

Herald of Health

Vol. 5

Lucknow, U. P., March, 1914

No. 3



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CONTENTS

Articles	Page
EDITORIAL	
Mal de Mer,	60
GENERAL ARTICLES	
The Mystery of Tobacco,	62
Treatment of Flat Foot,	66
Progress and Problems of Preventive Medicine	68
Effects of Hydrotherapy, on the Blood,	70
A Sure Cure for Constipation,.. .. .	70
MOTHER AND CHILD	
Welfare Work for Children,	71
Pneumonia the Winter Disease,.. .. .	73
How Baby's Rest Influences Its Daily Life,	73
Why Not Before,	74
DISEASES AND THEIR PECULIARITIES	
Disease Carriers,	75
THE HOUSE WE LIVE IN	
The Teeth	77
HEALTHFUL COOKERY	
What and How Much Should We Eat,	78
PHYSICAL CULTURE	
Outdoor Exercises for Women,	79
CURRENT COMMENT	
Poisoning by Meat—Prevention of Beri-Beri—Sleeping Sickness—Alcoholism and National Prosperity,	81-84
NEWS NOTES	84

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HERALD OF HEALTH

The Indian Health Magazine.

V. L. Mann, M. D., Editor

S. A. Wellman, Asso. Editor.

Vol. 5

Lucknow, U. P., March, 1914.

No. 3

What Our Readers Say of Us.

(We hope that our readers will not think it presumption on our part to allow some of our readers to say what they think of the work that HERALD is doing. These extracts are gathered here and there from letters of renewal, and letters asking for information. Many more of these good words might be added, but only enough are given to show that the work of HERALD is appreciated by those who are reading it.)

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Editorial



Mal de Mer (Sea-Sickness)

A SEA voyage is one of the most pleasant occasions that one can contemplate, unless he happens to be one of those unfortunates who are bad sailors. Sea-sickness is very prevalent on board a boat, especially if there be a "sea" quite often two-thirds or three-fourths of the passengers are suffering in varying degrees from this malady. Those who do not get sea-sick are generally very proud of the fact, and are exultant over their less fortunate associates. An instance is related of a traveller who had just resumed his seat again after taking his turn at the rail when he heard the piping voice of a feminine intruder, who was fortunate in not being sick, behind him say, "Mister, you must have a weak stomach." The traveller replied, "You are quite mistaken as I seem to be able to get rid of my breakfast about as quickly as the rest."

Sea-sickness is not an invariable condition. Sailing is something to which one can accustom himself. Many sailors give the testimony that when they first took up sailing as an occupation, they were very sick, but in sticking to it overcame the tendency in that direction. Passengers who have travelled much, often become immune to sea-sickness and rather enjoy the surging of the boat. Still on the other hand some never can accustom themselves to it, and always suffer when so travelling.

The direct cause of sea-sickness is the rolling of the boat, which sets up a nervous irritation of the digestive tract. The old fashioned see-saw made of a plank resting in the middle on something used as a fulcrum with a child on each end will sometimes cause sickness. Also the merriment that children engage in swinging around and around until they get dizzy, sometimes causes

nausea. Under these circumstances adults will get sick quicker than the child. So with sea sickness adults are more easily influenced. In the pastimes of children just mentioned the semi-circular canals of the inner ear play a part. They no doubt also play a part in the sickness caused by the rolling of the boat. The semi-circular canals are instrumental in our maintaining our equilibrium. The motion of the boat caused by a choppy sea, sea coming in at the broad side or at an angle to the boat is more effective in causing disturbance than a sea that hits the boat directly in front or behind.

Predisposing causes of sea sickness, are nervous disorders, digestive disturbances caused by intemperance in eating before a voyage, letting the imagination run riot, and the average fare on the boat.

Anyone who is of a neurasthenic, melancholic, or hysterical type is more liable to get sea sick than those free from these disorders. People of this kind often have to de-ship if their distance of travel is a long one. This again leads to the view that sea-sickness is of a nervous character which may be produced by various conditions.

Digestive disturbances are a very potent predisposing cause of sea sickness. The one who for some days prior to sailing partakes freely and often of sweetmeats, pastry, greasy articles, pickles, spices, and condiments, is paving the way for an active voyage and an amusing time for his more fortunate comrades.

If on entering the boat one is contemplating getting sick, you may be assured that he will. He watches and looks for the results of the first swell, nurses the first nauseated feeling, and eventually breaks out into the symptoms.

The cuisine on the average ocean liner is enough to make one sick if he had never been sick before in his life. The highly seasoned food, four or five courses of meats, the grease, and the five or six meals a day, are enough to make the healthiest stomach revolt.

In preventing sea-sickness one will do well to get his digestive system as near fit as possible before going on board. Avoid anything that will tend to upset the stomach or interfere with the work of the intestines. If there is a tendency to constipation, the bowels should be regulated by proper diet or an aperient. While on the boat some things may be done to enhance the comfort of the traveller to avoid an attack of sea-sickness. Some get along better if a little something is kept in the stomach. This, outside of the regular meals, should be something light and easily digested, otherwise, the stomach will rebel at being overworked. The tasting of a lemon now and then will often overcome the tendency to nausea. Those that have trouble only when the boat is rolling heavily will do well to remain perfectly quiet in a reclining position when there is a "sea". Often this can be accomplished on deck without going to the stateroom, and the fresh air will make one feel more comfortable than the stuffy air of the lower decks.

Many passengers make the mistake of having MotherSill's Sea-sick Remedy or some other nostrum purported to cure sea-sickness. The promoters of this class of remedies make claims that they cannot substantiate. They derange the stomach and will do no good unless they contain a sedative of some kind, and, if it becomes necessary, travellers had best get their sedatives from the ship surgeon, for then they will know what they are getting. A great deal of harm can come from the laity drugging themselves with sedatives. Poisoning, etc. are the results.

Some interesting literature in possession of the passenger is a good thing. It keeps the

mind occupied, as under the trying circumstances of a "sea" a mind allowed to dwell upon the possibilities of sea sickness is all that is necessary to bring on the symptoms of the malady. A pair of good field glasses, a camera, or anything else that will divert the mind is useful to prevent sea-sickness.

The diet on board ship is a very important factor. In many cases the fare on the boat is all that is necessary to make the traveller severely sick even though in the past he may have been immune to attacks of stomach trouble. Three meals a day are better than five or six. For those who feel a necessity of keeping something on the stomach, a drink of fruit juice between meals is allowable. The amount of meat eaten on ship is a menace to the well-being of the traveller. It causes an excess of protein in the system, products that are not assimilated, and constipation. These conditions of themselves will result in a general upset of the gastrointestinal system. A diet of fruits, grains, and the less oily nuts, prepared in a simple way, will meet every need of the body and will maintain a healthy tone of the digestive organs. Some travellers recognizing this fact, provide their own food on ship to avoid the highly seasoned food, grease, and excess of meat and thus ward off attacks of sickness while travelling. While it might not be practical to carry things as far as this, still with a little more thought one can maintain the integrity of his digestive system while on board ship. In spite of all precautions, some there are who will get sea-sick, but attention to what has been said will make the passenger's voyage more comfortable and in many cases will avert a bad attack of sickness.

The symptoms need not be dwelt upon, but they vary according to the susceptibility of the individual. They exist in severity all the way from a little nausea when there is a heavy sea to extreme vomiting and retching when there is a dead calm on the water.

(Concluded on Page 88)

General Articles

The Mystery of Tobacco

JAMES FREDERICK ROGERS, M. D.



APPEARANCES should indicate that a thing which is so widely and commonly used as tobacco must be very useful; yet when one attempts to discover just wherein that usefulness lies, he finds anything but a satisfactory answer. On the surface its use is chiefly "to smoke," but smoking in itself lies rather out of the realm of utility. A smoking fireplace is not the most useful one. To the uninitiated the smoke of a wood fire is more savoury than that from a cigarette; while the consumer of the weed, enveloped in his pungent veil, responds to our questioning in rhapsodies which render the explanation for his puffing as hazy and intangible as the clouds which emanate from his cigar.

Almost until the seventeenth century the consumption of tobacco was confined to the western continent. The remainder of the human race flourished, however, without it, making smoke where smoke seemed needed, by burning incense of other nature, and working off their superfluous energy by chewing straws or whittling pine sticks. Aristotle, Cæsar, Paul, Dante, Copernicus, Michelangelo, Columbus, to mention only a few worthies, worked quite contentedly and competently without so much as a whiff of the "divine weed." No greater names have been recorded in any field of work, and no vaster enterprises in which skill and strength were

needed have been accomplished, since tobacco became a part of the white man's burden.

