Life & Health

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A. J. S. BOURDEAU, Circulation Manager

The wind harnessed to grind the grist, Sweden.

VOL. XXVIII
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Life & Health
THE NATIONAL HEALTH MAGAZINE

SEPTEMBER
1913

AIM: To assist in the physical, mental, and moral uplift of humanity through the individual and the home.

George Henry Heald, M. D., Editor

In This Issue

Digestive Disorders, by a physician who has for years given particular attention to this field.

The World's Bread. How bread is made and has been made for centuries by primitive peoples, and how the unfermented bread, or "mazzot," for the great annual Jewish feast, is prepared.

The Staff of Life — No. 2. A story of the development of the art of baking from the earliest times; the composition of bread, and its relation to the various needs of the body; some new pointers on the best way to bake bread, by an expert baker.

Some Americanized Coffee Cakes. Excellent suggestions for the preparation of a palatable and hygienic form of cake. Illustrated.

Editorial. Possibly too heavy — if so, skip it ruthlessly. But it contains some very helpful suggestions regarding digestive disturbances, which possibly you may need.

Pellagra. Whatever else you skip, do not omit the reading of this article. Pellagra is one of the most serious of menaces, and it behooves every one to learn all he can regarding this disease which threatens to become one of our great national scourges.

The Next (October) Issue

will be a **fruit number** — something you will not want to miss. More also regarding hygienic coffee cakes; an article on the treatment of chronic constipation; and one entitled Wind-Instruments and Health.

DIGESTIVE DISORDERS — THEIR TREATMENT

D. H. Kress, M. D.

THE chief thing in the treatment of digestive diseases is *diet*. With proper diet, suited to the condition existing, nine tenths of the digestive disturbances disappear without medicinal treatment.

Without a corrected diet, medicines and other treatments accomplish nothing permanent. This is evidently recognized by the venders of patent medicines. On the labels of the bottles, directions regarding the diet are usually given, which, if followed, will often result in a cure. If recovery takes place, the glory, instead of being given to these wise directions, is given to the contents of the bottle.

DOCTOR D. H. KRESS

Many of these preparations afford temporary relief from the disagreeable symptoms which may exist. They do so, not by lessening the irritation, but by their narcotic influence on the walls of the stomach. When the local narcosis passes away, the nerve terminals shriek out louder than before. This makes necessary a second dose. It is a very easy matter to establish the patent medicine habit. Many are as virtually slaves to patent medicines as others are to whisky. In fact, it is usually the whisky in the patent medicines that these patients crave. If the changes in diet demanded on the label of the patent medicine bottles are made, recovery is more rapid and more permanent by placing the bottle on the shelf and keeping it corked.

It is very easy to establish a patent medicine habit.

When ulceration of the stomach exists, complete rest of that organ is indicated. Food should be withheld for from three days to that many weeks, depending upon the severity of the case. Later, non-irritating foods should be given. It is unwise to wait until an ulcer is formed and absolute rest of the organ is a matter of necessity for a period of two weeks or longer. The better way is to take this rest on the instalment plan, before this advanced stage of the disease is reached. As stated before, there are premonitory symptoms, which appear anywhere from one month to ten years before ulceration occurs. I refer to the gnawing sensation in the pit of the stomach, the voracious appetite, and later the pain which appears from one to two hours after meals. All these indicate local irritation which, if unheeded, ul-

timately may lead to ulceration. When these symptoms exist, foods that stimulate the production of gastric juice should be guarded against or used sparingly, also foods that tend to irritate the walls of the stomach. Among these may be mentioned the free use of salt, sugar, jellies, coarse vegetables, and Graham bread. Vinegar, mustard, pepper, and such irritants must be avoided. The following foods may be used: Eggs, baked potatoes, cottage cheese, milk, cream, white bread (in form of zwieback preferably), ripe olives, nuts (if well masticated). Olive-oil is [in some cases, perhaps.—ED.] more beneficial than butter.

When the gastric juice is deficient, it will be indicated by the coated tongue, bad breath, and symptoms of autointoxication, as headaches, insomnia, and nervousness.

