marmite. Season with table salt, celery salt, thyme, and parsley chopped very fine. Soak gelatine for one hour, wash, and cover with boiling water. Boil ten minutes till quite clear, and add one quart dark bean broth, in which the marmite has been dissolved, a very little thyme, celery salt, and salt. Boil all together for ten minutes. Have the protose cut into small cubes and put in a square dish (enamelled) with parsley. Pour the liquid over it. Place on ice, or in a cool place. Serve with lettuce salad or tomato sauce.

Vegetable Fancy-Work

LITTLE Mrs. Bride had almost everything to learn about housekeeping, but she was so enthusiastic in her interest that everyone was glad to help her.

"I have some particularly fine asparagus," the marketman told her one day, and he displayed a bunch for her admiration. "Picked not three hours ago," he added.

Mrs. Bride looked at it with unaffected amazement.

"Does it *grow* like that?" she asked. "I always supposed the cook braided the ends of it."—*Selected.*

Choice Recipes

Nut Mince.—Cut a stick of celery and two onions into small pieces and fry brown in a little butter or oil. Put the celery and onion into a saucepan, and put into the frying-pan a little oil, shake into it some flour, and stir over the fire till quite browned, taking care not to burn. Add boiling water till of the consistency of gravy, salt to taste, and pour this into the saucepan and boil for half an hour, then add half a pound of nut meat cut in cubes and a little tomato juice. Serve with boiled rice.

Rice Cutlets.—Put some boiled rice in a flat baking dish, and pour over it a custard made by beating one egg into a cup of milk, salt to taste, and bake until it sets. It must be quite firm when cold. Cut into slices, dip in egg, roll in breadcrumbs, and fry brown. Serve with brown gravy.

Neapolitan Soup.—Put one quart of milk into a saucepan, add to this the yellow rind of one lemon and one small onion. Simmer for twenty minutes, then strain and thicken with one tablespoonful of flour rubbed smooth in a little milk, then add a little cooked macaroni cut in small pieces, salt to taste, and just before serving add the beaten yolks of two eggs.

Lima Bean and Tapioca Soup.—Cook one quart of lima beans until quite tender, then rub through a fine sieve using all the liquor. Have ready one cup of cooked pearl tapioca, stir this into the soup. Salt to taste. Boil up, and serve with croutons of bread.

Vegetable Pea Soup.—Cut any vegetables such as carrots, parsnips, onion, turnips, beetroot, etc., into tiny pieces, and boil in sufficient water to cover. Cook in a separate saucepan some split peas, rub through a sieve, add to the vegetables. Salt to taste.

Mock Chicken Pie.—Cover the bottom of a pie dish with sliced potatoes. Over this put a layer of onions cut in thin slices, and sprinkle with a little finely minced almond meat. Repeat this until the dish is full, then pour over sufficient boiling, salted water to just cover. Cook in the oven till tender, but do not allow it to brown. Cover with pastry crust.

Fruit Toast.—For this dish grapes are particularly nice, though any berries or other fruits may be used. Cook the grapes in a little water, then rub through a sieve to remove skins and seeds. Sweeten to taste and boil up. This should be of a rather thick consistency. Have ready some pieces of zwieback moistened. Put a spoonful of the fruit pulp on each, and serve.

Australian Rarebit.—Put one pint of milk into a double boiler, add to this one onion and one-quarter of a pound of nut cheese. Boil together for twenty minutes, then rub through a fine sieve, return to the saucepan, and add two beaten eggs. Heat until it thickens, but do not let it boil. Salt to taste, and serve on little squares of fried bread or zwieback.

Stuffed Potatoes.—Prepare large smooth potatoes, bake until tender, and cut into halves. Scrape out the inside carefully so as not to break the skins, mash smoothly. Mix thoroughly with one-third freshly prepared cottage cheese (see below), season with nice sweet cream and salt, if desired. Fill the shells with the mixture, place cut side uppermost in a pudding dish, and brown in the oven.

Cottage Cheese.—To each four quarts of milk add one cup of lemon juice, let it stand until coagulated, then heat slowly, but do not boil until the curd has entirely separated from the whey. Strain through a colander lined with a square of clean cheese cloth, drain off whey. Add to curd little salt and cream. Mix all together, and form into cakes or balls for the table Add grated yellow rind if desired.

Wheatmeal with Dates.—Into a quart of boiling water sprinkle enough dry wheatmeal to make a stiff batter, stirring all the time. Wash one pound of dates and remove the stones. Add to the wheatmeal, stir all well together, set in a double boiler, and steam. The longer this is cooked the nicer it becomes, so it is well to make it over night and then boil it up till hot through for breakfast.

