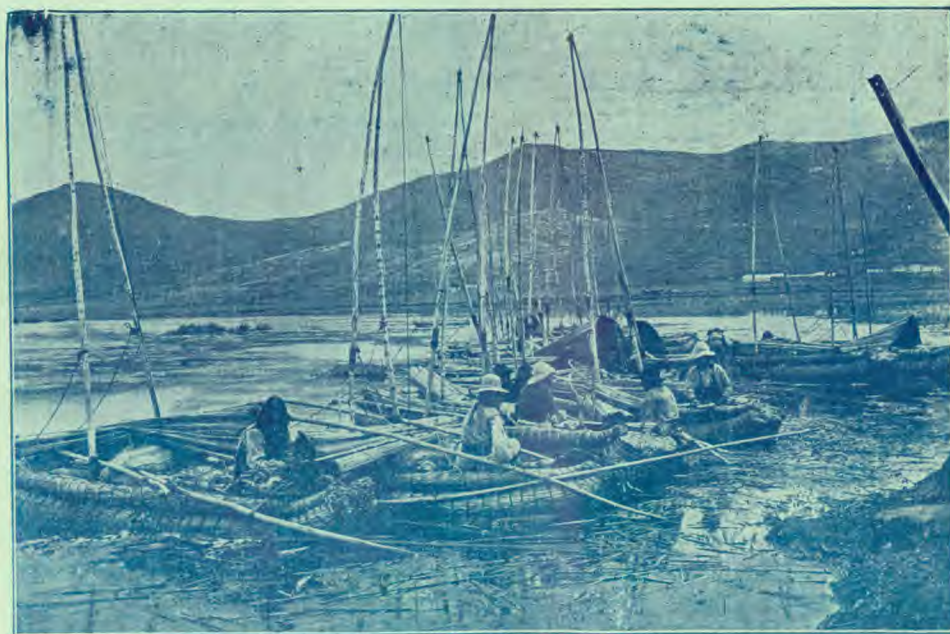


# Herald of Health

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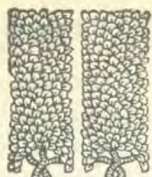
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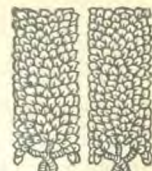


MID FOREST SILENCES.





# General Articles



## Milk

MILK is practically the only animal food that contains all the elements necessary for the development and upkeep of the body. There is a considerable difference in the composition of the milk of the different animals, for the rate of growth and the climatic surroundings vary to quite a large extent. The calf, for instance, will double its weight in forty seven days and the rabbit in seven days, but the human child takes 180 days to double its weight. The difference in composition is especially noted in the proteid element, that which is especially concerned in the building up of the various tissues of the body. The milk of the rabbit contains over ten per cent of proteid, that of the cow about three and a half, and that of the human being only one and a half. Again, one animal requires much more heat-producing food than another. Fat is the chief heat-producing element in our food. One gramme ( $15\frac{1}{2}$  grains) of proteid or carbohydrate will when fully oxidised produce  $\frac{4}{10}$  calories of heat and energy, but the same quantity of fat produces more that three times that amount, viz.,  $\frac{3}{10}$  calories. Thus we would expect that the milk of animals in the cold polar regions must contain more of this heat-producing element than that of animals in the more temperate climates. The milk of the whale, for instance, contains 43 per cent of fat, while that of the cow contains from  $2\frac{3}{4}$  to  $4\frac{1}{2}$  per cent. Milk is essentially a food for the young animal, and its composition under normal conditions exactly corresponds with the body it builds. Hutchison, in speaking of the variations in human milk, writes: "The fact that a woman has a feeble child is no proof that the milk is at fault. On the contrary,

it was found that the milk of women with feeble infants was rather richer than when the suckling was robust. It would almost seem as if there was here a provision of nature to supply the child which has only strength to draw a small *quantity* of milk with a food of proportionately better quality." —*Food and the Principles of Dietetics*, page 439. The fact that a quart of fresh milk is equal to nearly a pound of the best beefsteak will show its importance as a food.

There is no food that varies more in composition than milk. "Milk," according to Pearman and Moor, "forms in many cases the entire diet of children and invalids, and under the present conditions it varies so enormously that a doctor, in prescribing so much milk per day, does not know within 30 per cent how much nourishment is given." "Excepting meats," says another analytical writer, "there is probably no one article of food which is liable to so wide a variation in its percentage composition as the milk supplied to the consumer. The variations are so great, in fact, as to make it entirely possible that one man may pay nearly twice as much as his neighbour for the same amount of nutrients when both buy it at the same price per quart." —*The Use of Milk, United States Department of Agriculture, Farmer's Bulletin, No. 363*. When, however, we have a mixture of milk from several cows, its composition does not vary to such an extent. One cow's milk may be productive of much harm, for it may be poor in quality or contain germs of disease, whereas with a number of cows there is an average composition, and if there be disease in one cow, it will be retailed



in a diluted form, and the system will the better be able to grapple with the diseased micro-organisms. However, for a family, there is nothing like a good, healthy cow, producing a fairly rich milk. The cow can be kept clean, well fed, and milking can be done under good, hygienic conditions. As has already been stated, milk contains all the elements necessary for the building and the upkeep of the body, viz., proteids, carbohydrates, fats, and mineral matters. We will now deal with each of these important constituents.

#### Proteids

The proteids of milk constitute only about three per cent of its total weight. The chief proteid is casein, which is kept in solution by its combination with phosphate of lime, forming not a clear but an opalescent fluid.

There is no food so valuable in disease as milk. Its value does not depend wholly on its liquid nature and the ease with which it can be taken; its constituents are exactly what the body needs, and they are very easily digested. The proteids of milk are more easily digested than any other proteid either in the animal or vegetable kingdom. Advantage has been taken of this fact in preparing many of the patent foods at present on the market, such as Plasmon, Protene, Sanatogen, Casumen, Brogene, etc. These contain about eighty per cent of proteid, chiefly in form of casein. Those who can take milk freely do not need these preparations, but they are certainly good, though very expensive. For those who need proteids, but cannot take milk in any form or who cannot take it in sufficient quantity, casein possesses some special advantages over other varieties of proteids. It is, for instance, readily capable of fixing acids, and so neutralising them and lessening their irritability. According to Brandenburg "the power of casein in this respect is three times greater than that of an equal weight of beef." This property makes milk and the casein preparations of special value in those cases of dyspepsia associated with too much acid in the stomach.

Again, casein contains phosphorus in the form of phosphate of lime and of potash, very essential constituents of muscle and nerve tissue. Phosphorus in casein of milk is in an organic form, and consequently readily enters the blood. All medical men now recognise that the natural constituents of our body, such as iron, phosphorus, potash, etc., are much more valuable in our ordinary food than when given in an inorganic form, as in the shape of ordinary drugs.

Again, casein, unlike the proteids of flesh-foods and legumes, is incapable of yielding uric acid by its decomposition, and therefore it can be freely used in gout, rheumatism, and allied complaints. Lastly, the casein of milk is so easily and rapidly absorbed that there is little time for putrefaction in the intestine. Milk is undoubtedly a good food in flatulent dyspepsia. It should, however, be given with well-prepared cereal foods, and not mingled with other foods, such as eggs, meat vegetables, etc. This statement, of course, especially refers to persons with disordered digestion. Milk and casein preparations should not be given with acids, which precipitate the proteid in coarse, indigestible flakes.

An invalid requires about eighty grammes of proteid daily, and this quantity would be covered by about 100 grammes ( $3\frac{1}{2}$  ounces) of such casein preparations as Plasmon or Casumen. Sanatogen has about the same nutritive value as the other preparations of casein, but it contains in addition five per cent of glycerophosphate of sodium. Hutchison, in speaking of this preparation, writes: "The organic phosphorus which it contains appears to be fully assimilated, and is believed to exert a tonic effect upon the nervous system. Such an influence is conceivable, but is very difficult of proof, and the claims of Sanatogen in this respect rest upon a purely empirical basis, although it is only fair to add that numerous clinical observers have testified to the benefits from its use."—*Food and the Principles of Dietetics*, page 145.



### Proteids of Human Milk

The proteids of human milk are in a much more easily digestible form than those of cow's milk. The calf is much bigger than the child, and develops more rapidly, consequently cow's milk is richer in proteid, mineral matter, and to some extent in fat. The two chief proteids of milk are casein and albumen. In cow's milk there is four of casein to one of albumen, but in human milk the proportion of the two are equal. Now albumen is much more easily digested than casein, and consequently cow's milk is never so suitable for the infant as its natural food. Advantage has been taken of this fact in the preparation of proteids for infants in a recent food prepared by A. Wulffing and Co. of London, called *Albulactin*. And again, the casein of human milk is actually different to that of the cow's milk. Cow's casein leaves behind an indigestible residue; human casein does not. When an acid is added to cow's milk the casein is precipitated in large flocculi, whereas under similar conditions fine flocculi, are thrown down in human milk, and these are quickly dissolved by adding more acid. And again, the casein of human milk is richer in sulphur than that of the cow.