Foods that are rich in protein material and foods that readily undergo decay should be guarded against. Among these may be mentioned meats of all kinds, fats, especially butter, free use of eggs, nuts, beans, and peas. The foods which are especially indicated[1] are, well-baked cereal foods; sweet fruits, as figs, prunes, raisins, grapes, well-ripened bananas, dates, also subacid and acid fruits (these are best taken at or near the close of the meal); baked potatoes, string-beans, green peas, corn, raw celery, cabbage slaw, lettuce. It is best to use the vegetables at one meal and the fruits, cereals, and breads at another. A day occasionally given up to the exclusive use of fresh fruits is helpful in these cases. It is important that foods should be relished; for a keen relish is one of the best means of stimulating the production of a superior quality of gastric juice. More attention should be given to attractiveness than to the use of coarse foods, which merely cause local irritation and the production of an inferior quality of gastric juice at best.

Foods which stimulate the production of gastric juice and irritate the walls of the stomach should be guarded against. Among these may be mentioned the free use of salt, sugar, vinegar, mustard, and pepper.

When there is an excessive amount of gastric juice due to stomach irritation, a certain amount of liquid at meals is beneficial, since it dilutes the acid and lessens irritation. There is no liquid better than cold water. When there is a deficiency of gastric juice and digestion is slow, it is best to drink very little at meal-time. [Not always.—ED.] The use of an orange, some pineapple, grapefruit, or some other subacid or acid fruit at or near the close of the meal quenches the thirst and at the same time supplies the acid which in the presence of the pepsin is an aid in the digestion of the proteins.

In all forms of indigestion or dyspepsia time must be taken thoroughly to masticate the food. The saliva is a valuable digestive agent. It aids in the digestion of starchy foods and also neutralizes the acidity of the stomach contents in cases where there exists an excessive production of gastric juice. Improper mastication is probably a chief dietetic cause of all forms of indigestion and dyspepsia. It causes mechanical irritation of the walls of the stomach, delays digestion,

[1] In many cases the doctor finds it necessary to prescribe the dietary suited to the individual patient. Some of these foods would, in some cases, make the patient swell up like a balloon. —ED.

and favors fermentation and putrefaction. It is also responsible for overeating. Without proper mastication there is insufficient digestive stimulus.

Food should not be eaten between meals. If three meals are taken, the evening meal should be light. Two meals, with merely a little fruit in the evening, are better than three hearty meals. Many would be benefited by eating but two meals a day, if suitable times for the meals could be arranged for. Food is frequently taken when there is not sufficient energy to carry forward the process of digestion. When fatigued or tired it is best to rest and recuperate before eating, or else eat only that which will be a very little tax to the organs of digestion. When exhausted after a hard day's physical or mental work, it would be wiser to give the system the rest needed by retiring than to force upon it a load which it is in no condition to utilize. The dull headaches and other ill feelings experienced on rising in the morning, resulting from the decay of undigested food, may thus be avoided. Moderate exercise in the open air is an aid to digestion, but violent exercise should be avoided. Care should be taken to keep the extremities warm at all times, but especially at meal-time.

It is a duty to cultivate cheerfulness. When seated around the table spread with the bounties of life, thanks should be offered, not merely at the beginning of the meal, but all the way through. Nothing of a depressing nature should be discussed. It should be the most enjoyable occasion of the day. If you are inclined to worry after meals lest you have eaten too much, overcome this by making a mental selection of the food that is before you before beginning the meal, then eat accordingly; and when you leave the table, think no more about it. At all events, leave the food alone after you have eaten it; it will digest better, even if a mistake has been made in its selection or in the quantity eaten.

I have sometimes thought that those who are well-to-do and are constantly worrying about what they will eat or drink would greatly improve if more thought could be given by them to the poor who are worrying because they have not sufficient to eat. The satisfaction which comes by supplying the needs of the poor and afflicted is a wonderful tonic to the organs of digestion.

Those who are worrying about what they should eat or drink would greatly improve if they gave more to the poor who are worrying because they have not sufficient to eat.

THE WORLD'S BREAD

John L. Cowan

IN California one often sees what are commonly called mortar rocks. These are usually portions of the solid bed-rock of the region, along the banks of streams, with numerous holes six or eight inches in diameter, and of about the same depth. Similar mortar rocks are occasionally found in other States, of the East as well as of the West, but they seem to be more common in California than elsewhere. Wherever they are found, the place is known to have been an old camping-ground of the Indians, who laboriously hollowed out the cavities in the rock in order to use them in the grinding of their meal. Small quantities of acorns, corn, or pine-nuts were placed in the hollows and reduced to a coarse meal by pounding with a round stone selected from the bed of the near-by stream.