A PILE OF GARDEN PRODUCTS

Healthful Exercises

By Wm. M. Scott

Exercise of the Abdomen and Spine of Immense Importance

WE cannot urge too strongly the acquirement of a suitable system of exercises which will healthfully strengthen the muscles overlying the vital centres of the abdomen and spine. It is actually weakness and disuse of the muscles of these parts that lead to the vast majority of all our ills. Inactivity leads to sluggishness and congestion of the blood, which normally flows freely through these vital centres. All the exercises which cause deepened respiration or breathing beneficially affect the internal organs, as do also, even more definitely, all movements which bend, extend, and twist the trunk in various directions. In bending, the vertebræ of the spine are moved and alternately stretched apart and forced together again, preventing adhesions, which lead to grave spinal disorders. Such exercises also lead to pressure upon or massage to the organs lying within the pelvis, producing a healthy flow of blood to these important centres. An increased flow of blood always leads to a healthier working of a part.

The "Yogi Salaam" Exercise (FIGS. 1, 2)

Kneel on a cushion or a rolled carpet, the knees being two or three inches apart. Place the arms behind, interlacing the fingers, and slowly and carefully arch the spine backwards, being particular that it is not bent at the small of the back, but arched from the nape of the neck to the cervix, or bottom of the spine. When you have arched as far as you can with comfort, slowly rise to starting position, and then commence slowly bending forward until the head is almost touching the floor and the forehead comes between the knees. Repeat the double movement half a

FIG. 1

FIG. 2

FIG. 3

dozen times slowly and deliberately. Inhale a deep breath before bending back, retain it until you rise, and exhale as you bend forward. Rise without taking in a breath, even if you feel you must. The latter point is important, as you will discover on trying the exercise. It gives a contraction of the abdominal muscles that cannot otherwise be obtained.

This exercise is well worth while devoting time to acquire. We know of no better for health.

An Osteopathic Exercise (FIG. 3)

Lie flat on the back on the floor on a mattress or thick carpet. Extend the legs upwards and over the head as far as possible (some may manage to touch the

FIG. 4

floor with the toes behind the head). Place the knuckles of either hand on each side of the spine, as high up towards the shoulders as you can, resting the elbows on the floor. Now commence to spasmodically lower the spine bit by bit, the knuckles being pressed into the spine a little lower each time, until the bottom of the spine is reached, withdraw the hands and repeat the raising of the legs.

This, too, is a very valuable exercise, and we would urge our readers to get acquainted with it and add it to their "system."

Arching and Stretching of the Upper Spine or Back (FIG. 4)

The illustration is so clear that little explanation accompanying it is necessary.

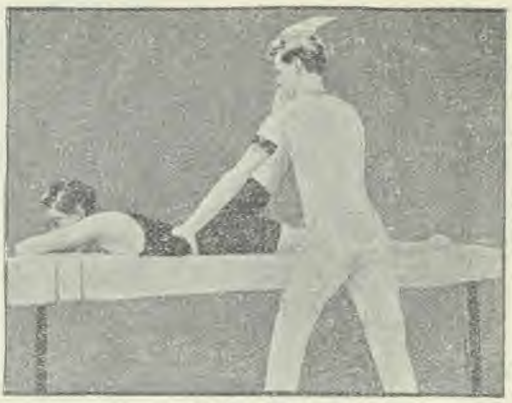


FIG. 5

The assistant holds the legs firmly down to the couch or floor, as indicated, and the patient, placing his hands on the hips in the way illustrated, endeavours to raise the body and arch the spine, from the neck downwards, as much as possible. After doing this for a brief moment, the body is allowed to return to the prone position, and a rest and full relaxation taken.

This exercise is used to cure "round shoulders" or forward curvature of the spine, a condition which means depression of the chest, inadequate lung action, and lowered vitality.

Loosening Adhesions or Limbering Up Lower Spine (FIG. 5)

In this exercise the patient lies down flat upon his abdomen with legs fully extended. The assistant places his left hand on the middle of the spine immediately above the hips, and, while putting con-

FIG. 6

siderable pressure thereupon, raises the leg upwards and over the hip as far as possible. Allow the leg to go back to a restful position, and repeat half a dozen times. Exercise the other leg in the same way.

Besides loosening the spine, this exercise has a beneficial effect upon the bowels and other organs of the lower abdomen. It is a movement given by osteopaths.

Bending and Extending or Circumduction of the Leg with Resistance (FIG. 6)

The one illustration will suffice for several exercises.

Leg-Bending with Resistance

The first one, although a leg exercise, actually affects the abdominal muscles more strongly than those of the leg. The assistant places one hand on the knee and the other grasps the sole of the foot. The patient draws up his leg to the position shown in the photograph, the assistant offering some resistance. When the patient has drawn his knee upward as far as he can, the assistant pushes it further until the upper leg touches the side of the abdomen, when he gives one or two little pushes upon the knee. The patient then extends the leg easily, the assistant offering no resistance, or he may even carry the leg back to the full extension if the patient is weak. Repeat a few times.