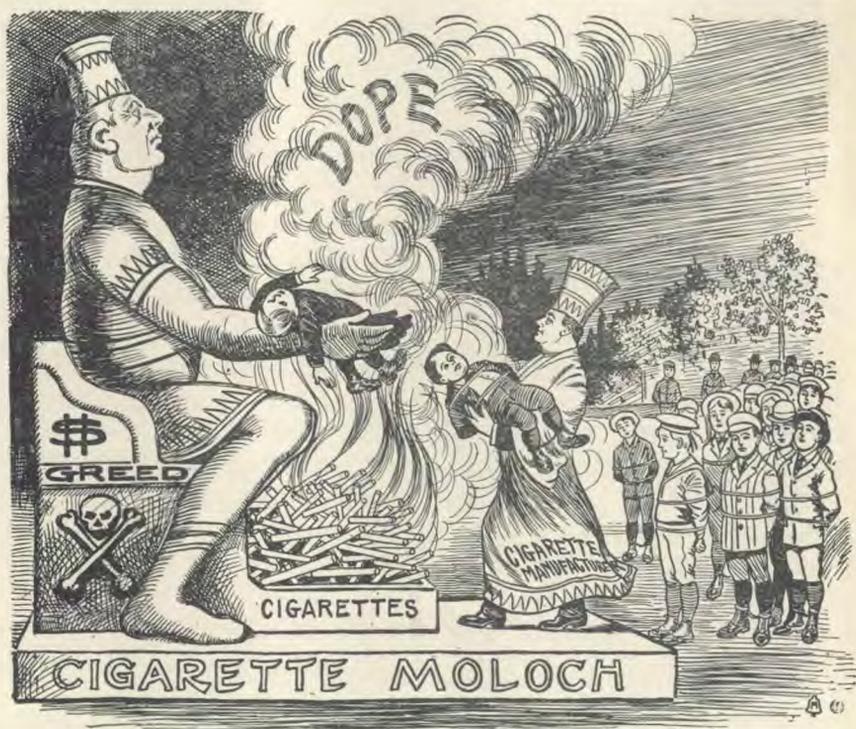
Tobacco smoking was introduced into England about 1586. The courtiers of Elizabeth set the fashion, which travelled rapidly through Europe and Asia. The fact that tobacco was believed to possess marvelous medicinal properties may have had not a little to do with the spread of the practise, which was also aided, rather than checked, by the strenuous opposition it received from statesmen and clergy. James I was especially bitter against it, styling it "the lively image and picture of hell." Humbler men than Jamie the Scot have had similar impressions after smoking their first cigar. The monarch's more specific objections to the practise were: "First, tobacco is a smoke; second, it delighteth them that like it; third, it maketh men drunken and light in the head; fourth, he that taketh tobacco saith he can not leave it, it doth bewitch him." James proceeded at once to turn the evil into good for himself by putting a tax upon tobacco, a stigma upon its usefulness which it has not to this day been able to shake off. Cromwell had a strong dislike for it, and sent his soldiers to uproot the plant in the fields. It is related that the soldiery retaliated very irreverently by smoking profusely at his funeral.

Vile looking, vile-smelling and vile-tasting things were formerly believed to possess especial healing properties, on the principle that evil drives out evil: and it is no wonder that on first acquaintance, tobacco should have been believed to have virtue in this direction. In praise of its usefulness a writer of 1599 pronounced it powerful to "cure

any grief, dolour, imposture, or obstruction proceeding of cold or winde, especially in the head and breast. The fume taken with pipe is good against Rumes, Catarrhs, hoarseness, ache in the head, stomach, lungs, heart; also in want of meat, drink, sleepe or rest." Alas! we have come to know it more intimately! and since that utterance many other cure-alls, material and immaterial, have flourished and faded. Tobacco finds no place to-day in therapeutics, and is not even considered fit for a poultice.

inishes nervous activity. The only explanation offered for the pleasure-giving effects are the rhythmic movements of the mouth and the presence of the smoke. The latter reason is supported by the fact that all pleasure in smoking ceases with many persons if they are obliged to smoke in the dark. A recent British writer attributes the pleasure to the effect of smoke in shielding the eyes from the light.

The effects of overuse of tobacco are easily discovered. A chronic inflammation



Habitual users of tobacco claim some pleasure from it, though their description of that pleasure is usually vague. The most careful laboratory study of the weed has been made by scientists, and they, too, are uncertain as to its effects. Dr. Cushny, one of the highest authorities, says, "It is not even proved that nicotine is essential to the pleasurable result." It is affirmed and denied that smoking gives repose and thereby aids intellectual work, and investigators are not agreed as to whether it increases or dim-

of the throat is very common. This is produced through the irritation of the smoke, and is accompanied by oversecretion of saliva, which, if it does not find its way into the spittoon as waste digesting fluid (if it misseeth not), is carried to the stomach, where the dissolved nicotine it contains produces dyspepsia and impairs the appetite. Palpitation and irregular action of the heart follow excess, and also impaired vision, with general derangement of the nervous system.

The joys of tobacco are loudly hymned

from time to time, and a whole book of verse in its praise has been collected. Its compiler in frenzied eloquence exclaims, "As for Adam and Eve, if there had been no tobacco plants in Eden, it was a sorry place, and they were better out of it." He rails at Tennyson and Browning for their lack of loyalty to the weed in not furnishing him with copy for his pages.

We have noted that the world got along wonderfully well before the finding of tobacco and we do not see that it has done so very much better since the discovery. Of great men of the tobacco age, Kant, Tennyson, Carlyle, Lamb, Brahms, Stevenson, and others reeked with its odours; but Cromwell, Wordsworth, Dumas, Swinburne, and others could not abide the thing. Napoleon pronounced its use "a habit fit to amuse sluggards." If it is an inspiration to genius, genius often gets along amazingly without it, and some times the common man also.

Tobacco serves a modest use, a second-hand one we might say; we refer to its use in literature. What would the novelist do without such little filling asides as, "Here he flicked the ashes from his cigar," or, "He puffed fiercely to hide the rising tide of his emotions," or that inimitable touch in Silas Marner, where, upon the sudden appearance of Silas before the guests at the Rainbow, "The long pipes gave a simultaneous movement, like the antennæ of startled insects"? Tobacco is trying hard in this field to supply a place which a half century ago and earlier was filled by alcohol. How dry the Waverley tales would have been without their abundant butts of sack, their runlets of canary, and stoops of Burgundy! "Pickwick," as Mr. Young remarks, is "full from cover to cover of brandy and water," and "Henry Esmond" would have lagged along sadly without the accompanying tinkle of glasses and decanters upon the sideboard.

Alcohol is fast retiring from literature because it is rapidly becoming unpopular in every-day life. Will tobacco also presently

wane? In the form of snuff it has already retired from polite society. Snuff-boxes were, a century and a half ago, as dear to the user of tobacco as are any of the machinery of smoking to-day. A snuff-box was the most treasured of gifts with which royalty deigned to reward those who gave it pleasure. Mozart, for example, was what one might call snuff box poor, having received a large number of costly ones for his performances as a prodigy pianist, but very little cash indeed. It is a strange anachronism, as strange an anachronism as royalty itself, that it is still a mark of high favour for princes to bestow a snuffbox upon their favourites. Will the time ever come when meerschaums, sweetbriars, and calabashes will pass to the realm where, in endless rows, rest the once proud snuff-boxes, while there shall remain on earth a few elaborate models of the extinct species to be passed out as tokens from millionaires to their minions?

Tobacco surely has a feebleness upon human society than alcohol, a grasp as much lighter as smoke is lighter than wine. It is still within the memory of man when it was considered impossible to harvest a crop of grain without an abundant supply of whisky, while two centuries and less ago wine was thought more essential to diet than water. Tobacco has never been so forward in its claims. Work can get itself done without tobacco, and it is far from being held essential for the table. In the training of athletes it is even tabooed, along with alcohol. Statistics of college students seem to show that with them the use of tobacco is on the wane.

Alcohol is going steadily out of favour, not from the preaching of the benefits of temperance, nor because of prohibition laws, though these are the final kicks which hasten its exit from the scene. Such laws have been made possible through what might be called the subconscious attitude of man's body toward the intoxicant, apart from its conscious control. This has been brought about by

long racial experience of the effects of the use and overuse of the substance. Our bodies have found the use of alcohol to be, under modern conditions of living and working, an injurious habit for us, and our consciousness is urged to stop its use. It is especially interesting to note that the same contradictory opinions have been held by both scientists and laity regarding the harm or benefit to be derived from the "moderate" use of tobacco and alcohol. All are agreed that the overuse of tobacco is a bad thing; even the overuser admits this. When it comes to the taking of small amounts, it is not determined whether it stupefies or stimulates, or whether it may do either on occasion. In the case of alcohol these antithetic views have been reconciled by careful experiment, and its stimulating effect upon the nervous system has been found to be only apparent and never real.

It may be that the rhythmic movements of smoking and one's gaze upon the wreathing smoke may act to drain away a surplus of nervous energy which would otherwise be turned to self-examination, or find vent in chewing pencils, tapping with the foot, biting the nails, use of a rocking-chair, and like purposeless actions,—a safety-valve of present advantage in an age of high nervous tension until we learn some better means of employing our superfluous force.

The waste of energy in the tobacco habit is accompanied by a waste of material wealth which has often been dwelt upon. The homes, books, music, pictures, clothes, and other things that go up in tobacco smoke year after year for an uncertain but not an unselfish satisfaction, would far better minister to the body and mind than all the nicotine ever set free since the world began.