Photo by John L. Cowan

Mortar rock used by the California Indians for meal making.

These mortar rocks represent the most primitive type of mill used by the human family. Sometimes a rock was found having a natural cavity that could be used for grinding purposes, but that was purely accidental. The first improvement in milling methods consisted in the devising of portable mortars, permitting the grinding of meal whenever wanted, no matter where the family happened to be. A stone of convenient size was taken, and a rounded cavity made in its upper surface. Then a rounded pebble was used for pounding the grain. The only improvements ever made in this particular device consisted in deepening the cavity and adding a handle to the stone to be used for pounding.

Mortar and pestle used by Indians for pounding corn or acorns into meal.

Prehistoric Mills and Primitive Methods

Primitive mills of these kinds have been found in excavations made upon the sites of some of the ancient lake-dwellings of Switzerland. There, also, have been found flat stones used for baking, and even the bread itself, preserved by being carbonized in the fires that frequently destroyed the pile-dwellings of that primitive people. Half-grains of emmer may be distinguished in this ancient bread, showing the material of which it was made, and indicating the crudeness of the methods used in grind-

Hopi girl grinding meal.

ing. This emmer is a kind of wheat, and is still cultivated in many parts of the world. It has recently been introduced into the United States, and is cultivated in many parts of the West as a stock food. It has been found in Egyptian tombs of the first dynasty, dating back thousands of years before the Christian era.

The next step in the evolution of the mill was to take a slightly concave stone, place the grain upon it, and rub or grind the grain into meal by means of a smaller stone held in the hands. By the use of this device, meal of finer and more uniform texture can be produced than by pounding. This method of grinding is practised by the Pueblo Indian women of New Mexico and Arizona and a few other tribes, and by a large part of the population of Mexico, Central America, and South America. The under stone is inclined upward toward the breast of the worker, and is usually enclosed in box-like form by four flat stones, to keep the meal or grain from falling to the floor of the apartment. The grinding stone is a little longer than an ordinary building brick, but is not so thick, and not more than half as wide. It has rounded edges and corners, for convenience and comfort in handling it. The worker kneels at the raised end of the inclined stone, and draws the grinding stone up and down upon it, keeping some of the corn or other grain in such a position that it will be

A Mexican woman grinding corn.

Zuni women grinding meal.

ground or crushed between the two. It is a slow and laborious process, so that the women of the household are kept busy many hours each day grinding meal for the requirements of the family. Among the Pueblo Indians, as a rule, two or three mealing bins are built together, and often an aged grandmother, her married daughter, and one of the older granddaughters may be seen laboring side by side, their bodies moving in unison to the rhythm of a grinding song that has been handed down from generation to generation for uncomputed ages.

Mills of precisely the same description have recently been found in the course of excavations made by Dr. J. Walter Fewkes and others among the prehistoric cliff ruins of the Mesa Verde National Park, in southwestern Colorado. Probably Sarah ground meal in precisely the same manner, when she baked cakes upon the hearth for the entertainment of the three angels upon the plains of Mamre.

The next improvement in the methods used for the preparation of meal for bread making was the invention of a mill with two large stones, instead of a large stone and a small one. The upper stone was made concave and the lower convex. In the top of the upper stone was a round hole, into which the grain to be ground was slowly fed. The upper stone was also fitted with a handle by which it could be turned; and as the grain was pulverized, the meal followed the convexity of the lower stone and escaped around the edge. Mills of this description were first used by the Romans, about 175 B. C. For a while slaves turned the upper stone, and then donkeys were used. Finally, a way was devised for the application of water-power. It is interesting to note in this connection that the first application of water-power to mechanical uses was made by Buddhist priests, who employed it for turning prayer-wheels. The next step taken in the harnessing of the world's running streams and foaming waterfalls consisted in the application of water-power to the grinding of meal for bread making.

Great as human progress has been when measured by improvements in milling methods, it has been almost as notable when gaged by improvements in the manner of preparing the meal for consumption. Mankind's first bread was baked by placing flat cakes upon stones that had been heated by burning wood or other fuel on them. Next, flat stones were supported at the ends and a fire

Mealing bins recently excavated in the Cliff Palace, Mesa Verde National Park.

built beneath them, and upon these the batter, made by mixing coarsely ground meal with water, was placed. The hot stone is even yet frequently used, in lieu of the oven, by the Zuni Indians of New Mexico, the Hopi of Arizona, and many other Indian tribes, as well as by large numbers of Latin Americans.