Leg-Extending with Resistance

The second exercise is the opposite of the first. The assistant, without resistance from the patient, carries the leg right up until the knee presses upon the side of the abdomen, and the patient then extends the leg against the resistance of the assistant's hands. Repeat a few times.

Circumduction of the Leg

In this the assistant, grasping the leg as before endeavours to describe a large circle with the knee, the axis being the hip joint. Circle first in one direction and then in the other six times. If the patient rolls about too much, he should be asked to hold the edges of the couch or bed.

Knees Opening and Closing with Resistance

Patient lies on back, knees bent, soles of feet flat on couch or floor. The assistant now grasps a knee with each hand, palms on the outer sides to resist when the patient opens his knees apart; on the inner side to offer resistance when the knees are closed.

A New Kick in Swimming

ONE of the feats of the swimming world, especially of that portion of it which centres about Boston, U.S.A., is to go from Charlestown Bridge to Boston Light, says the *Youth's Companion*. The distance is not excessive—about ten miles—but the water is pretty cold, there are waves and cross-currents to be encountered, the swimmer must make his way through a tangle of shipping of all sorts, and in addition must make the distance between tides.

Many noted swimmers, both men and women, have tried the feat. Sometimes in the summer, when the tide is right, a score of swimmers will start at once; but they all drop out one after another, and it is seldom that any one gets within two miles of the goal. One professional did practically cover the distance. But on the way he got washed ashore by a cross-current, and had to crawl on hands and knees for a hundred yards or so before he could get back to deep water. So his performance did not count.

Until August, 1910, all attempts had ended in failure. Then a fifteen-year-old girl, who weighed less than a hundred and fifteen pounds, did what the others had not been able to do. It took her six and a quarter hours; for to avoid bad water, she had to lengthen her swim to twelve miles. Yet all the while she neither rested nor changed stroke. Since then—she is now a professional swimmer—she has made another famous swim, that from New York to Coney Island.

This young girl has accomplished these remarkable exploits by virtue, in no small measure, of a peculiar form of the old

breast-stroke, which she seems to have hit upon quite by accident when, as a child of ten, she first began swimming. The timing of this new stroke is exactly the same as that of the old—the legs recover as the arms pull, and the breath goes out as the hands shoot forward. The arm action is the same; the difference is in the kick.

In the kick, instead of the common frog-like drawing up of the legs, the

FIG. 1

thighs are kept motionless in line with the body, and the entire movement is at the knee. From the extended position of the "slide," with the legs straight and side by side, the swimmer first crosses one ankle over the other, turns the toes toward the shins, and then flexes both legs to a kneeling position (Fig. 1). This is the recovery. To make the kick, the feet are uncrossed, the toes turned away from the shins, so that leg and foot make a nearly straight line. Then both legs are straightened sharply (Fig. 2).

In other words, both legs make simultaneously the same movement which they make alternately in that fastest of all sprinting strokes, the "crawl," and which the under leg alone makes for the "scissors kick" in the "trudgen" and other forms of the side-stroke; and the new stroke therefore appears to be a logical step in the development of swimming that has been going on during the last ten years.

The advantages are clear. It is evidently a much more natural movement than the old "frog" kick, and correspondingly easier to learn. In addition, it puts the work on the large muscles which lie along the front of the thigh, and which are in most persons the strongest and the most used of all the muscles of the body. It is the only form of leg movement that allows one limb to take shelter behind the other, and so combines the resistance to the water of one leg only during the recovery with the propelling force of both legs during the stroke. Since the thighs are always in line with the body, their resistance becomes the least possible; and there is no lapful of water to be dragged along in the skirt of the bathing-suit.

Enthusiastic believers in the new stroke declare that of all strokes it is the most economical of strength, and the one, therefore, that will keep a swimmer going for the longest time and over the greatest distance. How far this is true, time alone can tell. The new stroke has sprung suddenly into fame; it has not yet been tested by swimmers of all ages and figures. If a prophecy may be ventured, it is that this new form of the breast-stroke will completely supersede the old as a stroke for beginners, and as a working stroke for persons of short, stocky build. For slender, long-limbed

FIG. 2

swimmers, it is by no means clear that the old "frog" kick is not the better.

But one thing is certain. When a slip of a girl accomplishes a feat of endurance in which many men have failed, her method must be a sound one, and her peculiar stroke something well worth the attention of other girl swimmers.

Volcanoes in the Pan

OH, how shall I ever get that old lesson! I didn't know that geography was like this!"

"Why, what did you think it was like?" asked his mother.

"Oh, all about strange countries and strange people. All about where Uncle Harold travelled and where Captain McDonald goes. So I can find my way round the world by and by if I study real hard."

"You seem to be studying hard enough," said his father, laughing. "What is it that's so difficult?"