Then there is the horror which tobacco begets in those who have never inured themselves to the habit. Such will quite agree with King James's verdict that tobacco savours of hell. Five minutes in a smoker is for such a one comparable to five eons in the nethermost pit. The insensitiveness of to-

bacco users to the sufferings of others is not good evidence for the beneficent action of the weed. King James was right when he said that the weed doth bewitch a man. We see the witchcraft in the failure of its users to give an account of its usefulness, and in their inability to give up the practise even when they find it furnishes them no adequate return. We have a special instance in the witchery it wove about Richard Wagner. From early manhood he practised taking snuff. "He did not care for snuff, and even allowed the indelicacy of the habit, but he yearned for the enjoyment of all the 'supposed' luxuries of life. It was precisely the same with smoking. He indulged in this, from the mild and inoffensive cheroot to the luxurious hooka, but experienced not the slightest pleasure from it. 'Other people find pleasure in smoking; then why should not I?' This is, briefly, the only explanation Wagner ever offered in defense of the practise,—a practise which he was fully aware increased the malignity of his terrible dyspepsia."

From every lighted pipe or cigar there is unloosed a genie comparable to that which escaped from the fisherman's copper vessel, with the significant difference that this genie never can be persuaded to return to his prison, but remains to dominate his liberator even to such an extent as to cause him to give up many, many treasures, even to relinquish the love of a lovable woman rather than break his allegiance to the tyrant. Sooner or later the fascination of the spell wanes, though its binding power usually persists. The bewitched acknowledges the emptiness of the experience, and warns his children; but for himself, it is too late to conquer.

A thing may be used but it is quite another matter for it to be useful. The properties of tobacco as defined by experience and research are so vaguely made out that one might sum up the matter as briefly as in the account of snakes in Ireland, by saying that it has no uses. It is used to snuff, to chew, and to smoke, but its usefulness beyond this seems, as we try to grasp it, to vanish in vapour.

Treatment of "Flat Foot"

CHAS. K. FARRINGTON.

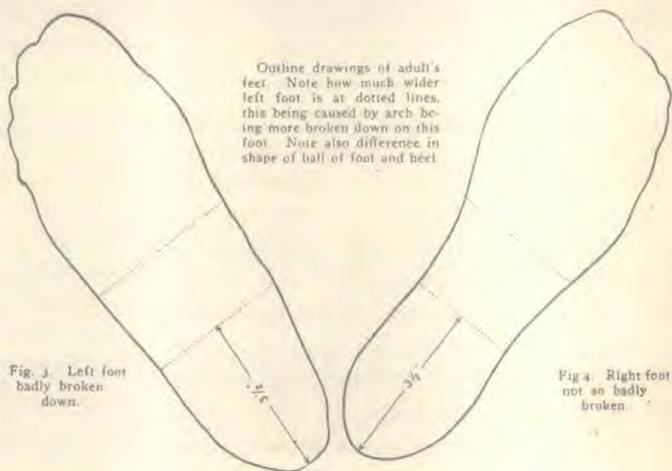
AN astonishingly large number of persons are nowadays afflicted with what is known as flatfoot. This disease is the breaking down of the arch of the foot, and therefore causes the sufferer to have a very low instep. It can largely be relieved by wearing properly constructed shoes. Many a person who is beginning to be troubled does not know what is the matter, the pain being thought to be rheumatism, or some similar disease; consequently the remedy in a large proportion of cases is not applied as soon as it might be, to the patient's great loss. The old saying, "A stitch in time saves nine," is particularly appropriate in this connection. The writer will mention in this article how the trouble begins, and will also give hints as to how a remedy should be applied.

Flatfoot is more frequent among those who stand or walk most of the day, but it is not confined to them, for many others have it also. Often the first indication of its presence is the difficulty of obtaining a shoe of sufficient length. Where only one foot is diseased (this is frequently the case, or at least one foot more broken down than the other), if it happens to be the foot on which a new shoe is not fitted, it is more difficult to determine what is wrong. Let me state here that one foot is often longer and larger than the other even if flatfoot does not exist; and all persons should at intervals have *both* feet measured for the purpose of finding out which is the larger, and a new shoe should always be fitted on that foot.

Where flatfoot is present, however, even if care is used in measuring, and a shoe which under normal conditions would be long enough is provided, after a short

time the wearer will find that the toes touch the end of the shoe, causing much pain. I have known of cases where a number of different sizes of shoes were purchased and discarded before it was discovered that the difficulty was flatfoot, and not a too short shoe. When a person with this trouble stands or walks, the foot is naturally elongated.

It would be beyond the scope of this article to enter into a technical discussion as to the anatomical changes in the bones of a foot in which the arch is broken down; but as I mentioned at the beginning of this article,



flatfoot consists in the loss of the natural arch of the foot, thus making a low instep. If the instep is low, the foot is not properly held in its place in the shoe by the uppers, and it continually slips forward to the front of the shoe, with the painful results just mentioned. An effort has been made by some makers to remedy this by making a shoe with the uppers smaller for an otherwise normal shoe, and a steel support is also inserted in the shoe to stiffen it where the unusual pressure from the broken-down arch is felt. Shoe props can also be purchased, which are meant to be placed in an ordinary pair of shoes, to

support the arch of the foot. All these devices will aid if the disease has not progressed too far; but if it is anyway serious, they will not answer, and it will be necessary to have a shoe specially constructed, with the *arch support built in as part of the shoe itself*.

There are a number of other points to be remembered in designing such a shoe, and the writer will name them; but before he does so he will state that the popular idea that a shoe must be clumsy or of an ungainly shape to be suitable to use where flatfoot exists, is an entirely erroneous one. Some shoes are especially constructed for bad cases of flatfoot, where the patient has continual trouble and much pain. The ankle in these cases will suddenly turn (with the danger, of course, of breaking) when the person is walking on a flat, smooth pavement, and the toes would rub against one another, causing the nails to cut into the skin; and they also rub against the shoe, again causing injury to the skin; and pains of various kinds are present in the leg. All these troubles cease in a remarkably short time after a properly constructed shoe is worn. The shoes are not unsymmetrical in any way, and have graceful lines.

When one is having shoes made, it is important to see that the following ideas in addition to the others which have been mentioned, are embodied in their construction and design: The person for whom they are intended should stand upon a piece of paper, and a pencil should be run around each of the feet to obtain a correct outline of both of them. Then the exact length and shape will be found; for when the weight of the body is placed upon the feet, they expand. Then other customary measurements can be taken with a tape measure and rule. When the shoes are being constructed, care should be taken to curve the toes upward. If this is not done, the pressure of the toe of the shoe will be painful, for the toes of the foot curve upward when flatfoot is present. The toes

of the shoes must be built so that they will not rest upon the toes of the feet. The uppers must be carefully cut so that they will not be too far apart when the shoes are laced, and yet again not too close. If too far apart, the laces will cut the flesh; if too close, the ankle can not obtain sufficient support, a very important item in relieving flatfoot. A tongue is sometimes made of two thicknesses of material, and it is left open at the top so as to allow some material to be slipped into it if the uppers come too close together. This gives some chance of adjustment and saves making new uppers, and also assists in preventing the laces from cutting into the flesh, which may happen if the shoes are tightly laced to give much support to the ankle. But in most instances if the shoes is carefully designed, and the built-up arch properly constructed, support of this kind may be given without lacing the shoe tightly.

A good test of a well-designed shoe is as to how it wears. If the first appearance of wear is in the *middle* of the sole, it shows that the shoe was correctly made, and that the foot is being benefited by it. Remember that after wearing the first pair of shoes out, the arch support can be made higher in the second pair, and this can be repeated in each succeeding pair until the limit is reached. The wearer can readily bear these changes because they come gradually. It feels very strange to any one who has worn a built-up arch shoe to put on an ordinary one, as the support of the arch of the foot is at once missed. It is astonishing how much pressure is exerted by the broken-down arch of a foot. The steel inserts are sometimes broken by it. By this one can obtain an idea of how necessary it is to support the arch properly.

In conclusion, the writer would advise any one who thinks that he is troubled with flatfoot, to consult a competent surgeon at once, and if he orders a specially made shoe, to go immediately to a reliable shoemaker

who makes a *specialty* of such shoes.

A shoe that is well designed and carefully constructed will cost a good price, but one will never regret the money paid, for in return he will obtain much comfort, and will in all probability also be spared a broken ankle, or some other serious injury. It is not best to try to economize by purchasing from a maker who does not make a specialty of such shoes. They require expert skill in

their construction. When a second pair is made, the wearer should insist that the same workman who made the first pair shall make the second. The reason for this is that workmen differ as regards how tight they draw the various parts together, and also as to many other details; so to obtain comfortable and satisfactory shoes it is better to have the same workman make them each time.

Progress and Problems in Preventive Medicine

BY MILTON J. ROSENAU, '89 M. (UNIVERSITY OF PENNSYLVANIA), OF HARVARD UNIVERSITY.