Pueblo Tribes

Among the Pueblo tribes of the Southwest, a very curious kind of bread is baked, known as piki. White people call it paper bread, for the reason that it is baked in sheets as thin as ordinary writing-paper. It is made of corn-meal, ground by the squaws and mixed to a thin batter. With her bare hands as a ladle, the squaw engaged in the baking dips a little of the batter from the earthen vessel containing it, and, with a deft motion, spreads it thinly and evenly upon the hot stone that has been prepared for its reception. The sheet of piki is baked almost instantly and is removed as quickly as possible, so that another portion of the batter may be similarly spread in its place. A dozen or more sheets of piki are placed in a pile, and then rolled tightly together, being then ready to satisfy the appetites of the hungry members of the family.

How long ago, or in what quarter of the world, the discovery was made that fuel could be economized and a more even application of heat secured by the use of an oven is not known. Ovens built of earth or stone, of many shapes and sizes, but differing not at all in principle, were in use thousands of years ago among the Hebrews, Greeks, Romans, Egyptians, Assyrians, Chinese, and other peoples. Ovens of the same character may be seen in rural districts throughout the United States today. There are, in fact, many who believe that bread baked in an old-fashioned brick or clay oven is superior to that baked in a stove or range, or in the elaborate and scientifically adjusted and regulated oven of a modern bakery.

As far as can be learned, the oven was unknown in America until introduced by

Zuni Indian girl baking piki, or paper bread.

the Spaniards. It was, in fact, unsuited to the requirements of most of the tribes, which were nomadic or seminomadic in their habits, but would have served the purposes of the sedentary tribes of the Southwest very well. Huge adobe ovens of the Spanish type may be seen in every Mexican village and settlement in the Southwest, and in the various Pueblo Indian communities. They are heated to the required temperature by burning wood-fires in them. Then the glowing embers are removed, and the unbaked bread or cakes placed in, and the opening closed. In due time the bread is removed, perfectly browned and baked through and through.

At the Pueblo Indian village of Tesu-

Zuni Indian woman baking bread in Mexican type of oven.

Pueblo village of Tesuque, showing oven on the housetop.

que, nine miles from Santa Fe, the capital of New Mexico, there are numerous ovens on the housetops, despite the fact that the houses are two stories in height. This is a reminiscence of the time when tribal wars prevailed in the Southwest. The peaceful Pueblos placed their ovens in this peculiar location as a precautionary measure, to make their supplies of bread reasonably secure from thieving bands of Navajos. The Navajos were slow to attack the fortress-like homes of the Pueblos; but when the men were at work in the fields it was easy for a predatory band to pillage the ovens and make off to the hills, before the women could summon assistance. So the people of Tesuque hit upon the expedient of placing the ovens upon the dirt roofs of their adobe houses. The necessity for the practise has long since passed; but the ovens at Tesuque will doubtless retain their present position as long as the village continues to be inhabited.

Commercial Baking

For ages there has been rivalry between the home bakers and those who make a business of baking bread for sale. We know that there were professional bakers in the days of the Pharaohs, and in the times of the old Romans, and through all the ages down to the present time. However, it is safe to say that never before was so large a share of the world's bread baked by professional bakers as now. No doubt this is in line with the progress of civilization, which demands a greater and greater specialization of industry. Certainly present conditions differ widely from those that prevailed when each family raised, harvested, and threshed its own grain, ground its own meal or flour in crude hand mills, and baked its own bread.

It is said that the world's largest bakery is located at Essen, in Prussia, making twenty-five thousand small loaves and twenty-five thousand large loaves of bread each day. Thirty-six double ovens are in use, and fifty thousand pounds of flour are transformed into bread daily.

Unleavened Bread

There is bread of many kinds and of many names; but, considered from the viewpoint of their manner of preparation, there are but two radically different types of bread, leavened and unleavened. Unleavened bread was mankind's original bread the world over, and is still used by tens of millions of the earth's inhabitants. The use of leaven increases the bulk of bread made from a specified quantity of meal or flour, and also makes the bread more palatable. Various leavening processes were devised by primitive peoples, the Pueblo women of our Southwestern States taking a quantity of batter in their

mouths, retaining it as long as practicable, and then ejecting it into the vessel containing the rest of the batter. This causes fermentation, and is a true leavening process, repugnant though it may be to our ways of thinking. Among many peoples, the habitual use of leavened bread was considered effeminate and indicative of luxurious habits. Among the Jews unleavened bread was known as "the bread of the poor."