One of the most important ingredients of milk is fat, which is found in extremely minute globules. One drop of milk, the size of the head of a pin, is said to contain no less than 1,500,000 separate fat globules, and in human milk these globules are smaller still. Fat is taken into our systems in an unchanged condition, but to be absorbed it must be emulsified, divided into extremely fine particles by the secretions from the pancreas and the liver. There is no more perfect emulsion than milk, and the fat is consequently easily absorbed. In the formation of cream, especially when it is scalded as in Devonshire cream, the particles run together to some extent, consequently the fat of cream is not so easily assimilated, more especially when the duodenal digestion is sluggish. Butter when taken with bread is

one of, if not the most easily digested of all fats, but this is only so when taken with bread. Its digestibility is due to the ease with which it is emulsified in the first part of the intestine (the duodenum). The quality of milk is gauged by the amount of fat it contains, which should range from 3 to 4½ per cent of its weight. It is found that the other ingredients of milk, the proteids and carbohydrates, vary in exact proportion to the amount of fat, that a milk rich in fat is also rich in proteids and carbohydrates, and that a milk poor in fat is also poor in the other important constituents. In the feeding of young children water is generally added to cow's milk on account of it being richer in proteids and mineral matter, but this dilution makes the solution poorer in fat and carbohydrates (sugar) than human milk, consequently cream and milk sugar should be added. It should be remembered that, although it is important that the child should have a good supply of cream, that percentage of six or over is liable to produce diarrhoea. This artificial mixture, however, is not so good as the natural food. The fat of human milk has a lower melting point, and is more easily digested than the fat in cow's milk, and again human milk contains much less of the soluble or volatile fatty acids than cow's milk. One of the most important differences we have already pointed out viz., that the fat globules in human milk is in a much finer state of division than the fat droplets in cow's milk.

### Carbohydrates

We depend chiefly on the carbohydrates (starches and sugars) in our food for the production of energy. The proteids are necessary chiefly for tissue building; fat is especially useful for the production of heat. All foods, however, are utilised for these three purposes, even fat is necessary for the development of the brain, nervous system, and the marrow of bones. Milk is not a complete food for the adult, as it contains too little of the carbohydrate ingredients. In



order to supply the amount of carbohydrates necessary a man, with moderate hard work, would have to take at least eight pints daily, and this would mean about 140 grammes of proteid, which would be greatly in excess of requirements; 100 grammes of proteid it is now generally agreed, is ample for the upkeep of the body. The addition of bread to milk of course lessens the amount of milk required, and brings up the carbohydrates to the standard diet. The carbohydrate constituent of milk is a special kind of sugar called lactose, or milk sugar. It differs in taste and digestibility to cane sugar, being comparatively free from sweetness. If milk contained the same amount of ordinary sugar as it does of milk sugar, it would pall upon the taste more readily than it does. Adults will tire of bread and milk with ordinary sugar added much more readily than when salt is used in its place. Milk sugar, unlike cane sugar, has very little tendency to be fermented by yeasts; and, as a consequence, is much better borne than other kinds of sugars in cases of dilatation of stomach accompanied by fermentation. It is always preferable to use milk sugar for very young children. Milk sugar is very liable to be split up into lactic acid by certain micro-organisms producing souring, and in children diarrhœa. Most of the summer diarrhœas of infants are brought about in this way. With ordinary care, however, this can be avoided. Cow's milk contains 4 to 5 per cent of lactose and human milk 6 to 7 per cent.

#### Mineral Matter

The mineral constituents of milk are fairly abundant, forming about 0.7 per cent. The minerals in milk exactly correspond in kind and quantity to the muscles, bones, and other tissues of the animal it is designed to feed. Muscles require phosphate of potash, and bones phosphate of lime for their development, and both of these salts are found in abundance in milk. Milk also contains iron, a very important constituent of the blood. About five pints of milk will

supply all the iron necessary for the adult man. Milk also contains citric acid. A good cow will yield daily as much citric acid as is contained in two or three lemons. Being combined with lime the citric acid is devoid of any sour taste. Citric acid is largely absent (or separates in an insoluble condensed form) from tinned milks, and infants fed on these are liable to a peculiar disease of the blood and bones which resembles scurvy. On this account children who are fed on preserved milk should daily take a little orange or grape juice. Infants fed on fresh milk, however, never suffer from the disease referred to. Lime and phosphorus are present in much smaller quantities in human milk, and occur in a much more digestible form. The phosphorous occurs in human milk in an organic form as lecithin. Of the total phosphoric acid in human milk 35 per cent is in this form, whereas in cow's milk it only forms 5 per cent. When it is realised how important phosphorus is to the nutrition of the infant, and the greater ease in which it is assimilated in the organic form, one must see that every possible effort should be made to supply the child with its natural food—its mother's milk. In fact the fat, the casein, and all the constituents in human milk differ from that of the cow, not only in quantity but in organic form. Cow's milk is modified in order to correct these differences, but a truly "humanised" cow's milk is a chemical impossibility.

#### Water

The last, but not the least important constituent of milk is water. The solid constituents of milk are present only to the extent of 12 to 14 per cent. The fact that milk is made up of from 86 to 88 per cent of water shows it, for the adult at any rate, to be a very bulky food and the necessity of combining it with foods of a more solid character.

"Read thou, but first thyself prepare  
To read with zeal and mark with care,  
And when thou read'st what here is writ,  
Let thy best practise second it."



## More Precious than Diamonds

JAMES FREDERICK ROGERS, M. D.

THE accompanying quotation was written by the sage Cervantes three hundred years ago, and contains in concentrated eloquence the gist of all our recent health teaching on the subject. But teeth were highly valued long before the time of the writer of *Don Quixote*, for there have been dentists for at least twenty-five hundred years. Even before that time the Egyptians and Hindus attempted, for looks or for practical purposes, to replace lost teeth by substitutes of wood or ivory, which they fastened to adjacent teeth, and it was for a while believed that in even earlier times the Egyptians used gold fillings; but more careful examination of mummies has revealed that the people valued gold more highly than Cervantes valued a

realize this to our sorrow when something goes wrong and it becomes necessary for a tooth to cry out to the rest of the members for aid. For a time the whole body is upset, and the operations of the mind are sadly twisted and deranged. More than this, and what is more difficult to realize, abnormal conditions of the body as a whole, the presence of poisons productive of disease or produced by disease, affect the teeth, and they must share the consequences of our physical sins of omission and commission.

Teeth are made for use, and they suffer from lack of use just as a muscle or other organ wastes from the same cause. A structure which does not work does not receive much pay in the way of blood supply. This

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**A mouth without teeth is like a mill without a stone, and diamond is not so precious as a tooth.--Cervantes.**

---

tooth, and used the metal as a covering to add beauty to the mouth. Quite possibly the metal was used to hide from view discoloured, decayed or ill placed teeth, in which case the Egyptians did not differ much from ourselves in their ideas of the esthetic.

Cervantes' words leave us in little doubt as to whether he considered the tooth more valuable than a diamond from the standpoint of looks or of use. It is its use as a millstone that he has most in mind; but beauty and usefulness in this case go together, for a tooth which is in best shape for masticating food is also in best condition for rendering the mouth worth looking at.

The teeth are not mere stony elevations set in the jaws, but they are more or less living organs most intimately connected by the blood vessels and telegraphic nerve machinery with every part of the body. We

is a rule of economy practiced by the human body in all its departments. Indolence receives its just reward. The teeth are abundantly supplied with tubes to carry blood to them; but if they are not much used the amount of blood sent to them is cut to a minimum.

Cervantes, speaking of the stomach, called it "the laboratory of the whole body," and he was keenly aware that the rough work of preparing the food for that laboratory should be done in its anteroom, the mouth. If the teeth are not used and we live on other than a fluid diet, the work of grinding is thrown upon the stomach, which was never made for that purpose, and which suffers accordingly. But the trouble does not end here; for since the stomach cannot do this work, it must pass it on to the intestine, which is still less able to handle food in chunks. An eminent sur-



geon tells us that the vermiform appendix, which lies, by the way the food travels if not as the crow flies, twenty feet from the teeth, is often irritated and becomes diseased on account of bolted food. He says, moreover, that these attacks of appendicitis may sometimes be prevented by having the teeth put in order, by inducing the person to choose his food with discretion, by eating carefully and with regularity, and by eating slowly—all largely a matter of having and using the teeth.

There can be no doubt as to the value of teeth from the standpoint of health and comfort, if from no other. The question is that of getting this set of thirty-two diamonds and of keeping them.

To have the best—the real thing—and not a sort of paste diamond which so many of us get in the lottery of life, we should have to order them some generations in advance, and the best we can do in this line is to make up for our lack by trying to give the next generation something better. This will depend on our general health, on the kind of food we put into the mill of our mouths, and the condition in which that food passes from the mill to the chemical laboratories beyond. It will also depend on the food received by the next generation, both before and after birth. It must certainly contain abundant mineral matter for making teeth.

No matter what kind of diamonds we get, whether yellow or white, shapely or unshapely, enduring or crumbling, we can do our best to keep them as good as they can be kept. They can be used in thoroughly grinding food which is not too soft in character—not raw foods, but foods which will give them plenty of work.