"PREVENTIVE medicine is an art based upon many sciences," said Dr. Rosenau. "It is an art that has reached the satisfactory stage where we are able to foretell many natural events in the epidemiology of disease with an accuracy not dreamed of by the prophets of old. Other sciences and their arts have passed through the same evolution that is so evident in the history of sanitation. When the history of this period is written the historian will be embarrassed with a wealth of material progress along every line of human endeavour, but 'when earth's last picture is painted, and the tubes are twisted and dried,' one achievement will stand out clearly above all the rest and that one is the conquest of disease.

"One of the most remarkable developments of this age in which we live is the awakening of a sanitary conscience. It is a new thought in the minds of many men that care of their bodies and the cleanliness of their surroundings is a very considerable factor in the comfort, safety, and even the health and life of their fellowmen. The sense of moral goodness which comes from a clean and hygienic life is part of the doctrine of sanitary righteousness. Preventive medicine teaches that we must not only safeguard our own bodies against infection, and keep our own surroundings clean for our own sakes, but quite as much for our neighbour's

sake. It teaches the lesson of the unselfishness of community interest, and has been a potent biological factor which underlies the present trend towards Socialism. One man cannot fight the fight against the common foe—infection: it takes the combined and intelligent co-operation of the community.

"One of the best instances that comes to mind is the case of vaccination for smallpox, which was the first, and remains one of the greatest achievements in preventive medicine. Vaccination affords a high degree of protection to the individual, and a wellnigh perfect protection to the community. Vaccination and revaccination systematically carried out will completely erase smallpox from a nation. In other words, while the individual protection is not always perfect, the communal protection is absolute. To remain unvaccinated, therefore, is selfish, in that by so doing a person steals a certain measure of protection from the community. In England many persons remain unvaccinated because the law exempts persons whose religious scruples forbid compliance. Our own Supreme Court wisely forbids any such exemption in States having vaccination laws. . . . It is an unfortunate day for preventive medicine when the principle is not recognized that sanitary negligence is just as culpable as the negligence which fails to place a red flag by

day or a red lantern by night to guard against a pitfall in the public highway.

"It is plain that man is the great source and reservoir of human infections. Man is man's greatest foe in this regard. The fact that most of the communicable diseases must be fought in the light of an infection spread from man to man is one of the most important advances in preventive medicine. This new conception has crystallized out of a mass of work in the sanitary sciences during the past decade, from researches upon communicable diseases. Formerly sanitarians regarded the environment as the main source of infection. We now know that water, soil, air and food are the vehicles rather than the sources of infection.

"The knowledge that most infections are spread rather directly from man to man combines the forces of sociology with those of preventive medicine. The task of preventive medicine is therefore rendered much more difficult from the fact that the control of most infections depends on control of the man himself. . . . We have a certain amount of control over our surroundings, and we have dominion over the lower animals, but the control of man requires the consent of the governed. The fact that man is the chief source and reservoir of his own infections adds greatly to the scope and difficulties of public health work, and often makes the prevention of disease depend upon social changes. In this sense preventive medicine has become one of the important factors in sociology.

"The mistake should not be made that simply because dirt does not breed disease it may be neglected; because the filthy garbage can does not emit diphtheria, it may be tolerated; and because the foul odours from decomposing organic matter do not carry with them the effluvium of any known disease,

they may be permitted. No mistake could be greater. Cleanliness is still next to godliness, and is just as important from the standpoint of personal hygiene as ever. Cleanliness of mind and body; cleanliness of home and surroundings; cleanliness of city and country, cellar and garret, wharf and shop, markets and roads, cleanliness of the air we breathe, the water we drink, the food we eat, and the habits we cultivate, are substantial foundation blocks for an enduring structure of preventive medicine. . . . Our conception of cleanliness has greatly changed with our advance in knowledge of the kinds of dirt, the degrees of dirtiness, and the nature of these dangers. We can no longer be satisfied with visible, or æsthetic cleanliness, but must insist on biological cleanliness. . . .

"The student of preventive medicine frankly faces the fact that the mass of mankind is diseased, ignorant, and unmoral. He has dedicated himself to the task of helping to cleanse, teach and regenerate. Preventive medicine dreams of a time when there shall be enough for all, and every man shall bear his share of labour in accordance with his ability, and every man shall possess sufficient for the needs of his body and the demands of his health. These things he shall have as a matter of justice and not of charity. Preventive medicine dreams of a time when there shall be no premature deaths; when the welfare of the people shall be our highest concern; when humanity and mercy shall replace greed and selfishness; and it dreams that all these things will be accomplished through the wisdom of man. Preventive medicine dreams of these things, not with the hope that we individually may participate in them, but with joy that we may aid their coming to those who shall live after us. When young men have visions, the dreams of all men come true."



EFFECTS OF HYDROTHERAPY ON THE BLOOD

THE white blood cells are the policemen of the human body. They constitute the standing army designed to repel the invasion of bacteria. It is upon their number and efficiency that the body depends for its resistance to, and immunity from, bacterial diseases. The white cells and other cells of the body accomplish this resistance in two ways, or by a combination of these two methods.

One is by the production of substances which neutralise or antidote the poisons produced by the bacteria. These substances are known as antitoxins. Or the cells of the body may produce substances which weaken or destroy the germs themselves.

Second, the white blood cells may actually eat up and digest the bacteria, thus destroying them.

It will be seen, then, that whatever agent produces an increase in the number of white cells in active circulation, and makes them more energetic, is a most powerful means of combating infectious diseases. Both these results—*i. e.*, increasing the number of white cells, and accelerating their activity—are produced by cold applications. While a simple cold treatment cannot be expected to cause the production of more white cells, yet the frequent repetition of suitable tonic cold applications does actually stimulate the blood-forming organs to produce more cells.

Notwithstanding the many antiseptics, germicides, etc., that have been vaunted for the treatment of infectious diseases, the white blood cell itself is the most efficient "germicide" known, and will always retain its high place in the defence of the body against bacterial invasion; furthermore, the agent which assists the body by augmenting its natural powers of defence will never occupy a place secondary to purely artificial and chemical means of destroying the invaders.

G. K. ABBOT, M. D.

A SURE CURE FOR CONSTI- PATION

ONE of the common causes of the clogging of the system with impurities is constipation of the bowels. And many of the stomach disorders and many of the other diseases with which people are afflicted are due to this cause.

In handling a great number of these cases during the past twenty-five years, I have found that following simple methods, conscientiously adhered to, will conquer the most stubborn cases.

One of the things that gives the greatest relief is whole wheat, cooked for four or five hours in a double boiler. I have seen cases of over twenty years's standing, in which all the laxatives have been used to no effect, respond to this treatment in a few weeks' time. Some of the wheat prepared in this way should be eaten with each meal.

Another great help is to take a glass of water as soon as one wakes in the morning. In about ten minutes take another, repeating this three or four times, if possible, before breakfast. In case the water cannot be taken alone, the juice of a lemon or an orange may be added.

An exercise of great value in these cases is to lie on the floor or something equally firm, before the body is clothed in the morning. Raise the limbs at right angles with the body, taking five seconds to raise and lower. Raise first one limb, then the other' then both together. Keep up this exercise for four or five minutes. This will strengthen the muscles of the abdomen, and is one of the very best of exercises.

Deep-breathing is also excellent, especially if conducted in the open air.

These are some of nature's simple remedies; and their continued practice will give relief. You will readily see that they could not possibly inflict upon you injury. Of course, if the patient is in such a weakened condition that he cannot follow such directions, he should see his family physician before entering upon this programme.

H. F. RAND, M. D.

: Mother and Child :

Welfare Work for Children

WARFIELD WEBB

WHAT mother does not love her babe? If she did not, she would be less of a mother than the brutes, which will defend their young, sometimes with their own lives. With this mother instinct of love, most animals possess a more or less perfect what-to-do instinct, which enables them to protect their young, or a fair percentage of them, from the dangers and the enemies with which they are threatened.

But the life of human babies is too precious, too sacred, for them to be reared on this animal basis of "a fair percentage." It might do for the ignorance of barbarous and savage times, but it is utterly unworthy of a civilized community; for we now have the knowledge by which a very large proportion of baby deaths might be prevented. But with this knowledge we need a public conscience that will cause us to feel that the community as a whole is responsible when certain of the women are allowed to assume the responsibilities of motherhood without the knowledge that is required to safeguard the lives of their children.

There is no fact more patent than that thousands, yes, millions of mothers suffer their infants to die of preventable disease, and then as a rule, with hopeless agony look upon the death as a dispensation of Providence or of fate. Notwithstanding the fact that practically all infant deaths can be charged to parental ignorance, there is a general impression that with maternity the woman in some way acquires an instinctive knowledge of what to do for her child, and that instruction in the art of motherhood is entirely superfluous; and often the mothers will resent any attempt to instruct them.

Frequently the parents are not fitted for the advent of the child. Poverty, ill health, and insanitary environment are factors calculated to mar its prospects as it enters the world. When to these are added parental ignorance, there is little prospect that the life will be more than a few months of suffering.