"Oh, that the world is round, and that it turns on its axle —"

"Axis, I guess you mean."

"Yes, that's what she calls it, but I thought she'd made a mistake—and that it's all ruled off into latitude and longitude and equators and poles and zones, like baby's striped ball. And yet she says that whichever way I travelled, I wouldn't see any lines."

"Those stripes, which you will find only on the map, will help you to navigate your ship when you are a captain or a mate," said his father, earnestly, "but you'll have to learn more arithmetic than you have lately. But what is the lesson this morning?"

"Oh, it's about mountains—they are so hard to get over. Now I thought that all mountains were firm and grand and noble—they are in the photographs we have—and that, all covered with snow, they just stood still for scenery!

"But here it is about volcanoes that smoke and bubble and overflow and spit out steam and rocks, and make earthquakes and landslides and everything! How do they change so?"

"You just happened to see only the snow-covered ones," said his father.

His mother, who was patiently stirring the breakfast porridge on the stove, cried out suddenly, "Oh, come here, Kenneth, and I'll show you just how! Don't come too near, or else that biggest volcano near the middle will spit out little oatmeal rocks and yellow lava—I mean porridge—and burn you!"

So the little boy stood by her side and peeped carefully into the porridge-pot, where all sorts of little cones were rising and bursting, throwing little bits of the porridge with each explosion of the hidden steam and sinking again with a little ring or cup at the top, which did not disappear for some time.

"See, that cup is the crater, all boiling inside, but it's a solid crust outside till new little volcanoes form."

"What makes it?" asked Kenneth.

His father was peeping over his shoulder. "You ought to be the teacher to-day, wife," he said. "Why, the very same thing that makes the volcanoes in the earth's crust. Now here's where your zones come in. Which is the hottest?"

"Why, the tropical, near the equator."

"Well, that is the front part of the stove, and the next set of covers we'll call the temperate zone, and the back covers the polar region. All this spitting and explosion of steam ends when mamma moves it back, now that it is cooked, and she knows what a solid crust forms on what is left on the very back of the stove after breakfast. Well, that is so with the earth's crust the farther we go from the equator."

"There are over two hundred volcanoes in the world," said his mother, "and the people where the volcanoes are learn their ways, and do not get too near, so that the steam which is walled up in them can't destroy them. The Latin people thought that Vulcan, the god of fire, dwelt within them, and called them 'vulcanus.'"

"So that's how they got their queer name!" cried Kenneth. "I never thought before!"

"Yes. Do you think you can remember your lesson now?" asked his father.

"I'm sure I can!" cried the boy. "Natural geography is much more interesting than I thought it was. I guess every boy will be stirring the porridge to-morrow. The teacher will wonder how we all learned so much."—*Edith Perry Bodwell, in Youth's Companion.*

The Little Brown Bulbs

THE little brown bulbs went to sleep in the ground,
In their little brown nighties they slept very sound;
And Winter he raged and he roared over head,
But never a bulb turned over in bed.

But when Spring came tip-toeing over the lea,
Her finger on lip, just as still as could be,
The little brown bulbs at her very first tread,
All split up their nighties and jumped out of bed!

—*Delineator.*

The Water's Prison

"PLEASE get me a glass of water," said father to James, late one afternoon. James ran off quickly, and came back with a tumbler of bright water.

"What makes it sparkle so, papa?" he asked.

"It is so glad to be free and in the fresh air," replied his father. "This water comes from an artesian well, that is, a pipe which is sunk deep into the ground to a river perhaps a hundred feet below the grass. It comes rushing up as fast as it possibly can, but it doesn't reach the air for a long time."

"Why not?" asked James, wonderingly.

"Because it is caught by a big pump and put into a tank, like that barrel on stilts back of the Smiths' barn. It stays there till some one turns on the tap, as you did just now."

"Then it comes out splashing," said James.

"Yes," said his father. "It wants to see the fresh air, because it was up in the purest air once, in a rain-cloud."

"In a cloud!" exclaimed the boy.

"Yes," answered papa, "the sun draws it up all the time with its hot rays, and when there is too much, it bursts out and falls to the ground. Then it goes underground and comes rushing back—as happy as a boy out of school," he added.—*W. L. Stoddard.*

An Infant Galileo

A YOUNG woman who is now a student at one of the State normal schools of Kansas has this amusing story to tell of the interesting method of original scientific research employed by one of her small scholars. She had just begun teaching in a country school, and was startled when, at the beginning of the geography class, one of the children flatly contradicted her statement that the earth moves. A little questioning disclosed the fact that the boy was from a home where they erroneously thought that to say the earth is round or moves is contrary to the plain teaching of the Bible.

The teacher was at a loss to know how to treat the matter so that the child should accept the truth without giving offence to the parents. She passed the subject quickly at the time, but the boy brought it up later, and was inclined to argue. He grew excited as they talked, but was unconvinced.