It is needless to say that the food itself must be of such character and quantity as will render us in best health generally, which we can readily detect by our feeling of fitness and power for work after eating it. The general health must be preserved by sensible living otherwise, if we wish to preserve our

teeth. Then the teeth must be kept clean. The saliva is nature's cleansing agent, and it works beautifully in the animal world, and is often sufficient for man where the general health is good and the food of the proper amount and character, thoroughly chewed, and not taken at all hours of the day. Most of us cannot risk nature's dental lotion, but must use smooth toothpicks and a toothbrush with perhaps a little soft powder, twice or thrice a day. It is easy to form the habit and to keep it up.

The presence of cavities in the teeth is of vastly more consequence—evil consequence—than we commonly think, for they offer great caves for the housing, protection, and breeding of millions of microbes of a dangerous sort. And these mammoth caverns, for so they must seem to a microscopic bacterium, unfortunately have passageways leading to the roots of the teeth and to the blood channels therein. It is easy sailing for Mr. Microbe to pass from this protected hiding place into the blood, and thence to any part of the body he may choose. Decayed teeth, especially in children, are a serious source of bodily infection with all manner of germs. We can best prevent the formation of these cavities by keeping the outer walls of the teeth clean and smooth.

If the teeth are already bad or get bad despite our best efforts, the next best thing is to visit the dentist, and the dentist these days can do wonders in the way of aligning, straightening, filling, and replacing. He may have to call to his assistance a surgeon to remove adenoids or otherwise treat the nose in order to get the diamonds into their best setting, for looks and utility.

We can well be proud if we have a beautiful set of these priceless gems, and still more so if they flash from coral gums and ruby lips of health. If we have not this pride, we can be thankful indeed if we have a set which are in thorough condition for their more practical purpose.



# The Correct Combination of Food

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

THE secret of the successful combination of food lies in the simplicity of the cookery and the selection of but few varieties. The would be fruitarian, and sometimes even the practising fruitarian, is often bewildered with the great variety of diet which nature offers him so bountifully when he turns to her for sustenance. Naturally, if he has not made a careful study of food values and proper combinations he hesitates as to how to choose his diet. The very small number of vegetarians who fail to meet with success in the early stages of their change usually do so because they lack the necessary knowledge with regard to the properties and nutritional values of the fruits, nuts, cereals, vegetables and dairy products, and don't know the proper substitutes for the beef steak, fowl and fish, which they have discarded.

## Complicated Dishes

The vegetarian preparations which are most likely to give trouble to the beginner, are the complicated dishes which often have been prepared to imitate, more or less both in appearance and flavour, some meat dish. As a rule long hours in the process of concoction and preparation in the kitchen also means long hours in the process of digestion accompanied by various gastric disturbances more or less distressing. We have every reason to believe that a dietary consisting of very few articles, prepared in a simple way and served in as natural a state as possible, brings the best results both as regards digestion and assimilation. Many fruitarian dishes can be taken to great advantage as they come to us first-hand from nature, and in that state, provided they are properly masticated, they are not only the most wholesome but also possess the best flavour. The addition of various condiments and spices for the purpose of artificially flavouring the food is a pernicious custom that should be discarded. The proper principle is to develop and conserve these natural flavours which various articles pos-

sess, and which cannot fail of appreciation, provided one does not have to jog up a jaded appetite by artificial stimulation.

## The Making of Blood

Let us bear in mind to begin with that the real object is not merely an æsthetic one or for the purpose of gratifying temporarily a few square inches of tongue surface, but rather to make good blood. The daily wear and tear of tissues withdraws from the blood a large amount of nutritious substances and, therefore, the blood must be renewed day by day in order to keep it in a healthy and pure state. While we are providing primarily for the sustenance of the body and its energies we shall also find that the gustatory sense, which in the case of many persons has become sadly perverted, resumes its normal function. Furthermore, the plainest of food will be enjoyable, provided there is a natural sense of hunger and the body requires nourishment. Healthy, red blood is the product equally of good food, good digestion and an active life.

## The Fuel and Repair Foods

The amateur fruitarian must speedily recognize that food serves two purposes in the human body, as fuel for the provision of warmth and energy, and as building material for growth and repair of worn-out tissues. Generally speaking, over ninety per cent of the food eaten undergoes a process of combustion in the human furnace whereby heat and energy are produced, while less than ten per cent is actually required for body building and repair purposes. With regard to fuel foods there is no controversy whatever, for all flesh eaters and flesh abstainers alike recognize that the bulk of such food must necessarily come from the plant kingdom in the form of sugars, starches and fats. Indeed, flesh foods provide no sugar and also no starch with the minor exception of glycogen; therefore if one were obliged to subsist entirely on flesh foods it would be necessary to



take a large amount of fat in the form of suet or lard, which which would be very undesirable as far as health is concerned. Fat can be obtained from either animals or plants. There is no fat better than olive oil, and then there are numerous excellent nut oils, for most nuts are rich in fats, some containing over fifty per cent. If we add cream and butter from the dairy, we shall have no difficulty in getting an ample supply of fuel foods for the fruitarian.

But the crux of the question lies in the provision of the building food. The fibrous substance of which meat and other animal flesh is composed, consists chiefly of protein or nitrogenous matter, aside from the large proportion of water which it contains. Nitrogenous matter is also found in abundance in the plant kingdom, but not equally in all varieties of food, and here is the stumbling block which sometimes gives trouble. It is not always possible "to cut out the flesh and take the rest," although many a bountifully spread table will permit of such a practice without difficulty.

#### A Starchy Diet

In order to avoid adopting an altogether starchy diet which is likely to produce a great deal of fermentation, flatulence and their accompanying unpleasant symptoms, it is necessary to select food articles which contain the necessary quota of nitrogenous material. Such cereals as wheat, oats, rye and barley too, contain approximately the proper proportion of fuel and repair material, and make by themselves almost perfect foods as far as proportion is concerned. Almost all nuts are very rich in proteid as well as in fat, and they make perhaps the best substitute for animal flesh. They may be eaten in their natural state, when they require a great deal of mastication, or they may be shredded and are then more easily chewed, or they may be cooked in various forms. Both milk and eggs contain a goodly proportion of building food, and either may take the place of animal flesh. All the pulses are also rich in

proteid and for those who can digest them they make the cheapest substitute for flesh that the market affords. On the other hand, fruits and vegetables alone, including greens, possess but a very small proportion of repair food, and therefore they don't afford anything like a complete and well-proportioned diet. The same is largely true of rice and other cereals which consist almost entirely of starch.

#### A Well-Balanced Diet

Let us look into the matter in a little more detail. A breakfast of oatmeal porridge and cream eaten with either zwieback or some very plain biscuits to ensure mastication, and followed by a liberal helping of fresh or stewed fruit, provides a proper proportion of the various food elements that the body requires. If one substitutes rice for the oatmeal then it would be necessary to add an egg or a few nuts or nut cake. Milk would take the place of the egg, or the nuts, but unfortunately it does not combine well with fruit, and it is very likely to give rise to fermentation and acidity. A breakfast of brown bread and butter and stewed or fresh fruit is a complete meal by itself and all that one actually requires. Some cereal foods such as Granose Flakes, Shredded Wheat, or other foods which require much mastication would be more acceptable to many persons, and they make an excellent dish when served with cream or stewed fruit.

#### The Dinner

Many courses breed many disorders, and we are glad to note that the long-drawn-out dinner, with course upon course following each other, is becoming unfashionable and giving way to a saner practice. Few people as a rule have trouble with their breakfast, but it is the dinner which is most likely to give rise to digestive disturbances.

A plain vegetarian soup eaten with a piece of zwieback to assist mastication, an omelette, a nut roast or a few nuts *au naturel* and a mealy baked potato with or without the addition of some tender green or salad, makes a complete and well-balanced meal. The addition of still further varieties throws more



work upon the digestive organs and makes mischief. If such a meal is thoroughly masticated it can scarcely fail to suit anyone possessing reasonable powers of digestion, and will provide an abundance of nourishment.

Most people will probably require a third meal, a light lunch about noon time or a light supper in the early evening according to the time they take their dinner. We would recommend that such a lunch or supper consist of a few pieces of zwieback or a few plain wheatmeal or oatmeal biscuits, or some stale brown bread and stewed or fresh fruit or both.

#### Drinking at Meal-Time

The fruitarian rarely requires any drink at

meal times because he finds in the abundant fruit which he takes an ample supply of fluid. There is no drink that is more wholesome, more pure or more pleasant to take than the juice of a luscious orange, apple, cherries or strawberries. The swallowing of large draughts of tea, coffee or cocoa, or any artificially prepared drink, or even water alone, retards digestion by unduly diluting the digestive juices and at the same time washes the food into the stomach before it is properly masticated. Those who take fruit freely rarely require much drink, but that which they need should be taken on rising in the morning, and a couple of hours or longer after meals.