But the child, having been brought into the world, has a right to life, and health, and strength,—a right which brings a responsibility not only to the parents, but also to the community. In order that this responsibility on the part of the community may be discharged, there must be an efficient and unending crusade of education, whereby mothers shall be given that knowledge which every mother should possess.

It is with this end in view that numerous organizations have been established to improve the lives and the environment, first of the parents, and through them, of the offspring. And the task does not terminate with the first few months of the child's life. There is still need for the guidance of the mother, or for the doctor's or the nurse's assistance and training; and these the associations are trying to bring into the homes of the poor, to the end that nothing will be omitted that might be for the welfare of the child.

In Chicago the United Charities has been working along this line with remarkable results, which prove the wisdom of the labour and the heroism of the labourers. While it may appear a little out of the regular routine for an organization of this kind to undertake such a work, there is every reason for its existence, and many reasons for gratitude on the part of hundreds of families for the good that has been accomplished. A part of the

labour is the day-nursery, where the children are brought each day at an early hour by parents whose labours must keep them from home. Here the infant and the little child are given care and training that are even more beneficial than that which they could or would receive at home.

Physical examinations as to the conditions of the applicant are made, and its antecedents are recorded before it is admitted. If any lurking disease is noted, an effort is made to cure it before it has had an opportunity to gain headway. The child receives the proper kind and amount of food, and the regular bathings, exercise, sleep, and training that will be the means of increasing its physical and moral well-being. Many babies are brought to such institutions suffering from disease, and are taken away sound in body. In case of serious or contagious disease, the child is at once sent to some institution where it can have proper medical attention.

The mothers are shown just how to care for their infants,—how to bathe, clothe, feed, and otherwise minister to the children's welfare. This work has been followed by the most gratifying results. Practical training proves to the mother how much depends upon her care in the daily life of the baby to keep it well. Hearsay evidence and mere oral instruction are insufficient to insure this. A practical training by the nurse at the nursery and in the mother's home, gets results that would be manifest in no other way.

During the warm months, when the baby demands plenty of fresh air and sunshine,

there are summer camps, where mother and child can obtain rest and recuperation, and where the mother incidentally learns how to care for the child. As it is not convenient for all mothers and babies to go to the summer camps, summer tents have been pitched on the roof of the day-nursery and elsewhere and here the same lessons in child-welfare are conducted under favourable conditions.

The child receives proper care, and the mother learns the value of sunshine and air. She is taught that there is wisdom in ample but proper feeding.

The essentials for the betterment of her children are made plain to her by practical lessons. She sees the improvement under the nursery methods; she notes the effect of the daily bath, the pure and wholesome food, given with regularity and with care, and notices the comfort of the child when properly clothed and cared for. She sees the necessity for sufficient air in the home, both day and night, and comes to understand that there is an unlimited amount of good to be gained from proper care in rearing her offspring.

The practical training under the care of the doctor and the nurse opens her eyes. She now believes possible what she at first thought foolish and an intrusion. Her mother-love and her maternal wisdom have been broadened, and her gratitude has been increased for those who have made possible the well-being of those little ones who are the very mainspring of her life and the cause of her labours and her joys.



Pneumonia, the Winter Disease

PNEUMONIA usually follows exposure of some sort, although the exciting cause is a germ known as the pneumococcus. Lack of fresh air and nourishing food are predisposing causes. A child whose body is in a good condition is much better able to resist exposure than is one who is debilitated from insufficient food or oxygen starvation.

With babies, there is a short, catchy cry that is characteristic of acute pneumonia or bronchitis. Although there are several forms of pneumonia, the one called broncho pneumonia is most common with babies and small children. The chief symptoms are rapid, difficult respirations and a rapid pulse rate. The child may breathe as frequently as sixty times a minute. The skin feels hot and dry, indicating a feverish condition. The child usually is very restless. Cough may or may not be present. Sometimes the onset of the disease is marked by vomiting, and, rarely, by convulsions. Intestinal complications are common, there often being four or five green stools a day. The urine usually is scanty and highly coloured.

The duration and severity of the disease varies with different cases. Some mild cases would get well with no treatment, while some babies die within twelve hours. Naturally the baby has better chance for life if treatment is commenced in the early stages of the disease. It is here the mother's work is needed. There are many things she can do before the arrival of the doctor. In fact, if those who live far from a doctor, waited until he arrived before anything was done, the baby would have a poor chance for its life.

One of the essential requirements in the treatment of pneumonia is good ventilation. It is better to have the room cold than to have poor air in the room. The baby should be kept warm by clothing and by hot-water bottles placed near it. It may be given hot drinks to help induce perspiration. Its position should be changed frequently. The old-fashioned onion poultice (Hot and cold to the chest every two hours will be found more efficient than the onion poultice. The heat is best furnished by a set of three or four fomentations. After each hot application a cold one is used by wringing several thicknesses of cheese cloth, or punaree cloth, out of cold water and applying for half a minute. —Editor.) applied to the chest in the early stages doubtless has saved the lives of many babies. Good results may be obtained by rubbing the chest and neck with turpentine and olive oil. Moist inhalations are as beneficial in this disorder as they are in croup. The child may inhale the steam for ten to fifteen minutes four or five times a day. The bowels should be kept free. Although the baby will have no appetite and can be coaxed to take only small amounts of nourishment, it will be thirsty and should be given as much water as it can drink.

The chief aim of the mother should be to keep the baby warm enough to induce perspiration while at the same time it has plenty of fresh air to breathe. If the doctor has left directions, see that they are followed exactly, and that the medicine is given on time, otherwise it is useless for the doctor to call.

How the Baby's Rest Influences its Daily Life

IT is claimed that much can be done to influence a child's conduct by talking to it while it is asleep. Of course the theory of this is based on the supposition that the subconscious mind never sleeps, but always is ready and willing to receive impressions.

We know that a person awakens in the morning much better prepared for the daily tasks of life if he has had a peaceful sleep in a quiet room, while if his sleep has been disturbed or the surroundings are noisy, he awakens in an irritable frame of mind.

With a baby, the same effects are true to an even greater extent, for the child's nervous system is very susceptible. Many times a child awakens cross and fretful, when the main cause is that his position during sleep has not been restful or the ventilation in the room has been so poor that the lungs have not had a sufficient supply of oxygen to carry off the toxins of the body.

The fretful baby may be lulled into restful slumber by his mother's crooning lullaby, while if the mother commences to sing a swinging melody in a high key, the baby is disturbed and awakened. It is the tune sung in a low, soothing tone that is the most quieting.

Psychologists have carried on numerous experiments to determine the extent to which a child can be influenced by its surroundings during sleep. It is claimed that wonderful results have been obtained by having the mother talk to her child while it is sleeping. Perhaps the best results are obtained during the period that just precedes sound sleep, while the conscious will has been soothed

into quietude, and yet all the receptive faculties are awake. Even though the words themselves and the thought are not clearly understood by the infantile mind, yet the quiet repetition of the words and phrases soothes the nervous system and makes it more capable of withstanding the irritations of daily life.

With the experiments carried on, the mother sat by the bedside of her child just as it was drifting off to slumber and repeated over and over again, in a quiet, well-modulated voice, the things she wished to impress upon her child. For instance, the mother sitting by the bedside of the baby, who had been cross and irritable all day, would repeat, "To-morrow baby is going to be good. He is going to have a restful sleep now, and when he awakens he will be such a good boy." It is best not to give more than one thought at a time and avoid giving any counter suggestions. Just how much may be accomplished by this procedure is a matter to be proved later, but at any rate a trial will do no harm and may accomplish excellent results.

Why Not Before

BY G. H. HEALD, M. D.

THE following advice is given by a physician of experience to physicians who have to treat persons showing signs of old age:—

When we first discover a moderately high pressure, of say 150 mm. mercury or over, a certain amount of rest and moderate exercise should be enjoined, and alcohol, tea, coffee, and tobacco in many cases should be interdicted.

It is all very well to tell a man that he must give up those things or drop into the grave; and perhaps he does give them up for a while, but on account of the long established habit, he more likely will, in a short time, give up the attempt to reform, preferring to live comfortably even if he lives a shorter time.

Now, in all honesty, why not begin such reforms before the time that they come to a

person as an alternative for death, and when death would almost be preferred to giving them up? Why, in fact, form the habit of using such articles when one can be just as comfortable, just as happy, just as efficient, if not more so, by doing without them?

When we form a habit of indulgence of any kind, we add one more to our *necessities* which *must* be supplied in order to be comfortable. And when it is fairly certain that some day we shall have to decide between the alternative of giving up this created necessity (which has grown immeasurably during the years of indulgence) and dying prematurely, is it rational to begin?

"A MAN'S character is like a fence—it cannot be strengthened by whitewash."