Before going home, however, he told the other pupils that he was going to prove whether the earth moved or not. He gave no inkling of what his test was to be, and the teacher wondered much how the question would be determined by the small investigator.

The scholars gathered early the next morning, and waited eagerly for the little sceptic to come. Soon he appeared, his face alight with conviction. The teacher heard him shout to the children who ran to meet him:—

"The earth does move, just like she said!"

The teacher could restrain her curiosity no longer, so went out among the children.

"How did you prove it?" she asked.

"Why," he explained, "last night when I went home I set a hen. I took care to set her with her head toward a certain post. This morning when I went out her tail was toward that post, so I knew the earth had turned half-way round!"—*Selected.*

Vacation is Here

School days and study days,
The short days and long,
Held a bit of gladness
And a note of song;

They swiftly came and swiftly went
Like a passing train.
Lessons now are ended,
Vacation comes again.

Dull days and work days,
Study days are o'er,
The path leads to the hillside,
The woods, the field, and shore.

K. L. H.

NO boy can be strong mentally if he smokes.

Jumping to a Wrong Conclusion

JIMMY, like all healthy boys, was fond of playing outdoors, and like boys in general, he usually got himself scandalously dirty. He was about to sit down to dinner one day, when his mother happened to notice the soiled condition of his hands, and sent him out to the kitchen to wash them.

"You incorrigible boy!" she exclaimed, as soon as she saw the basin of water in which he had performed the required ablutions. "How in the world do you manage to get your hands so dirty?"

"That didn't all come from my hands!" indignantly answered Jimmy. "I washed my face in that water, too!"—*Selected.*

TOBACCO is bad for both old and young. The school board of Chicago, in a medical examination of pupils before allowing them to take part in certain athletic sports, discovered that a large number of the boys were in a physical condition that made violent exercise of any kind dangerous.—*D. H. Kress, M.D.*

What Lucy Lacked

She is not blind—she is not deaf—
  She's straight and strong and pretty;
We think her so—we know her mind
  Is clear, and quick, and witty.
And Lucy is a pleasant child;
  Her grandma says of her:
"In warp or woof you'll not a trace
  Of selfishness discover."

Of gifts and graces Lucy has
  A goodly share conceded,
Yet something is amiss; her friends
  All see how much 'tis needed.
Grandpa allows she's true and good,
  And owns he loves her dearly;
And were it not for this defect
  He'd think her perfect—nearly.

With face or form, with head or heart,
  There isn't much the matter;
But Lucy's very busy tongue
  Will chatter, chatter, chatter.
Her brother Bert, this very day,
  With boyish bluntness told her:
"My little sis, the thing you lack
  Is just a good tongue-holder."

A Huge Turtle

A HUGE turtle, measuring nearly five feet across its back, and weighing three hundred and seventeen pounds, was captured recently in the Choptank River, Maryland. Seventeen thousand barnacles, it is estimated, were found on its shell. It is believed to be four hundred years old.

Chats with the Doctor

[Send questions for this department to the Medical Superintendent, Sydney Sanitarium, Wahroonga, N.S.W.]

35. Pimples and Blackheads—Flatulent Dyspepsia—Constipation.—"As a subscriber to LIFE AND HEALTH I am writing to ask for a good cure for pimples and blackheads on a young girl's face. I have tried lots of remedies, and all have failed."

Ans.—Pimples and blackheads, or acne and comedones, as they are technically called, are due to infection and inflammation of the glands and follicles of the skin. Both are common during the period of puberty, or adolescence, a few years generally sufficing in most cases to bring about spontaneous cure. The blackhead, or comedo, itself is a small, cocoon-shaped body which plugs the mouth of a sebaceous gland like a tiny cork. When this plug has been expressed, continued pressure expels a long coil of waxy yellow matter. This is the secretion of the gland altered and thickened by prolonged retention. Treatment is both general and local, general treatment consisting in the adoption of such a manner of living as to insure pure blood, an active skin, and perfect elimination of body poisons. In other words, moderate amounts of only pure foods should be eaten, water should be freely drunk, baths taken, and daily, active exercise in the open air. When these general considerations have been given due attention, appropriate local treatment will quickly bring about an improvement, and in due course a cure. Local treatment is begun by the removal of the blackheads, or plugs of debris, from the mouths of the sebaceous and sweat glands. The worst way of doing this is the popular watch-key method of extraction. This is mentioned only to be condemned. Skin specialists use a comedo-extractor, but in the absence of this, the larger, more prominent blackheads may be removed by the aid of a clean pin or needle. Care should be taken not to squeeze the skin between the nails, as this crushes and bruises the tissues, so increasing inflammation and infection of the deeper structures. The most satisfactory method of getting the skin clean and healthy is through inunction with soap and oil and bathing with hot and cold water. A London skin specialist sometimes begins the treatment with vigorous scrubbing with sand soap, "marble sand" soap for wealthy patients, and the ordinary kind that "won't wash clothes" for other folks. My personal preference is for moderately coarse salt instead of sand soap. The salt should be slightly moistened with hot water and rubbed on the face with the hands. The face should first be thoroughly steamed or bathed in very hot water. The salt is rinsed off with cold water, and a little eau de Cologne or rectified spirit and water, equal parts, containing five grains of resorcin to the ounce, is then rubbed on. This salt glow should be employed twice weekly, or oftener, depending on the tolerance of the skin. Every night the face should be bathed alternately in hot and cold water. Very hot and nearly ice-cold water should be used. Before bathing, the skin should be well washed with some mild soap, and after bathing massaged with soap and oil. This is easily accomplished by covering the hands with a thick lather and pouring into the palm a teaspoonful or so of olive oil. The lather emulsifies the oil, and both soap and oil can be well rubbed in. Two or three times a week a little sulphur may be added to the soap and oil. Under this simple treatment the condition of the skin will soon improve, and if it is perseveringly continued a complete recovery will result, the time required depending on the severity of the case and the general habits of living, particularly as regards food.