## Economic Importance of Malaria

K. C. EAPEN, L. S. SC., M. R., I. P. H.—(To be continued)

The prevention of malaria is probably one of the most important economic and industrial problems of this malarial country. From the vastness of the subject and the numerous complex factors associated with epidemiology of malaria in this country, the difficulties to be encountered in its solution are overwhelming. The task we undertake is that of indicating how, with the ordinary means at our disposal, we can effect a reduction of the malaria in this country. Before taking up a consideration of the actual preventive measures to be employed, however, it is necessary for us to know something regarding the contributory causes of malaria.

While malarial parasites are the direct cause of malarial fevers, and while the transmission of these fevers from man to man wholly depends, as far as we at present know, upon infected mosquitoes, belonging to the sub family Anopheles, there are certain factors which enter indirectly into the causation of malarial fevers, either by favouring the development of malarial parasites within man or the mosquito or by favouring the development of mosquitoes capable of transmitting the disease. It is convenient to consider these contributory causes before dealing

with the parasites of malaria, and the mosquito-malaria theorem.

#### Meteorological and Geological Conditions Favourable to Malaria

The influence of marshes and other large pools of water, and the personal predisposing causes of malarial infection.

Temperature has an important bearing on malaria. A temperature of 60 degrees F. is the limit at which malarial fevers occur. Those regions in which this temperature is not attained by the mean summer temperature remain exempt from malarial fevers.

In most endemic malarious areas, during the winter, mosquitoes are driven into houses and especially huts, and then as a rule the malarial parasites perish. In the spring, in many parts of the country, the mosquitoes become re-infected from patients who suffer a relapse.

Great falls of temperature in malarious places are important in respect of their being associated with patients who relapse from chills, the latter operating by lowering the physiological resistance, and then permitting latent malarial parasites to multiply.

#### Rainfall

The amount of rainfall and the period over



which the rainy season continues have an important influence on the prevalence and distribution of malaria in this country. In general terms, it may be said that rainfall conduces to the production of malaria, because it is favourable to the development of the larvae of anopheles.

The alternate saturation and dessication of the soil is especially favourable to the extension of malaria, while wholly permeated or a completely dried soil is unfavourable to malaria. For instance, the Ganges, the Indus, the Brahmaputra, periodically overflow their banks; malaria appears in the tracts affected, shortly after the subsidence of the overflow. This leads us to infer what actually is the case, that mosquitoes flourish in the shallow pools and puddles left in the beds of the rivers after the subsidence, and do not thrive in great collections of rapidly flowing water where they would be washed away in the torrents or eaten by fish. During a dry period following rapidly upon heavy rains, malaria fever outbreaks are severe and frequent. This phenomenon is constant and pronounced. In general terms it may be stated that malarial fevers are most prevalent in this country during the years of the heaviest monsoon season. During this season we will have to grapple with epidemics and pandemic outbreaks of these fevers, and this is particularly the case in the level plains and localities in which the drainage is low, or in any way obstructed.

#### Moisture

The typical malarious locality is low and marshy. Some regions in this country at most free from malaria in the hottest part of the summer season, become very malarious in and after the rains. After the commencement of the rainy season the malarial intensity becomes greater and it continues to be so till the end of autumn. Moisture is essential for the development of the eggs and larvae of anopheles. All swampy places and small pools of stagnant water round about the villages are in a large mea-

sure responsible for much of the malaria met with in these tracts.

The climatic and the seasonal conditions of this country are also important factors both in the incidence of malaria and development of anopheles.

In this country whilst malarial fevers prevail for much longer periods each year than in temperate climates, their incidence is highest during the rainy season and the period following it. Most cases occurring at the first half of the year are considered to be relapses and not cases of initial infection.

Climate has a distinct influence as regards the distribution of certain types of malarial infection. The factor of heat is universally present and does not appear to affect the question of intensity so much as would be expected, except that in certain parts it permits the breeding of mosquitoes all the year round.

The season has a marked influence in regard to the number of cases met with in any locality. This is to a large extent affected by the prevalence of mosquitoes, although these are not the entire explanation, especially in localities where there are few malaria-bearing mosquitoes. In these tracts a particular period of the season is so well marked in its effect on the prevalence of malaria that we call it the "malarial season."

This usually occupies four months or three months, differing according to locality. The season is generally from August to November, but it may be much earlier as in Northern India, and the high range division of Travancore. The commencement of our great Indian epidemics and pandemics of malaria usually occurs during the latter part of the summer and autumn.

In any part of the district under the author's observation, a heavy fall of rain in June or July is connected with an increased incidence of malaria, leading some to consider that this accession of cases is due to relapses arising from chills caused by reduced atmospheric temperature. Were this



the case, however, the increased incidence would occur immediately or shortly after the fall. It is much more probable that it is due to malaria-bearing mosquitoes, taking advantage of the presence of water to lay eggs, and these additional malarial cases are due to infection through new generations of these insects. Whether such is the case or not, could easily be decided by observations made during these rainy seasons in the late spring and early summer.

Accepting the fact that mosquitoes are the only carriers of malaria from man to man, malarial fevers must necessarily be seasonal, the maximum period of incidence of these fevers closely corresponding with the time mosquitoes are numerous, but malaria fevers

do occur during periods when mosquitoes are practically absent.

#### Geological and other Relations of Malaria

In connection with malaria the degree of porosity of the soil is of great importance, whereas the actual geological construction and proportion of animal and vegetable constituents are of no significance. A soil that permits its contained water to drain rapidly, or that quickly absorbs such water, is unfavourable to malaria. One that holds up its surface water in small collections, such as small tanks and pools, etc., and only gets rid of it slowly, favours malaria. Hence loose and deep sandy soils are not favourable to malaria; but a granite soil covered by a layer of clay or ever porous earth, may be associated with severe malarial fevers.

## More Sleep

ADVANCE in knowledge makes it more easy to understand the far-reaching injury that follows lack of sleep, says the *Medical Record*. It is not so much a matter of life and death, but of efficient living. Proper coordination of the nervous system underlies every other essential thing in body, mind, and spirit, and its vigor is of preeminent importance, and this is dependent very largely on adequate sleep. Perhaps a chief cause of our failing to get the most out of life is a lack of sleep, a deficiency which accumulates year by year.

Civilized man has lost his natural stimulus for sleep; namely, abundant muscular exercise unaccompanied by nerve fatigue. In cities, multitudes do not know what "muscle fatigue" is, nor of the deep sleep that follows a day of purely muscular work.

A second cause for lack of sleep is the general use of coffee, tea, cocoa, and alcohol. Many persons are firmly convinced, because they have slept shortly after taking one of these, that they are not kept awake by such beverages; but as a rule they are. The physiological hour for sleep is ignored by an artificial hour dictated by drugs.

A third reason for lessened sleep is the evening entertainment habit despite the necessity for early rising. The theatre, opera, bridge party, etc., unduly waste the sleep time.

A last reason for lack of sleep is nerve cell exhaustion, among the causes of which in our cities may be named the almost continual light stimulation (rhythmic electric signs, etc.) and sound stimulation (tradesmen, auto horns, etc.)







# Editorial



## The Pure Milk Problem in India

ANY one living in India, even but a short time, will not have to be told the difficulties besetting one in obtaining a pure wholesome milk for household consumption. Like all other vendors upon whom the consumer must to a great extent depend for his daily sustenance, the dudh wala has the audacity to visit your door day after day with an inferior article for twice the true price. In India that keen desire to do the right thing for a customer and to hold his trade is not looked upon as an essential point in commercialism. A salesman, after having left you an inferior article for twice the price, is highly elated even if he knows that he has not lost you as a customer.

The writer had a peculiar experience, by which he obtained the best milk he has found since coming to India. The milk supply having reached a point where it was neither flesh, fowl or fish, and where it was beyond all human endurance, a desperate effort was being made to get better milk. After having run the gauntlet of several dudh walas, one was reached that promised that he would furnish pure milk, and one condition was, that the milk be diluted with water after being received. He said it need be only a very little water, a few drops to bind the agreement. He also said that if water were not added to his milk, his cow would go dry. This began to look like a very serious matter and so we were willing to try almost anything that would bring the hopes of better milk. Then again, if he would hold to his agreement, the few drops of water put into the milk would not be so bad as having it half water. So arrangements were made for him to furnish the milk. Every morning in his presence a few drops of water were added

and curious enough, it was the best milk before or since that we ever had. Whether this was an isolated case of superstition or whether it is more general in its scope, the writer is not prepared to say, but it seems more than a co-incidence when we consider the tendency that there is to get diluted milk. If the cows of India have any such peculiarity, it can be easily seen that pure milk would be a rarity. However, it is likely that we would have to attribute the condition of our milk supply to more mercenary motives.

The universal custom of boiling the milk saves thousands of lives every year. Although the boiling of milk is a reasonably sure procedure against diseases, usually borne by milk, yet it is not very consoling to look forward to paying the price for milk that is half water and contains huge quantities of dirt, which is of such a nature that it cannot be strained out, even if water is a good thing for an internal bath and each one of us is expected to eat a peck of dirt before we die. Of the former, all would prefer to take their water straight, and of the latter, no one wants more than his share.