Diseases and Their Peculiarities

Disease "Carriers"

THE fact that men and insects are "carriers" of specific infective disease is now recognised as one of the most important data in causation of that class of diseases. From previous knowledge and experience of the causation of these diseases, we were not greatly surprised when it was definitely proved that in several of these diseases patients continued to discharge countless numbers of the causative germs in a virulent form for some time. It aroused our astonishment, however, when it was proved to us that the germs of specific infective disease may exist in apparently healthy persons who have never suffered from the disease, and are immune to it, and through whom these germs may be disseminated amongst communities. There is no necessity to recount here the many outbreaks of infectious disease that have been started by "carriers"—they are scattered over the medical literature of the civilised world of the last six or seven years. The role of insects in the transmitting of disease from men to men, and from animals to man, is widening year by year, until we are beginning to suspect that they are probably concerned in the dissemination of many other infective diseases of which our knowledge of the cause is as yet in its infancy or altogether absent. While these discoveries have considerably extended the scope of our preventive measures and in many cases given definiteness to them, they have made the work of sanitarians more exacting by the difficulty they find of ascertaining who the human "carriers" are, and in the case of the insect "carriers," where they breed, and how they are to be got rid of.

It would be perhaps worth while to consider the part played by the human "carrier" in connection with the spread of certain

diseases in India. No diseases demonstrate this more positively than the colon-enteric-dysentery group and cholera.

Enteric and Para-Typhoid Carriers.

There is no longer any doubt regarding the perpetuation of enteric fever and paratyphoid fever by carrier—persons who are reservoirs of the bacilli and discharge them. These carriers we know are of two classes—those who, after an attack of typhoid fever, continue to harbour the bacilli in their gall-bladders, urinary bladders or elsewhere, and discharge them with their *fæces* or urine, and those who have lived in intimate contact with the infected, or have lived under circumstances rendering infection possible, and harbour the bacilli without themselves having suffered from the disease or a recognisable attack of it.

Those who harbour infection may be divided into four classes:—Persons suffering from enteric fever diagnosed and treated as such; persons suffering from enteric fever but not diagnosed or treated as such, including attacks in which the disease was not suspected and possibly many cases diagnosed and treated as ordinary diarrhœa, or malaria of uncertain origin, etc.; convalescent enteric patients who have become bacilli carriers; and healthy persons who have never so far as we know passed through an attack of the disease, such as attendants on enteric fever cases, or persons who have been subjected to the same opportunities of infection as those who have contracted the disease—probably temporary harbourers of infection, but not infected in the ordinary sense of the term. The latter three classes are the real propagators of the disease in India. The first is the least dangerous because known and defensive operations against them are taken

Infection by contact may be (a) *immediate* from a sick person, especially when the disease is not diagnosed; or (b) *mediate* from articles contaminated by him. Infection may occur from early and ambulant cases: from mild or early cases in hospital prior to their diagnosis as enteric, and from some of those who escape diagnosis altogether; by the excreta of convalescents after they are discharged from hospital, from men who are acting as bacilli carriers, and by infection from badly placed and defectively worked latrine trenches.

The greatest danger is associated with the ambulatory cases, the unrecognised and unrecognisable contacts, and the concealed carriers, and one is confident that these cases play a very great part in the dissemination and perpetuation of the diseases under reference not only in military life in the tropics but throughout tropical communities. We now also recognise that these carriers are of the acute kind, those who harbour the bacilli for a few weeks only, and chronic, those who continue to excrete them for months or even years.

Bacillary Dysentery Carriers.

The evidence accumulated during the last five years or so is to the effect that there exists a class of bacillary dysentery "carrier," persons who discharge the bacilli of epidemic dysentery, from unhealed intestinal lesions which reach the bowels of healthy persons in various ways. The obvious lesson from this is isolation of all such cases and destruction of their dejecta until the latter are proved to be free from the infecting virus. There is some evidence to show that the bacilli of dysentery may live in the healthy alimentary canal for some time without causing any symptoms of the disease, until the resistance of the person harbouring them is lowered by a chill, some alimentary disturbance from defective food, etc., when they rapidly multiply, possibly acquire increased virulence, and attack the lining membrane of the large bowel vigorously. When the

disease is in a widespread epidemic form it is possible that these germs are contained in the bowels of a large number of healthy persons, ready to light up the disease as above started. Investigations so far appear to indicate that the healthy human carrier of bacillary dysentery is rare and almost negligible. *The most dangerous carriers are the incomplete convalescents which form the largest class*—they should be isolated until they cease to discharge bacilli; we have abundance of evidence now that they discharge virulent bacilli for weeks after apparent recovery.

Cholera Carriers.

It is now generally admitted that there are always a certain number of apparently healthy "carriers" during cholera epidemics. They act as carriers for the same length of time as the recovered cholera cases. We had a melancholy illustration of the effects of cholera carriers amongst the nurses of the Calcutta Presidency General Hospital in 1909; the carriers being the cooks' assistants in whose stools Haffkine demonstrated cholera vibrios. This fact, that persons unsusceptible themselves to cholera, may yet be the carriers of virulent germs, presents us with a very formidable task, and widens the problems of prevention in a way that had not hitherto been anticipated. The healthy carrier is undoubtedly a very real danger; the risk from other carriers can under a sound system of prevention be safeguarded against. It is also on record that cases occur in which cholera bacilli are found in the stools some days before the attack comes on. Carriers amongst men who have suffered from the disease are, of course, fewer than in other diseases—fewer survive. Ambulatory cholera is, however, notoriously common during epidemics.

"FRUITS may be taken with benefit at the close of most of the meals. The fruits contain a liquid which is not only nutritious, but which acts as an antiseptic and aids the digestion."

The House We Live In

The Teeth

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

To possess thirty-two sound, unstopped, natural teeth on reaching middle age is a physical distinction which comparatively few people achieve. The truth of this statement is sufficient indication that the teeth rarely receive the care and the exercise which they require, for otherwise they ought to bear the strain and stress of life as well as the other organs.

Structure,

The teeth are composed chiefly of a very hard substance, the dentine, which, although somewhat similar to bony structure, is very much harder and contains a larger amount of mineral matter. (See Fig. 1.) The crown or exposed surface of a healthy tooth is covered completely by a still harder, ivory-like substance called enamel. The root is covered by a softer bony substance called cementum. The pulp cavity of the tooth contains a rich supply of nerves, blood-vessels, lymphatics and fibrous tissue, and in ordinary language, it is usually spoken of as the "nerve of the tooth" because it is so exceedingly sensitive. More than half of the tooth is buried in the bony socket of the jaw and is tightly fixed in place by means of hard, fibrous tissue, so that very considerable strength is required in drawing a tooth, especially when the root is not diseased. That part of the tooth which connects the root with the crown is called the neck. The front teeth have a single root while the back teeth have two or three roots and are thus fixed still more firmly in the bone of the jaw.

Varieties of Teeth.

The permanent teeth of the mouth number thirty-two, sixteen in each jaw. They are classified as follows according to their function and their structure:—

Eight incisors or cutting teeth, which have something the shape of a chisel and are used for biting the food. The incisors have but one root each. They are among the strongest and healthiest teeth in the mouth, and usually persist longer than the grinding teeth.

Four cuspids or canines, one on either side of the incisors. These teeth, although they are called canine or dog-teeth and are somewhat pointed, do not project into the mouth as in the case of the dog and other carnivorous animals, and therefore, do not and cannot in any sense serve the purpose of tearing the food. Their function is much the same as that of the incisors. They also have but one root each.

There are eight bicuspid or pre-molar teeth, two adjoining each of the canine teeth. They are the smaller grinders of the mouth and possess one or two roots. Like the large molars they are frequently subject to decay and are oftentimes the first teeth to be lost. Their function is the same as that of the molars.

The large molars or proper grinders number twelve, and are placed immediately behind the bicuspids. They are the largest teeth of the mouth and have two or even three roots. Their function is that of grinding the food, and mixing it thoroughly with the salivary juice. Thus they serve a most important function in the early stage of digestion, the only stage over which we have complete control. The four last molars are usually known as the wisdom teeth. They appear latest in life, from the age of eighteen to twenty-five, and are frequently the first teeth to decay and give trouble. See Fig. 2.

All the teeth are placed close together in the mouth so that they serve to brace each other. Irregularities in the position of the teeth usually spell mischief, the irregular teeth being the first to become troublesome, and it is often necessary to extract them. It

is of the greatest importance to give careful attention to the milk teeth, and see that they are removed at the proper time, so as to make way for the eruption of the permanent teeth to prevent, as far as possible any irregularities.



What, and How Much Should We Eat

THERE was a time when man followed his natural inclination as regards his food, and as long as he lived under natural and healthful conditions, this was by no means the most unreliable guide, but as during the lapse of centuries, the custom and manner of living have become more and more abnormal and depraved, the desire has been created to satisfy unnatural cravings, which makes it necessary to return to the old paths, and thus through the recognition of natural law ascertain which is the best way to live, for as Cicero says, "If we take nature for our guide, we will never go astray."

It is by this means that we have learned that albumen is an essential part of human food, and that the formation of tissue is an impossibility without albumen. This food element is found in the greatest quantities in nuts, milk, eggs, legumes, fish, and flesh, and in lesser quantities in grains, fruits, and vegetables. In fruits the largest quantity of albumen is found in figs, dates, and bread fruit.