2. "Kindly send me a prescription for indigestion. I have a feeling of fulness

and a pain in the back. I take cascara regularly every night. I am in the change of life. Would that be the reason why I do not feel well and get so tired? Would cold sitz baths do me any good?"

Ans.—If you will kindly refer to an article in the August-September number of LIFE AND HEALTH, "Talks with Mothers" department, entitled, "The Middle-Aged Woman," I believe you will find a solution of all, or nearly all, of your present problems. This article deals with the disturbances of health common during the change, and contains much valuable advice. Sitz baths taken as suggested in answer to No. 32 in last issue would no doubt prove beneficial.

36. Diet for Liver and Kidney Complaints. —"Will you kindly prescribe through LIFE AND HEALTH a suitable diet for liver complaint in a lady aged fifty, midday and evening meals, also what fluids to drink, and how much?"

Ans.—The first essential for liver activity is an abundance of fluid, and the most suitable fluids are pure water and fresh fruit juices. These may be taken hot or cold, and, needless to say, without sugar. Three or four pints of fluid should be taken in the twenty-four hours. Of fruit juices the most suitable are orange and pineapple. A glass of either of these may be taken an hour before each meal, and the fruits themselves may be freely eaten for breakfast and tea. The diet should consist of fruits and vegetables, starchy foods in moderation, and milk if it agrees. Soured milk in the form of lactosa is particularly beneficial. Sweets and fats, generally speaking, should be eschewed. Olive oil is, however, an exception. This may be used in salads containing lemon juice. Tea, coffee, cocoa, spices, alcoholic beverages, and flesh foods should be tabooed. While diet only is asked for, it should be borne in mind that exercise is essential to liver activity. Not only so, but this vital organ should be left free to perform its work untrammelled by corsets or tight clothing. The bowels should also be kept open, and the skin, lungs, and kidneys active.

2. "Also prescribe a diet to eliminate kidney poisons, how many meals a day, what fluids to drink, and how much for a lady aged fifty-two."

Ans.—The regime prescribed above for liver complaint will be found suitable also in this case, as the liver and kidneys are in partnership. The liver prepares certain poisons, such as uric acid, for elimination by the kidneys. Hence a diet which aids the liver is helpful also to the kidneys.

37. Nasal Catarrh. —"Kindly prescribe home treatment for chronic nasal catarrh."

Ans.—In any case of chronic nasal catarrh due attention should be given to the general health, and special attention to the condition of the bowels, kidneys, and skin. It is impossible to cure a case of chronic catarrh while these eliminative organs are neglected. A warm, cleansing bath or a cool friction bath should be taken daily. Free water-drinking is helpful, and fruit should enter largely into the diet. Local treatment may then be employed with good effect, and the following line of treatment is advised: Thoroughly cleanse the nasal chambers and nasopharynx, or upper part of the throat, with a solution prepared by dissolving a teaspoonful of the powder given below in a pint of warm boiled water:—

Sodium salicylate	...	2 ozs.
Sodium bicarbonate	...	2 ,,
Sodium bichloride	...	4 ,,

Instead of this a teaspoonful of common table salt may be dissolved in the same amount of boiled water. In every case the solution is to be used *cool* or *cold*. Warm solutions will cleanse the nasal chambers, but they do not stimulate the parts and thereby increase their resistance. The solution selected may be drawn through the nostrils into the throat from any ordinary open vessel, or a fountain nasal syringe may be used, though it should not be elevated higher than one foot above the head. The parts affected should be thoroughly cleansed once or even twice daily at the beginning of treat-

ment. Later on as the discharge lessens and the mucous membrane becomes more healthy, less frequent cleansing will suffice. Following this thorough cleansing of the nose and throat the parts should be thoroughly sprayed by means of an atomiser, with the following oily solution:—