The two great problems that we have to face in obtaining a pure milk supply is adulterations and dirt. The custom of adulterating milk with water is so persistent that even in cases where people have the dudh walas milk the cow where he can be watched he gets the water in the milk just the same. When required to milk in the compound before the inspection of the customer, if care is not taken to look in the bottom of the milk receptacle, there is almost sure to be a couple of inches of water as a starter to make up quantity. Even if one is on the look out



for this, it is no sooner stopped than another means to obtain the same end will be invented. Sometimes cloths saturated with water are concealed away, which at an opportune moment, are squeezed out into the milk. At other times a little bag filled with water and hidden away in some part of the clothing will be skilfully directed into the lota when the sahib is not looking. It is not only with water that the milk may be adulterated. Once the milk is diluted with water, some thing has to be done to make up the colour. In some cases when buffaloes' milk is to be imitated, a white substance is used that makes the milk have a peculiar chalky taste. Sometimes, if it is to imitate cows' milk, a reddish colour is used. For this purpose little red seeds about the size of dal, which impart their colouring to the milk are used. These are good telltales as to what is being done, and the writer has noticed these little red seeds in several instances. It is the same with this as with most other things, "there are tricks to all trades." Another scheme is the dilution of cows' milk with water and the addition of buffaloes' milk to make up the cream content, and a little colouring matter. This will give you a mixture simulating cows' milk, and yet it contains one fourth or one third water. Again, ways and means are adopted to preserve the milk. Something of this sort is used in order that the milk that is not sold to day can be sent out again the next day.

The milk used in India, comes from the cow, buffalo, goat and ass. A veritable hodge-podge your seer of milk may be, especially if you live in the outlying districts. It may be a mixture of the milk from all of the above four sources. The bulk of the milk comes from the cow, buffalo and goat, mostly from the first two. The relative values of these different milks will be taken up later.

In our larger cities the milk used for household consumption is derived from private dairies, operated within the city limits and in the suburban areas. These make a re-

gular business of the dairy. Then there is the man who may own a cow or a buffalo or two and sells his milk only as a side issue. These are also to be found within the city limits and in the suburban area. Milk is also shipped in from long distances to the city. Then there is the government military dairy. Although the latter is not for civil consumption, it is mentioned here only as a model of what the private dairies ought to be and more will be said about them later.

With the exception of the government military dairy, the conditions under which the milk is gathered are strikingly similar in all of the above sources. Therefore, a general description of the conditions will answer for all.

The conditions surrounding the gathering of the milk is altogether bad. The stalls or stables in which the animals are kept are filthy dirty. No adequate means are provided for the removal of the droppings of the animals, with the result that they are allowed to stand and lie down in this filth. The hind quarters including the udder become caked with dung. The floor of the stable is either the ground or some absorbent material which allows the liquids from the droppings of the animals to soak in and become the source of an everlasting stench. The animals are not groomed and they are given only enough to keep body and soul together, with plenty of water to make up the quantity of milk. The feeding of cows in this way is bound to have its influence upon the solid constituents of the milk. In other words, it produces an inferior milk. The milker without washing his hands, or washing or even brushing the udder of the cow, sits down to milk. The hands, by coming in contact with the milk, get wet. This rubs the dirt from both the hands and the udder and is carried into the milking vessel in the form of a dark, dirty stream of milk. This muddiness of the milk stream continues until the hands and udder are washed clean with the milk.

*(Continued on Page 272)*



# : Mother and Child :

## Why Babies are Nervous

A MOTHER of three little children writes at some length of the ill results she has noticed in having her family teased by grown ups. She says: "Will you please give me your advice and opinion on the teasing of little children? My own opinion is that it is the most selfish form of amusement ever invented by grown-ups and practiced upon children."

I am very much inclined to agree with this mother: it is a foolish and often even cruel form of amusement practiced by thoughtless adults to while away their own time. This mother says that many an evening a member of her family spent his time in teasing her babies so that they were fairly frantic, and while this person could go home and have a peaceful night's rest she had to spend hours in quieting the little folks who were too excited to sleep.

Every normal person likes a nice baby or child and enjoys a romp with him, but let this be in the day time and have it good natured fun which is a pleasure both to the child and the adult. Never get the child stirred up near his bed time, and never tell him things that are not sure or that are likely to make him feel badly. The child's best sleeping time is in the early evening, and he should be prepared for his night's rest by a quiet hour or half-hour after his supper. Listening to a little good music, looking at a book of pretty pictures, hearing a pleasant bed time story, or simply having a quiet talk with the elder members of the family is a soothing and happy way of spending the time just before the little ones go to bed. They should not be teased, romped with or taught anything likely to excite them or tax their brains at this hour.

This brings us to the general subject of

nervousness in babies. Mothers constantly write that their babies are very nervous, jump at the least sound, wake if anyone enters the room, shiver frequently, etc. This is most often caused by poor training in the beginning of life. It is perfectly true that babies inherit a tendency to nervousness and that some may manifest nervous symptoms very early in life. The brain of an infant during the first year of its life grows as much as during the rest of its life. Therefore peaceful and quiet surroundings are essential to the baby.

I have found that the chief factor in making a baby nervous is a nervous or excitable mother. Babies are very sensitive little creatures and feel at once the influence of persons who have charge of them, especially that of mothers.

The successful feeding of a breast-fed baby lies much more with the condition of the mother's mind than with the kind of diet she takes. A highly strung, nervous mother can very seldom nurse her infant successfully.

A nervous baby is harmed by spoiling more than a calm and placid one is. Absolute regularity in every detail of the baby's life should be observed. He should not be exhibited to many strangers. He should never be played with or excited while he is under six months of age, and even then should have only a few minutes play after the morning nap. He should not be tossed up into the air, tickled or made to scream with nervous laughter; this may be fun for the adults, but poor baby has to suffer for it.

Never under any circumstances should the baby be given syrups and concoctions "to quiet his nerves." Correct food, baths, plenty of quiet and sleep and lots of fresh air



and sunshine, with a calm and happy mother, or nurse, to see that everything is on schedule time is by far the best treatment for nervousness.

Sleep is a large factor in overcoming the nervous tendency in babies. A newly born baby should sleep about nine-tenths of the time. At six months the baby should sleep about two-thirds of the time; at one year the child should sleep about fifteen hours out of twenty-four. A nap should always be taken until the child is four years old, and longer if possible. This nap should come before two P. M., because if taken later the

child will not be ready to go to bed by 6 or 7 P. M., which is the latest hour children under eight years of age should ever be allowed to sit up.

Mothers think that if a child takes a long nap in the afternoon it does no harm to allow him to sit up until ten o'clock or even later, at night, but this is not true; the early evening hours are best for a child's sleep, and nothing should be allowed to interfere with the early bed hour. Nervousness and dark circles under the eyes are usually found when a child is kept up late in the evening.

*Ladies' Home Journal, June, 1915.*

## Child Training

MRS. E. G. WHITE.—(Concluded.)

### The Child's Diet.

THE best food for the infant is the food that nature provides. Of this it should not be needlessly deprived. It is a heartless thing for a mother, for the sake of convenience or social enjoyment, to seek to free herself from the tender office of nursing her little one.

The mother who permits her child to be nourished by another should consider well what the result may be. To a greater or less degree the nurse imparts her own temper and temperament to the nursing child.

The importance of training children to right dietetic habits can hardly be overestimated. The little ones need to learn that they eat to live, not live to eat. The training should begin with the infant in its mother's arms. The child should be given food only at regular intervals, and less frequently as it grows older. It should not be given sweets, or the food of older persons, which it is unable to digest. Care and regularity in the feeding of infants will not only promote health, and thus tend to make them quiet and sweet-tempered, but will lay the foundation of habits that will be a blessing to them in after years.

As children emerge from babyhood, great care should still be taken in educating their

tastes and appetite. Often they are permitted to eat what they choose and when they choose, without reference to health. The pains and money so often lavished upon unwholesome dainties lead the young to think that the highest object in life, and that which yields the greatest amount of happiness, is to be able to indulge the appetite. The result of this training is gluttony, then comes sickness, which is usually followed by dosing with poisonous drugs.

Parents should train the appetites of their children, and should not permit the use of unwholesome foods. But in the effort to regulate the diet, we should be careful not to err in requiring children to eat that which is distasteful, or to eat more than is needed. Children have rights, they have preferences and when these preferences are reasonable, they should be respected.

Regularity in eating should be carefully observed. Nothing should be eaten between meals, no confectionery, nuts, fruits, or food of any kind. Irregularities in eating destroy the healthful tone of the digestive organs, to the detriment of health and cheerfulness. And when the children come to the table, they do not relish wholesome food; their appetites crave that which is hurtful for them.



Mothers who gratify the desires of their children at the expense of health and happy tempers, are sowing seeds of evil that will spring up and bear fruit. Self indulgence grows with the growth of the little ones, and both mental and physical vigour are sacrificed. Mothers who do this work reap with bitterness the seed they have sown. They see their children grow up unfitted in mind and character to act a noble and useful part in society or in the home. The spiritual as well as the mental and physical powers suffer under the influence of unhealthful food. The conscience becomes stupefied, and the susceptibility to good impressions is impaired.