When, during the past century, the discovery was made that albumen was an essential element in human food, its importance was very much over estimated by the otherwise meritorious German chemist, Liebig. It is absolutely impossible to determine by an analysis of the human body how much

albumen man requires, and at that time the mistake was made of taking for granted that vitality and energy for work are derived entirely from albumen. This we now know definitely is not the case, and inasmuch as Liebig's albumen theory has to a large extent been the means of encouraging an extensive use of flesh foods, it has done much harm; but as on the other hand it has most likely been the direct cause of a closer investigation of the true relation of albumen to nutrition, this theory may also be said to have been most useful.

The following tables, the result of scientific investigation, show the separate elements, as well as the composite material which constitute the human body. It must, however, be self-evident that these figures can only be approximate, for doubtless the quantity will vary with different individuals, but it is nevertheless of special interest for us to know the quantities as discovered by scientific research.

By this we find that a man who measures sixty-seven inches in height, and who weighs one hundred and fifty pounds, consists of the following elements in the stated quantities:—

Oxygen	..	..	..	53,125	grams
Carbon	..	..	..	9,060	"
Hydrogen	..	..	..	7,000	"
Nitrogen	..	..	..	2,350	"

Calcium	1,852	„
Phosphorus	840	„
Sulphur	230	„
Chlorine	130	„
Potassium or potassium	112	„
Fluorine	110	„
Sodium or sodium	108	„
Magnesium	78	„
Iron	4	„
Silicon	1	„

Bone tissue (ossein and glu- ten)	2,550	„
Keratin or kersene	2,050	„
Chondrine	735	„
Hematein (blood-colouring matter)	735	„
Carbonate of lime	520	„
Nerve tissue	410	„
Calcium fluorine	230	„
Phosphate of magnesia	220	„
Salt]	220	„
Inosite and glycogen	98	„
Natron salt	70	„
Alkaline	70	„
Acid	2	„

Besides these, the brain tissue and the blood contain two other elements in smaller quantities; namely, the metals manganese and copper. With the exception of oxygen and nitrogen these elements are rarely found entirely separate in the body, and then only in very small quantities. They are chiefly found as composite materials in chemical combinations.

Possibly it will be interesting to the reader to note these elements in their composite condition. The human body is chiefly composed of the following combined materials in quantities as stated:—

Water	52,800	grams
Pure albumen	8,100	„
Phosphate of lime	4,260	„

By the study of the quantities of these different composite materials found in the body, Liebig was led to adopt the theory that the system requires much albumen, because such a large extent of the body consists of albumen, but he failed to take into consideration that the various elements absorbed in the tissue are not used up with equal rapidity, nor at the same time, and that the waste of tissue depends very much upon how far the individual concerned is well or poorly nourished.—*J. Ottosen, in Rational Ernahrung, translated for Life and Health.*



Outdoor Exercises for Women

LAURETTA KRESS, M. D.

EXERCISE is as important for women as for men. Every muscle, in order to maintain its best condition, must have exercise, by which the free exchange of blood is hastened. This movement of muscle, or elongation and contraction, acts upon the tissue the same as filling a sponge with water and squeezing it out again. Each contraction squeezes upon the blood-vessels, causing

them to empty, each elongation or relaxation causing an inflow of blood. This carries out of the muscle all debris, and keeps up a healthy tone. All muscles need the same treatment. Certain groups we use sufficiently, others have no exercise, and consequently are handicapped.

Many women have for so long accustomed themselves to few exercises that the larger

group of muscles do not become developed as they should. It is unusual to find a woman with well-developed arm muscles. A piano player develops the muscles of the forearm; but the biceps and triceps, the large muscles of the arm, do not become developed as they should. Trunk muscles in civilised women are not used to advantage on account of the bands around the waist. Corsets and tight clothing hinder the proper use of the trunk muscles.

We find for this reason many women with very flabby abdominal muscles, so that the internal organs, because of lack of support, are likely to fall down, or prolapse.

There are many forms of exercise in which women can engage with great benefit. Gymnastic exercises, under most circumstances, are very valuable; but the out-of-door exercises are much better because of the fresh air taken into the lungs, and because they are useful exercises. One feels when the exercise is over that one has accomplished something. I think of gardening, especially hoeing, as a delightful exercise. It is not a heavy one, and is very healthful. Any woman can engage in this useful exercise in her own garden. One hour a day, or even one-half hour, will keep the garden in good condition, and will afford an excellent chance for the development of the muscles of the arms and trunk.

I remember with interest a patient who, though she was developing tuberculosis, was determined to live. She put on a pair of strong shoes and a short skirt, and hoed in her large garden each morning until the sun was too hot. This exercise morning by morning had the effect of restoring the appetite and increasing elimination through the skin and lungs. The cough ceased, she gained in flesh, and to day, after seventeen years, she is strong and healthy. There is something particularly interesting in hoeing, for one is working over plants which so readily respond to care. If one's own merry heart produces a song to go with

the work, the exercise is improved.

Another useful and healthful exercise for women is mowing the lawn with a lawnmower: a fourteen-or sixteen inch size is easily managed, and is not too heavy for the ordinary woman to push. This, too, is an exercise she can take early in the morning. An hour occupied in this way is well spent. It obviates the expense of hiring the work done, and it adds much to our lady's health.

Rowing is a very pleasurable exercise, and when the technique of rowing is properly acquired, it is one of the most beneficial of exercises. The general movement of the arm and back muscles, together with the muscles of the thighs, makes it an excellent exercise. I have seen women become experts with oars, and develop splendid muscles by the exercise.

Swimming must be mentioned here also. Every woman should learn to swim, not only for the exercise she may gain from it, but because sometime the ability to swim may save a life.

I have not mentioned walking as a means of health getting. Among certain classes of women walking clubs are being organised. A walk of from three to five miles is taken regularly, and very often much longer ones. When taking my medical course, I averaged six miles every day, and frequently took a longer walk than that. English women have practised this exercise to great advantage for years.

Our present easy and rapid modes of travel spoil our men and women, so that walking exercises are not so popular as they once were. An energetic walk exercises nearly every muscle of the body. When the head is erect, and the body in good poise so that the weight does not come down too hard on the heels, thus jarring the spine, walking becomes an exercise that cannot be excelled in its benefits for all.

Walking is a healthful exercise under nearly all circumstances. Of course it would

not be healthful to walk in the evening along a marsh infested with malarial mosquitoes, nor would it be an advantage to take a walk in an atmosphere polluted with various impurities, nor walk in the sunshine unprotected on one of our hot summer days: but given

a moderate temperature and a fairly pure atmosphere, if one walks energetically with erect head and springy step, on balls of feet rather than heels, and with a mind full of courage and good cheer, the walk cannot but have a wonderfully invigorating effect.



POISONING BY MEAT

THE Appletons, Publishers, have recently published a book on "Preventive Medicine and Hygiene," by Milton J. Rosenau, formerly director of the Hygienic Laboratory, United States Public Health Service, and now professor of preventive medicine and hygiene, Harvard, containing a chapter on "Meat Poisoning," from which the following quotations are made:—

"Meat poisoning is almost always due to the presence and activity of certain bacteria belonging either to the paratyphoid or the hog-cholera group. The meat may be infected as a result of disease in the animal before slaughter, or it may be contaminated post-mortem from soiled hands, butchers' tools, rags, paper, dust, or other objects that come in contact with it."

"Outbreaks caused by *B. enteritidis* of Gartner, *B. cholera suis*, and their congeners are frequent. In Germany at least two hundred and sixty outbreaks have been recorded during the years 1898-1908. Although Germany is preeminently the home of meat poisoning, outbreaks occur from time to time in most European countries, and in America."

"The meat of cows and calves is most often responsible for meat poisoning, though that of horses, pigs, and goats has also been responsible."

"Paratyphoid fever, both clinically and etiologically, is a first cousin of typhoid fever. The two diseases are frequently indistinguishable at the bedside."

"The paratyphoid bacillus does not, as a rule, multiply in nature, except in meat, perhaps in other foodstuffs."

"The paratyphoid bacillus does not necessarily exist in the tissues of the animal at the time of its death, but the meat may become

infected while it is butchered or during the stage of its after-care. The paratyphoid bacillus deposited upon a roast, steak, or a carcass will grow readily and rapidly through the mass, especially if kept warm. It is easy to conceive how meat may thus become infected through the contamination of dirty hands, butchers' implements, soiled meat blocks, unclean cloths, etc."

"Meat inspection affords but little safeguard against the meat-poisoning group of bacteria, for the reason that these micro-organisms may pervade the meat without in the least changing its appearance, colour, flavour, or odour. Their presence may only be detected by bacteriological examination."

PREVENTION OF BERI-BERI.