Liquid vaseline, parolein, or albolene	2 ozs.
Menthol	12 grains
Gum camphor	4 „
Oil of cinnamon ...	2 minims

Instead of the atomiser and this oily solution, a collapsible tube of mentholated vaseline is more convenient to carry and use during working hours. Six or eight grains of menthol to the ounce of vaseline has a more beneficial action than larger amounts. A small piece of mentholated vaseline is applied inside the nostrils three or four times a day. Effective external treatment consists in the daily employment of alternate hot and cold compresses to the forehead and face. These compresses should be large, the hot water as hot as can be borne, and the cold water almost ice-cold. Ten or a dozen changes should be made, the hot compress being left in place a minute or two, the cold compress about half a minute. Instead of the compresses, hot and cold bathing of the face, ears, and neck, and alternate hot and cold rinsing and gargling of the mouth and throat have proved very efficacious.

38. Urticaria.—"I am suffering from an itchy, burning sensation affecting different parts of the body. This is followed by the appearance of large swellings. I desire to know the nature of this trouble, its causes, and home treatment."

Ans.—My diagnosis in this case is urticaria—nettle rash, or hives. These names are all applied to the one condition. Urticaria always denotes the presence of poisons in the blood, and these poisons are generally absorbed from the alimentary canal. Different articles of food produce the rash in different persons. Thus cheese, potted meats, sausage, shell fish, oysters, and even so harmless a food as strawberries have been known to produce urticaria in susceptible individuals. In other cases no special food causes these wheals to appear, their presence being due to constipation or auto-intoxication from the fermentation and putrefaction of alimentary substances.

The cure consists in fasting for a meal or two, or eating only one or two kinds of simple food, drinking water freely, and cleansing the alimentary canal. A small dose of sodium or magnesium sulphate on rising, followed by one or two glasses of cold water, produces the latter effect, and a warm soap bath once or twice a week increases skin elimination of the irritating poisons. The warm bath should be followed by a cold shower or cold sponging. The itching and irritation is somewhat relieved by bathing with cold soda solution prepared by dissolving a teaspoonful of baking soda in a pint of water. The spots may afterward be freely dusted with borated talcum toilet powder, or equal parts of powdered boric acid and starch.

39. Headaches Due to Eyestrain.—"Would you kindly let me know what I can do for my little boy aged eight years? He is a martyr to headaches since he commenced to go to school nearly two years ago. Before that time he was well, though thin and small for his age. The pain is in front over the forehead. Lately he gets them as often as three times a week."

Ans.—These headaches are no doubt due in part at least to eyestrain. You should therefore keep him from school and not allow him to read, write, or do other near work until he has been properly fitted with glasses by a competent eye-specialist. Unfortunately, many of the men who claim to be eye-specialists know very little about the eye, and practically nothing about the rest of the body. You should therefore have his eyes tested by a duly qualified physician if possible. When you have succeeded in obtaining lenses which just suit his case, I believe the headaches will at once improve, and shortly cease altogether. If they do not, his general health will require some atten-

tion. I would suggest that you report again after the glasses have been fitted and worn for a month or so.

40. Bleeding Piles.—" Will you kindly prescribe through LIFE AND HEALTH home treatment for bleeding piles ? "

Ans.—If the bleeding is so frequent and profuse as to cause noticeable anæmia, or bloodlessness, home treatment will not be sufficient. In so severe a case of bleeding piles hospital treatment is required. For the average case of slight bleeding, relief may be obtained by means of cool sitz baths and cool enemas, combined with scrupulous cleanliness of the external parts, and the use of an astringent ointment ; or, during a severe attack, an astringent lotion applied on pledgets of cotton wool. The cool sitz bath should be begun at a comfortable temperature, the feet being immersed in hot water. The temperature of the sitz bath is then reduced to 80° F. or lower, and continued for from five to fifteen minutes. Chilling of the general skin surface should not be produced by this bath. If necessary for comfort, a hot compress may be applied to the spine during the bath, though the hot foot-bath generally suffices to prevent chilling. An easy action of the bowels must be secured daily by means of diet or otherwise, and each morning before the bowels are relieved a cupful or two of cool water containing common salt in the proportion of a teaspoonful to the pint should be injected. The sitz bath is best employed before retiring. An excellent ointment consists of adrenal-chloride, one dram, in an ounce of lanoline.