While the children should be taught to control the appetite, and to eat with reference to health, let it be made plain that they are denying themselves only that which would do them harm. They give up hurtful things for something better. Let the table be made inviting and attractive, as it is supplied with the good things which God has so bountifully bestowed. Let the meal-time be a cheerful, happy time. As we enjoy the gifts of God, let us respond by grateful praise to the Giver.

#### The Care of Children in Sickness.

In many cases the sickness of children can be traced to errors in management. Irregularities in eating, insufficient clothing in the chilly evening, lack of vigorous exercise to keep the blood in healthy circulation, or lack of abundance of air for its purification, may be the cause of the trouble. Let the parents study to find the causes of the sickness, and then remedy the wrong condition as soon as possible.

All parents have it in their power to learn much concerning the care and prevention, and even the treatment of disease. Especially ought the mother to know what to do in common cases of illness in her family. She should know how to minister to her sick child. Her love and insight should fit her to perform services for it which could not so well be trusted to a stranger's hand.

#### The Study of Physiology

Parents should early seek to interest their children in the study of physiology, and should teach them its simpler principles. Teach them how best to preserve the physical, mental, and spiritual powers, and how to use their gifts so that their lives may bring blessing to one another, and honour to God. This knowledge is invaluable to the young. An education in the things that concern life and health is more important to them than a knowledge of many of the sciences taught in the schools.

Parents should live more for their children and less for society. Study health subjects, and put your knowledge to a practical use. Teach your children to reason from cause to effect. Teach them that if they desire health and happiness, they must obey the laws of nature. Though you may not see so rapid improvement as you desire, be not discouraged, but patiently and perseveringly continue your work.

Teach your children from the cradle to practise self-denial and self control. Teach them to enjoy the beauties of nature, and in useful employments to exercise systematically all the powers of body and mind. Bring them up to have sound constitutions and good morals, to have sunny dispositions and sweet tempers. Impress upon their tender minds the truth that God does not design that we should live for present gratification merely, but for our ultimate good. Teach them that to yield to temptation is weak and wicked; to resist, noble and manly. These lessons will be as seed sown in good soil, and they will bear fruit that will make your hearts glad.

Above all things else, let parents surround their children with an atmosphere of cheerfulness, courtesy and love. A home where love dwells, and where it is expressed in looks, in words, and in acts, is a place where angels delight to manifest their presence.

Parents, let the sunshine of love, cheerfulness, and happy contentment enter your own hearts, and let its sweet, cheering influence pervade your home. Manifest a kindly, forbearing spirit; and encourage the same in your children, cultivating all the graces that will brighten the home-life. The atmosphere thus created will be to the children what air and sunshine are to the vegetable world, promoting health and vigour of mind and body.





## Sandwiches

During the long tedious days of an Indian hot season, what is more tempting to the failing appetite than delicious sandwiches? They provide a foundation for tiffins, luncheons, and teas. If well prepared and tastily served they are a stimulous to the most fastidious taste; and with proper variety and preparation they are a well-balanced food in themselves. For out-of-door gatherings they prove indispensable, as they can be quickly made and easily carried from place to place. The fillings given below will afford a valuable addition to the ones in current use, and are healthful, nourishing and appetising.

Bread for sandwiches should be of fine, even grain and twenty-four hours old, except for rolled sandwiches, then it must be moist enough to be pliable. Sometimes it is well to wrap the loaves to be used for sandwiches in damp cloths for three or four hours before preparing. Unless the loaf is of the regular sandwich style, cut it in two in the middle, spread each cut surface, if butter is to be used, and cut off a thin slice from each half loaf. Cover one slice with the sandwich filling and lay the other on top of that, pressing well together. Cut into triangles, squares or strips. Continue cutting slices from each half loaf, then they will fit. Thin, fresh, crisped biscuit or wafers are also good for sandwiches if they are served immediately after filling. Do not cut the crust from the bread as a rule; it is the sweetest and most wholesome part of the bread and the slices look bare without it. Dip the knife into hot water at intervals when cutting moist bread.

Cream (not melt) the butter before spreading; it may have chopped parsley, onion or

lime juice or other flavourings worked into it.

To keep moist, cover the plate on which they are placed with fresh salad leaves, put the sandwiches in order on these and then cover with salad leaves. A cloth wrung from cold water may be put over this and then put them in a cool place. Or, the sandwiches may be wrapped in a damp cloth or waxed paper and placed in close covered-biscuit boxes or a stone jar and set in a cool place. It is better however, to serve sandwiches soon after filling if possible.

Sandwiches are much more attractive if a few sprays of parsley are placed around the edges before the second slice of bread is laid on. Sprigs of celery or small spinach leaves may be used, or a narrow strip of lettuce may be laid around the edges, so that it will look like a dainty ruffle of green. Plates of sandwiches may be garnished with parsley, salad leaves, carrot tops, ferns, leaves or flowers.

It is understood that salt will be added to taste in all of the recipes given below.

### Egg Sandwiches

Scramble without liquid, somewhat soft, and serve either hot or cold.

Hard boil, and while warm mince with fork and mix with butter and salt and spread.

Hard boil eggs, slice, and place between slices of bread, spread with thick, rich cream, or use salad dressing in place of cream and sprinkle with chopped parsley or onion.

Scramble the eggs and mix with mayonnaise dressing, recipe for which is given below.

### Olive

Slice olives and place between slices of bread, spread with mayonnaise or salad dres-



sing. Also ripe olives and tomatoes, chopped and mixed with fine biscuit crumbs.

#### Legumes

Cook, and mash Lima beans with butter and season to taste.

Peas, green, mashed very dry with celery or celery salt and cream.

Beans, crushed or mashed, sliced cucumbers, oil: lemon juice to taste.

Mushrooms dried or fresh, cooked in a little water with butter, chopped, added with liquid to peas, also make a pleasing filler for sandwiches.

#### Spinach

Select fresh, tender leaves, cut fine, and spread bread with any preferred dressing.

#### Tomato

Slice firm, ripe tomatoes between slices of bread spread with mayonnaise dressing. A little chopped onion may be added sometimes.

#### Cucumber

Substitute cucumber for preceding.

#### Mayonnaise

Spread bread with mayonnaise and flavour with onion, parsley, fresh thyme, or combinations of the same.

#### Onion

Slice the onions thin, let stand in ice water one-half hour or more, changing water two or three times. Drain and dry in clean cloth and place with parsley leaves between slices of bread, spread with mayonnaise dressing or

dairy butter or salted olive oil. Onion sandwiches should be kept separate from others.

#### Sweet Sandwiches in Place of Cakes

Spread crisp biscuit with butter and honey. English walnuts, raisins, sugar, white of egg and vanilla; put between biscuit or cream crackers and heat in oven and serve hot.

Brazil nuts, pecans or almonds, with figs or dates, ground together and spread.

Orange pulp, shredded mint, sugar, sweet dressing or whipped cream.

Grated cocoanut, moistened with cream, with sliced or ground dates, figs or raisins, and vanilla.

Thin slices of kela between slices of bread, spread with cream and honey mixed, with or without a few chopped nuts.

#### Mayonnaise Dressing

+ large eggs       $\frac{1}{2}$  cup lime juice  
 $\frac{1}{2}$  cup of olive oil      1 teaspoon salt

Beat all the ingredients together in a small degchi and put the small degchi into a larger one which is partially filled with hot water. Set over the fire and stir with a wooden spoon continuously, taking from the fire if cooking too rapidly. When the dressing commences to thicken, remove at once from the fire and set in a dish of cold water, stirring until partially cool. Strain through a fine wire sieve and set aside for use. Lime juice is much better than vinegar, as vinegar renders all substances mingled with it, hard to digest.—*Selected.*





# Diseases and Their Treatment

## Typhus Fever

G. H. HEALD, M. D.

IN view of the fact that typhus fever is devastating southeastern Europe, especially Serbia, and that it may gain a foothold in America, it is well to study the disease with a view to its early recognition and the prevention of its spread.

Typhus is initiated by a series of chills or by a very severe chill, with dizziness, ringing in the ears, headache, muscular pains, prostration, and fever reaching 104 or 105 degrees on the second or third day. The pulse is rapid and full. There may be cough, loss of appetite, thirst, coated tongue, and vomiting.

Between the third and the fifth day an eruption appears on the chest and abdomen and extends gradually over the body, but often spares the face. The nervous and mental disturbance is severe.

Between the fourteenth and seventeenth days, in favourable cases, the temperature makes a somewhat rapid drop to normal, and the stupor suddenly gives way to a clear mind. The mortality of the disease may vary from ten or twenty per cent.

The period of incubation is twelve days on the average, the range being from five to twenty-five days. An attack usually confers immunity, and second attacks are uncommon.

A germ has recently been isolated from the blood of typhus cases, which is probably the cause of the disease and it is possible that a vaccine will be elaborated that will confer immunity. The disease is transmitted by means of the body louse, the insect evidently taking in the disease germs with the blood of its host, and later including another host with the germs. The blood of the diseased persons seems capable of transmitting the in-

fection during the entire febrile period, and apparently for a time after. The nature of the disease transmission explains why the disease is most frequent in insanitary and vermin-infected quarters.