FRASER and Stanton, accepting the cause of beri-beri as being due to the removal of some essential substance in the process of polishing rice, sought to discover whether this substance could be isolated from the polishings. They found that by extraction either by cold or boiling alcohol, by percolation or decoction, a concentrated extract could be obtained which, when fed to chickens in which beri-beri was developing from the ingestion of polished rice, prevented the further course of the disease, although polished rice, was continued as their diet. In fact, the extract not only arrested the development of the disease, but caused the symptoms which had already appeared to recede. The authors then tried the curative effects of these extracts upon chickens in which had developed severe grades of polyneuritis from polished rice, with striking curative effects. The disease was soon arrested and all of the symptoms were removed save those due to actual destruction of nerve tissue. Owing

to the great prejudice which exists against unpolished rice it is impossible to enforce its use.

The polishings are extremely impure and are mixed with foreign material so that they cannot be used as such. If they could, it would be necessary for an adult to consume 1.75 ounce daily to offset his consumption of the polished rice. Hence the introduction of this concentrated extract, of which a dessert-spoonful represents two ounces of polishings, should prove of great prophylactic, and probably curative value. The authors also suggest the estimation of the phosphorus content of rice as a means of determining whether or not it is suitable for food. A rice containing less than 0.4 per cent. of phosphorus pentoxide has been polished to such an extent as to be dangerous to health.—*New York Med. Jour.*

SLEEPING SICKNESS.

SIR DAVID BRUCE, head of the Sleeping Sickness Commission, has arrived in England for a few weeks before returning to Nyassaland to continue his researches. Sir David says the Commissioners are convinced that the sickness is spread by wild animals, and he thinks that the game in the affected areas should be destroyed as a standing menace to natives and white alike. The type of sickness in Nyassaland is more rapid than in Uganda and West Africa, and is invariably fatal. Sir David Bruce does not believe there is any danger of this form of disease spreading; he thinks it has probably existed in the infected areas from time immemorial and will never assume the terrible proportions of sleeping sickness in the Congo and Uganda.

Mr. Harcourt has appointed an influential representative committee, under the presidency of Earl Desart, and including numerous scientists, to determine whether it is necessary and feasible to carry out the experiment of game destruction in a localised area, and if so, to decide upon the locality, cost, and other details and whether it would be advisable to attempt the extermination of wild animals either locally or generally.

ALCOHOLISM AND NATIONAL PROSPERITY

THE *Medical Record*, in an editorial article entitled "Alcoholism in France," speaks of the lessened tendency to drink in Great Britain, but in other countries "there has been no marked tendency in this direction. In the United States figures seem to show that drink is not decreasing, while so far as France is con-

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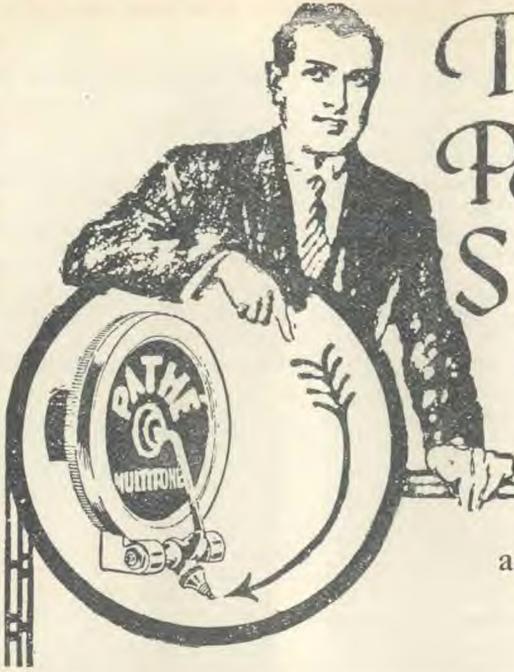
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cerned, alcoholism exhibits progress rather than decline." The number of deaths caused annually in that country by alcoholism, directly or indirectly, exceeds 100,000, and alcoholism is also an important cause of the large number of mental diseases in that country. Moreover the assertion is made on excellent authority that of all the European armies the French suffer most from maladies indicating a condition of feeble race resistance. The *Record* continues:—

"If these reports be true, and it may be presumed that in the main they are true, then France provides a striking object-lesson of the evil effects of alcoholism on the human race. France is rich and prosperous, and France is notorious for a large consumption of alcohol.

"If prosperity brings in its train the wholesale use of alcohol, with its manifest and manifold ills, then material prosperity is not to be desired. National decay, mental and physical, is too high a price to pay for the accumulation of riches.

"The most hopeful sign of the situation, for, after all, France is by no means the only country in which so-called prosperity and alcoholism go hand in hand, is that the public conscience everywhere is becoming aroused with regard to the alcohol question, and that steps are being taken to investigate and try to remedy the existing state of affairs in the most intelligent manner possible. Undoubtedly one of the most powerful factors in bringing about this change is education through the public and the medical press."—*Life and Health, America*.

NEWS NOTES

VACCINATION AGAINST TYPHOID.

BOSISIO has been making comparative series of tests with the subcutaneous and the intravenous technic for vaccination against typhoid. He prepared the vaccine by Löffler's method regarding this as superior to others for several reasons, among them the durability of the vaccine thus made and the fact that only one injection is needed and that the immunization is complete in less than a week and lasts a year at least. The intravenous route is preferable as the effect is felt more promptly and more antibodies are produced by this technic. The details of the vaccination, the effect on the temperature, blood-count, etc., are tabulated from fifteen typical cases.

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BOTULISMUS.

BURGER reports twelve cases of meat-poisoning following the eating of ham and sausage from one pig.

PREVENTION OF MALARIA

DR. FRANK H. HANCOCK, Norfolk: "The Virginia Society for the Study and Prevention of Malaria makes a special appeal to the laity in Norfolk. The society has provided moving pictures showing the marshes before drainage swarming with mosquitoes, and after drainage with the mosquitoes gone. Another film to be exhibited is to show the appearance of the people living in the affected districts and their improvement after the mosquito has been exterminated."

SUGAR AS A BUTTER PRESERVATIVE

AN unsuccessful prosecution was brought against a Liverpool firm on the charge of selling butter containing sugar. The prosecution claimed that the 1.2 per cent. of sugar present was a foreign ingredient. According to the law sugar could be used as a preservative; but as the quantity here present was not sufficient, it must be regarded as a foreign substance. The defendant stated that sugar was put in because the public liked a mild sort of butter. The magistrate dismissed the charge as he thought the act contemplated the presence of other preservatives besides salt.

THE DANGER OF WHOOPING-COUGH AND OTHER INFECTIOUS DISEASES

STATISTICS regarding the fatal cases of whooping-cough, compared with the mortality of scarlatina, measles and diphtheria, show the startling fact that the first-named disease twenty years ago was more dangerous than even scarlet fever, and that now it still is worse than diphtheria. The following figures are taken from the official report of the Austrian Board of Health and published by Dr. Langer in the *Oesterreichische Sanitatzwesen* for 1913, No. 21.

REPORTED FATAL CASES IN AUSTRIA

Year	Whooping-Cough	Scarlatina	Measles	Diphtheria
1890	27,274	12,158	15,182	28,514
1908	8,714	14,366	7,929	7,924

In these figures the numerous deaths due to complications of whooping-cough are not considered. Special attention should therefore be paid to this dangerous disease, as not so much change of air as pure air alone is necessary for the cure of the attacks.

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is an art in the treatment of disease, which is practiced by the attendants in charge of the Treatment rooms at both Kirkville, Mussoorie and 75, Park Street, Calcutta. A Booklet describing this, and other treatments given may be had on application to the manager of either institution at the above addresses.

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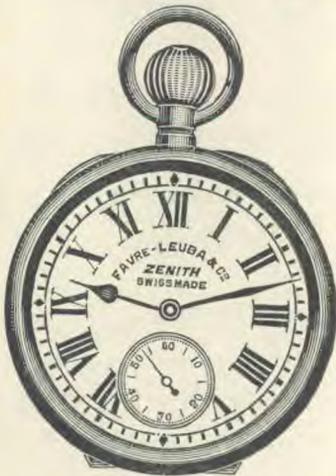
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DISSATISFACTION WITH EXAMINATION OF SCHOOLCHILDREN

SEVERAL school trustees of the board of education, Toronto, are dissatisfied with the medical inspection of schoolchildren as carried out at present by the board of education, and will back the city council in its appeal to the Ontario government for special legislation to have the inspection done under the health department of the city.

MAL DE MER (SEA-SICKNESS)*(Concluded from Page 61)*

Headache is very intense. There is a story afloat concerning the symptoms of sea-sickness. At first one is so sick he is afraid that he is going to die again he wishes that he could die and later he becomes so much sicker that he is afraid that he will not. However it sometimes becomes a very serious condition. When every effort to keep the body supplied with food and drink fails, the patient is liable to go into a collapse.

The treatment must be prescribed for each individual case. Sedatives are indicated to control the retching and vomiting, and stimulants for collapse. These must be administered by the ship surgeon. Often when there is a long voyage ahead, travellers have to de-ship because of the severity of the symptoms and the failures to alleviate them. This is a case where prevention is better than cure.



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