41. Goitre.—" I have a friend who is suffering from what is called an " outward " goitre. She has been advised to undergo an operation. Is there any other successful treatment for this form of goitre ? "

Ans.—There are several forms of " outward " goitre, that is, goitre which appears externally and produces considerable enlargement of the neck. Some of these external goitres are soft and spongy, others hard and fibrous. Still others are systic, their pockets being filled with gelatinous material. The soft, spongy forms generally yield quite readily to treatment with iodine and galvanism. In order to be effective the galvanic current must be properly applied and perseveringly employed. The positive electrode should be applied over the goitre, the negative at the back of the neck. About five milliamperes of current should be used for a period of from five to fifteen minutes, and the treatment repeated daily unless the skin becomes sore, when intervals between treatment must be lengthened. The most convenient way of using iodine is to place under the positive electrode a piece of cotton wool which has been wet in strong or diluted tincture of iodine. The undiluted tincture of iodine is too strong for a sensitive skin. In addition to this treatment with galvanism and iodine, one who is suffering from goitre should drink only boiled or distilled water. The use of distilled water alone is sufficient in many cases to bring about a marked reduction in the size of the goitre. Some forms of goitre it is true require to be removed by operation. These remarks apply only to external goitres. In cases of internal goitre, that form of goitre which affects the heart and eyes, an entirely different line of treatment is indicated.

42. Masked Malarial Infection ; Pains in Legs, Arms, and Back, Cold Sensations and " Shivers."—" My son aged nineteen is always complaining of pains in his legs, arms, and small of back. He also complains of feeling cold after eating his hot dinner. Indeed, he often puts on extra clothing until he feels warm again. He had dengue fever last February, and he never seemed to complain so much before. He is very slight, and only picks at his food. Could you also tell me what I can do for " shivers ? " I take them two or three times during the night, and feel quite sick after them. Would they be caused by a draught ? I sleep with my windows open always."

Ans.—Both your son and yourself are evidently suffering from a form of masked

malarial fever. Your son may have had dengue last February, as you state, and in addition a malarial infection. Or the fever he had at that time may have been malarial fever. However that may be, you both have latent malaria now, and you are probably living in a malarious region where mosquitoes abound. In districts where malaria is common it is often known simply as "fever" or ague. It is marked by hot and cold stages, a chill or "shiver," followed by fever. No doubt if you were to take your temperature at night after a turn of the "shivers," you would find that you were really in a fever. Both chills and fever are due to the presence in the blood of a microscopic parasite which is gratuitously distributed by mosquitoes. (See article in this number on "The Mosquito," etc.) These blood-thirsty insects carry malaria parasites from one person to another in their salivary glands. If you wish, therefore, to rid your neighbourhood of "fever" you must destroy the breeding places of mosquitoes. All swampy districts should be drained, and any pools which cannot be drained should be sprayed with kerosene. The kerosene kills the mosquito larvæ. It is said that the fever mosquito commonly bites the legs and feet. If that is the case there is some protection in puttees or two pairs of socks. It is certainly a well-known fact that fever mosquitoes bite chiefly in the morning and evening, and are at rest during the day. It has, however, been ascertained that as a rule they do not fly more than one-fourth or one-half mile from their breeding places. The prevention of malarial fever lies, therefore, in the extermination of this insect pest.

Now as to the treatment of yourself and son, the only way a cure can be accomplished is by the destruction of the parasites which are present in the blood. No doubt if given time enough and some assistance, the blood itself can destroy them. In many cases, however, that is a long and very tedious process, and unfortunately people sometimes die while waiting for it to be accomplished. Quinine is a drug which destroys these malarial parasites, and when it is properly given it does so without great harm to the patient. At any rate, it appears to do less mischief than is wrought by the parasites themselves when unrestrained. There is no routine method of giving quinine that works equally well in every case. Each case is a law unto itself. In your son's case I would advise that two five-grain tablets of non-sugarcoated quinine sulphate be crushed and taken in a little water two hours before the midday meal, and that this be done every day for at least a week or for two days after the cessation of the cold feelings. Then once or twice a week for three weeks two tablets should be taken two hours before the midday meal. In your own case two tablets should be taken on retiring. Repeat this every night for one week, as in the case of your son, then once or twice a week for three weeks. It would also be well for a few months to continue the taking of quinine in prophylactic doses. On the 9th and 10th, 19th and 20th and 29th and 30th of each month, two five-grain tablets should be taken. If you do not wish to take the quinine, get out of the malarious region and undergo a course of tonic treatment in a sanitarium or modern hydropathic institution. Such a course of treatment is of inestimable value to one who has lived long in a warm climate. F.C.R.

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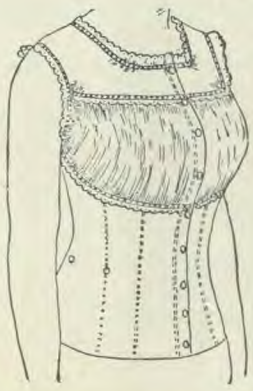

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WELLINGTON, N.Z., 10 Manners Street
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