The most effectual preventive of typhus fever is the destruction of lice. When a case is discovered, the patient should be removed to a vermin-free room,—in a hospital if possible,—and his clothing should be treated with boiling water or some reliable insecticide, as a one to-five hundred solution of bichloride. The hair should be clipped on the head and on other parts of the body, and the parts wrapped with a bandage dipped in a tea made of quassia chips. The rooms formerly occupied by the patient should be thoroughly fumigated and kept sealed for twelve hours, and bedding should be subjected to treatment that will insure the destruction of all vermin.

There is danger that doctors, attendants, and nurses may be infected. To lessen the danger, it is important to have sleeves rolled up above the elbows, and trousers rolled up above the shoe tops. Nurses should have short skirts, and should avoid contact of the clothing with floor or furniture: and it is well to change the clothing occasionally. A bite by a typhus-infected louse is almost as dangerous as a bite by a rattlesnake.

Typhus fever has been known by its present name since 1759. It has ravaged parts of Europe, particularly Russia and Ireland. It formerly did more to reduce armies than the missiles of the enemy. At present it is creating havoc in the Serbian armies.

Until 1829 typhoid fevers were not discriminated. Then Gerhard showed that there were two diseases; and the less pre-



valent, because it resembled typhus, was called typhoid. With better sanitation and the practical elimination of vermin, typhus fever has become less common, and typhoid fever has been the prevailing disease. For many years it was supposed that typhus fever occurred in the United States only in rare epidemics. Now it is known to have a foothold in some of our cities, in a mild form; but it is becoming more prevalent. A few years ago Brill, of New York, described a disease which, after him, was called Brill's disease. Later it was discovered that Brill's disease is a mild form of typhus fever, and that it has a permanent foothold in New York and other cities. From what has already been said, it will be understood that the disease can gain a foothold only where the louse is tolerated; but, of course, physicians and nurses run great risk when they tend a case of the disease, for it is not always easy to avoid the vermin.

In 1909 there were eight hundred and

thirty-six cases of typhus in Tunis. In 1912 a war was waged in that city against the louse; and as a result there were only twenty-two cases of typhus during the year. This is a good showing in a city which had heretofore been infested with lice, and which had been a sort of distributing centre to typhus.

The *Journal A. M. A.* in a recent issue suggests four preventive measures:—

1. Reduction of lice infestation among the population in general.

2. The destruction of lice and their eggs found on the bodies, clothing, bedding and surroundings of all cases of typhus, typhus suspects, and contacts.

3. The adoption of measures, by persons in the vicinity of typhus, to reduce or prevent the possibility of their being bitten by lice.

4. Inoculation with the mild type of the disease (Brill's disease) by persons contemplating entering localities where typhus is present.



#### CINCHONA CULTIVATION IN INDIA

THE report of the Government cinchona plantations and factory in Bengal shows a remarkable record of progress achieved since the department was re-organized ten years ago. In 1905 the maximum annual yield from bark on the plantations fell short by 6,000 lbs. of the annual demand which then stood at 15,000 lbs. To-day the possible, and on occasion the actual, annual output of the factory is 50,000 lbs. of quinine. On the whole plantation the net area under cinchona has increased from 1,737 acres to 2,552 acres. The annual possible harvest has increased from about 300,000 lbs. of 25 per cent bark to 1,000,000 lbs. of 45 per cent bark and this quantity is assured from many years to come. The extraction efficiency of the factory plant has been raised from not more than 75 per cent to 95 per cent of the possible, while the manufactured cost of

quinine has been reduced from Rs. 9 to a little over Rs. 5 per lb. The quinine reserve has risen from less than 3,500 lbs. to over 163,000 lbs. Major Gage, the Superintendent of Cinchona Cultivation in Bengal, specially praises the Government Quinologist, Mr. G. E. Shaw, and the managers of the two plantations at Maunson and Mungpoo.—*The Statesman.*

#### MEASURE AGAINST ALCOHOLISM

THE minister of justice has just addressed to the public prosecutors a circular with regard to the recent law forbidding the manufacture, the sale and the circulation of absinthe and similar liquors. He requests them to aid by all measures in their power in the campaign undertaken by the government against alcoholism by prosecuting all infractions of the law of Jan. 23, 1873, against drunkenness. This law provides punishment, not only for



individuals found drunken in public places, but also for those who sell drinks to manifestly drunken customers or who serve alcoholic liquors to children under 16. The penalties for the first offense, are moderate but increase proportionately with repetition, reaching imprisonment for two months, prohibition of the consumption of drinks on the premises or even closing up the establishment. The penalties so rarely applied that they have almost been forgotten. It is necessary that repeated offenders should be carefully distinguished and that all penalties called for by the nature of the case should be rigorously applied.—*J. A. M. A.*

### NON-ALCOHOLIC DRINKS

Fehsenfeld has made a special study of the various beverages on the market which contain no alcohol. He has thus tested the output of fourteen firms; their fruit juice and malt beverages are kept from spoiling by pasteurising, by thickening with sugar or by vacuum distillation. They are nutritious while supplying the mineral salts, etc., urgently needed by the tissues. From every point of view they are desirable except that one tires of them more easily, and that they do not have the same appetising effect as alcoholic beverages. They are also more liable to adulteration and to the use of harmful preservatives. But since the Freie Vereinigung deutscher Nahrungsmittelchemiker, an association of food chemists, set up standards for such beverages in 1911, a large number of very good alcohol-free wines, beer and sterilised fruit juices have been put on the market. The main thing now is to uproot the tradition that a jolly company must have alcoholic drinks to be a success, and further, to convince the public that the amounts of alcohol which are extremely moderate for one person may be far too much for his neighbour. It must also be impressed on the public that even the "extremely moderate" use of alcohol is not always free from danger.—*Journal of the A. M. A.*

### DIGESTIVE DISTURBANCES IN OLDER CHILDREN

BAGINSKY discusses in turn habitual vomiting, nervous anorexia, atony of the stomach, chronic dyspepsia from gastric achylia, achylic diarrhoea, and chronic constipation, and the general principles for treatment of each. Chronic constipation is sometimes managed best with a change of scene to supplement the change to an anticonstipation diet. No milk should be allowed until the child has learned

to chew its milk instead of drinking it. He abhors purgatives and enemas in these cases except as the very last resort. Nervous anorexia is most common in children fed long on milk who have never learned to chew properly or are too indolent to chew. If they can be roused and trained to masticate they soon acquire an appetite. In some children the senses of taste and smell seem to be abnormally blunt so they thus lack the normal impulse to eat.

With chronic dyspeptic disturbances the main point in treatment is to determine what elements of the food the children are able to digest, and this requires study of the stools and tests of stomach functioning. Some digest fats; others are unable to tolerate them, and so on. Once the individual functional capacity is determined, the physician has the reins in his hands. Every relapse does the greatest harm, because the whole course of treatment has then to be begun over again. The less drugs are used, the better. A child with diarrhoea must be kept unconditionally in bed.

### THE MORTALITY BILL AGAINST ALCOHOL

IN a number of life insurance companies, chiefly in Great Britain, the abstainers were separated from the rest of the policy holders (all accepted as temperate and healthy risks), and the difference in the death rate determined. In one institution of London over a period of forty-five years the mortality of the nonabstainers, or so-called moderate drinkers, accepted as temperate and healthy risks, was 37 per cent. higher than that among the total abstainers. In another association of London over a period of twenty-seven years the mortality of the nonabstainers was 54 per cent. higher than among the total abstainers. In a third life assurance company of Glasgow, over a period of twenty-nine years, the mortality of the nonabstainers was 44 per cent. higher than the mortality among abstainers. In a Canada company over a period of eight years the mortality of the nonabstainers who had been accepted as temperate and healthy risk was 78 per cent. higher than among the abstainers.—*Monthly Health Letter, Life Extension Institute.*

### TUBERCULOSIS IN THE TROPICS

VAN Loghem is chief of the department of tropical hygiene in the Colonial Institute of the Netherlands, and he has been making a special study of tuberculosis in the Dutch East Indies. He compares the general and the



tuberculosis mortality, 1900 to 1904, in thirty-two large cities of the world. Amsterdam and Christinia head the first list in Europe with a general mortality of 15.3 per thousand inhabitants. In Asia, Tokyo heads the list with 18.3 per thousand. Calcutta had 39.3; Manila, 46.7; Batavia, 53.2, and Bombay, 71.4 per thousand. The tuberculosis mortality parallels this range to some extent, Amsterdam having 1.52 per thousand; Tunis, 6.91; Bombay, 6.35, and Batavia, 4.09. New York is cited at 2.21 per thousand.

Van Loghem remarks that as we are learning to keep yellow fever and other tropical diseases under control, tuberculosis in the tropical regions is coming in for greater attention. Study of tuberculosis under tropical conditions is liable to throw light on many of its problems elsewhere. As an example of this he points out that bovine tuberculosis in recent years seems to be spreading, and the milk from tuberculous cows is being used by children and adults more than ever before, and yet human tuberculosis shows a downward tendency everywhere. He regards this as evidence of the nonidentity of bovine and human tuberculosis. The experience in the tropics sustains this view. For instance, he relates that the stock of cows in the Dutch East India is free from tuberculosis. By strict supervision infection from importation of bovine tuberculosis has been warded off, and yet the figures cited show that human tuberculosis is very prevalent. It must have developed without any basis of bovine tuberculosis, as there is none in the islands. These facts settle also the question as to the possible mutation of human into bovine tubercle bacilli, which some have deemed possible. It certainly has not occurred to date in Netherlands, India he affirms. Although human tuberculosis is common, yet the cattle have kept free from it.

Conditions in the tropics throw light further on the influence of infection in childhood on tuberculosis in later life. In the remote interior of the islands, the Pirquet skin tuberculin test has shown that large areas of country are entirely free from tuberculosis. The more intercourse there is with Europeans and Americans on the coast and in the cities, the greater the spreading of tuberculosis to invade the virgin areas from the large centres. In the persons thus attacked for the first time the disease does not behave as in Europeans and Americans who have been immunised to a greater or less extent by infection in childhood. It runs an acute course in young and old alike,

very much like the course of tuberculosis in children in the western world. He suggests that it might be well to vaccinate against tuberculosis in these virgin regions, aiming to realise an effect like that realized in Europe and America by the systematic natural vaccination which repeated opportunities for infection confer on the young as they grow up. He remarks that under modern hygiene and control of open tuberculosis, the number of tubercle bacilli in the external world is certainly growing less and less. This suggests that a time is coming when the young will not have the repeated opportunities of the present and past for infection. The young will grow up free from tuberculosis, but when opportunity for infection does arise, they will be practically virgin soil, like the natives in the interior of tropical islands, and the disease when it attacks them will run the acute course of the non-immunised. It is possible that Europe may have to face a new invasion of tuberculosis with an acute course and high mortality unless it can be stamped out by vaccination, as small-pox has been rendered harmless in parts of Europe, or unless it can be eradicated like leprosy.

#### ALCOHOL IN THE EUROPEAN ARMIES

THE time has passed when alcoholic liquors are to be regarded as inseparable from warfare and essential for military activities. Efficiency is now the prime consideration. Since the last great war, scientific research has greatly increased our knowledge of the effects of alcohol on the human body. While the physiologist has not as yet spoken the last word on this subject, the overwhelming preponderance of scientific evidence is in favour of the proposition that the use of alcohol, in any amounts, large or small, tends to impair muscular coordination, to dull the special senses, to retard muscular and nervous reactions and mental processes, and to reduce efficiency in any work requiring rapid and accurate mental or physical effort.

The question still open to discussion is whether, in times of unusual exposure, strain, and exertion, the temporarily stimulating effects of alcohol are sufficiently valuable to compensate for its undesirable results. Evidently the military authorities of Europe think so, or are still influenced by custom or tradition, since in each army the regulation ration of alcohol is still provided. . . .

The physiologic effects of alcohol on military efficiency would probably not be so clearly ap-



parent in the army as in the navy. The modern battleship, cruiser, and submarine have become marvels of mechanical complexity and delicacy. The soldier in the trenches might take the maximum German ration of seventy grams of alcohol a day without impairing his ability to handle his rifle or manipulate a machine gun. Whether the members of the aviation corps, the artillerymen charged with handling the heavy guns, or the signal men, on whose quickness and accuracy of vision much might depend, could maintain the highest efficiency on a daily allowance of alcohol, remains to be proved. Certainly there is abundant testimony on the part of naval experts to show that alcohol diminishes the accuracy of the gun pointer on the battleship and so reduces the number of probable hits. "Dutch courage" has heretofore been regarded as an indispensable equipment of warfare, and alcohol has been looked on as the ally rather than the enemy of the fighting man; but the present war will reverse the opinions of the civilized world on a good many questions, and it is possible that the indispensability of alcohol in an army may be one of them.—*The Journal of the American Medical Association, May, 15, 1915.*

#### ALCOHOL IN RETREAT

THERE is nothing on this round earth so eminent and so powerful today as the cause which was championed half a century ago in the city of Portland, Maine, by Neal Dow, despised and rejected by "the boys." No war, no politics, no invention, no literature, is so potent, for this propaganda affects 1,700,000,000 human beings. Whether you are a tippler or a teetotaler, whether you wish for a reign of John Barleycorn or his defeat, you must acknowledge this. An opinion or an appetite is a weak antagonist to a Juggernaut fact as it moves down the street. Those of us who have taken the ground that a little alcohol does no harm and may do good, a belief which may be reasonable, must yet remember what of evil alcohol let loose without stint among low or unthinking men may achieve, and it is up to us to ask whether even the example of a small drink in a quiet way is not at least constructively a wrong to

mankind when the abuse of these things is doing so much harm.

No longer is the temperance cause championed by eccentrics or persons of one idea. Even the great have seen and acknowledged the world-wide evils connected with the use of alcoholic drinks. The question has reached the stage of statesmanship, and involves the existence of nations. Thus it has become perhaps the most important subject before intelligent human beings.

The individual can not be alone in the world. He is simply a part of the great aggregate, as it were; one of the small organs of the great body. It is for each one to say for himself what his attitude shall be under these conditions. As the cause is now moving on, it would seem that individual desires and preferences must be swept away before long, and alcoholic beverages relegated to the status of ancient and abandoned evils.—*Editorial, the Economist, Chicago, April 3.*

#### ADVANTAGE TO ABSTAINERS

A WESTERN insurance company carries a large advertisement containing the following argument: "Are you paying too much for your insurance? Are you, as a total abstainer, paying the same rates that the moderate drinker pays? If you are, you are paying too much. Insurance companies have found that it costs them very much less to insure the total abstainer than to insure the moderate drinker. There is a big saving to the company in caring for your class of risks. We pass that saving on to you. This is our square-deal policy for all. If you are a total abstainer, we will give you a reduction of 20 per cent from our regular rates on accident insurance, and 20 per cent on health and accident insurance combined." Comment is hardly necessary. Insurance has come to be pretty nearly an exact science, and it is gradually being shown with a mass of statistics that is relentless in its force, that the moderate drinker is, as compared with the total abstainer, a poor risk, either for life insurance, or health insurance, or accident insurance.





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Published by the

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REGISTERED, No. A. 457

We find many more instances of neurasthenia and hysteria among eaters of much meat than among vegetarians; and in the treatment of many nervous disorders far better results are obtained after excluding meat from the diet.—*Lorond, "Old Age Deferred."*

COMMENCING with the November issue, a new department will be opened in *Herald of Health* to be known as the "Temperance" department. In it will be printed from month to month a record of the problems and progress of true temperance throughout the world. We believe it will be found of interest and real help to all our readers.

MILK is a food which contains scarcely any extractives. In consequence it is an ideal food for the kidneys, through which it passes without causing the least injury to these vital organs, which cannot be said of meat, with its various extractive substances. Milk contains very little salt, which qualifies it as a most excellent food for the kidneys.—*"Old Age Deferred."*

We call attention to an advertisement on another page of the Temperance Annual to be issued as the October number of this journal. It is hoped that we may be able to get it out early, but we may be delayed a few days owing to the shipment of blocks from abroad not arriving on time. The war has sadly upset the shipping facilities this year, and to date we have no definite word of the arrival of this shipment at an Indian port.

AMONG the articles in preparation for the "Temperance Annual" is one by the editor on the "Medical Aspects of Temperance." Another will touch the policy of "Prohibition by Legislation or Education." Still another is "Home Comings" And there are others:—"Liquid Bread," "A Lonely Child," "What Became of Billy Sunday's Colleagues," and "quotations numerous. Among the illustrations are,— "The Losing Game," "Destroy the Nests," Prisoners

of the Liquor War," "To Be Well Born," "Exiled," "The Siege of Our Cities," "Over the Hill to the Alms House," and "Of Whom a Man is Overcome." These are a part only of the numerous illustrations, and the cover will be strikingly beautiful. You, as a friends of "Temperance," should help us in a wide circulation of this number. Suppose you invest a few rupees in putting a hundred or more copies in the hands of the boys of your local Anglo-vernacular or English school? The results of such educational work will appear in after years. Try it. The prices are given on page 269.

## A HINT TO MOTHERS

ONE of the worries of life in India is to know what to feed baby. For children of about one year and upwards, "Granose Flakes" are an ideal food. Watch baby smile, and be convinced. Beside being highly nutritious, the "Flakes" materially assist in correcting constipation.

"Granose,"

75, Park Street,  
Calcutta.

## THE PURE MILK PROBLEM IN INDIA

(Continued from Page 259)

In the hot season, the perspiration of the milker also often finds its way into the milk vessel, which is usually a narrow necked receptacle, hard to keep clean and which never has a sufficient cleaning. The milking being over, the milk vessels are stopped up with some old, dirty straw which may be picked up from the insanitary surroundings. These conditions have not been exaggerated, and are the regime through which most of our milk for household consumption travels.

A milk of this kind is an entirely filthy milk and is absolutely unfit for consumption. As has been already remarked, under these conditions, boiling is the only thing that saves the life of the user. Infants suffer to the extreme, with the result that thousands die every year from this cause. In another article we shall take up some suggestions for the remedying of these conditions.



# Heralds of the Morning

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