Baked mazzot dropping from drum as it emerges from the oven.

Passover Bread

To this day the Jews consume vast quantities of unleavened bread at the Passover and the feast of unleavened bread. In preparation for the occasion great Jewish baking establishments are engaged for months, baking great quantities of mazzot (as this most primitive form of bread is called by the Jews). In the Jewish Encyclopedia, it is stated that in New York City alone more than ten thousand barrels of flour are used every season in preparing about two million pounds of mazzot. Other bakeries in Philadelphia, Pittsburgh, Buffalo, Chicago, and other cities add their quota, and the product is shipped wherever in America there are Jews.

Packing mazzot for shipment.

It is considered of the utmost importance that grain intended for ceremonial use be kept from rain or moisture from the time the wheat stalks are severed in the field until the mazzot touches the lips of the consumer, with the exception of what is absolutely essential to the mixing of the dough. Consequently, the wheat is grown under contract between the bakers and the farmers, and is harvested, threshed, stored, shipped, and manufactured into flour under the direct supervision of the rabbi or his representative. The flour is manufactured in a modern roller-process flour-mill, and is similarly guarded until safely stored in orthodox bakeries; and when the time for baking arrives, the rabbi or his delegate watches the mixing of the dough, the emergence of the mazzot from the ovens, and its packing and sealing in properly prepared boxes.

The flour and water are mixed by machinery; the dough is rolled mechanically into thin sheets, cut by means of dies into eight-inch squares or twelve-inch disks, and placed upon a moving wire drum which passes through a very hot oven. In about two minutes the mazzot is dropped from the moving drum at the other end of the oven, baked and all ready for packing in boxes.

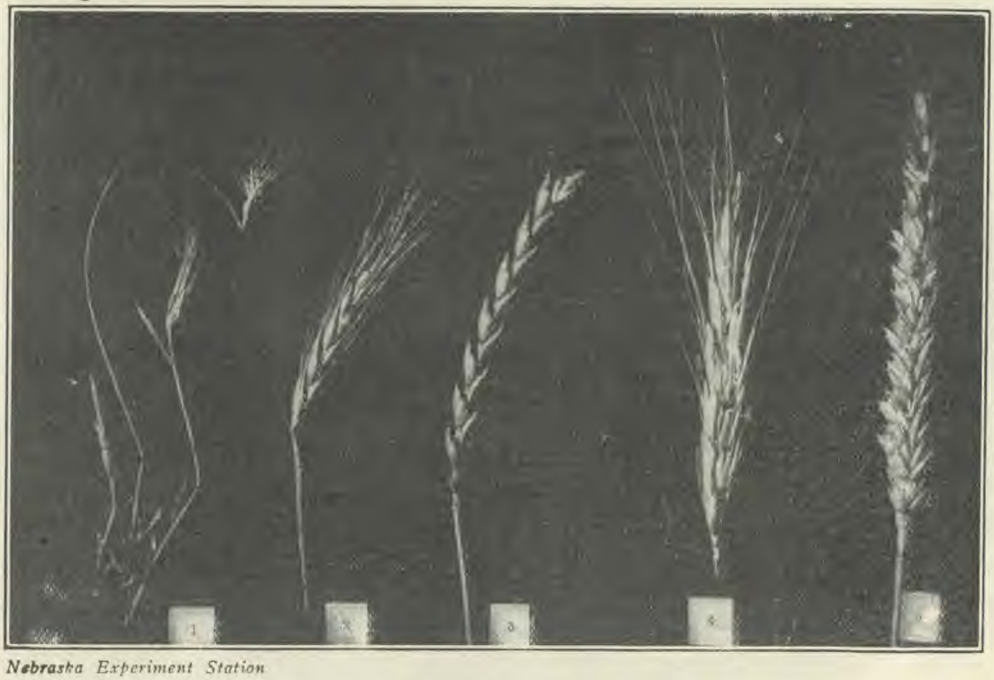
Wheat is by far the most important of the world's raw materials for bread making. The world's largest wheat crop was grown in 1909, amounting to 3,624,000,000 bushels. It is most largely con-

sumed by the nations that are most advanced in civilization, that lead in commerce and industry, that direct and control the destinies of all the rest of mankind. It is, in short, the food of the strong.

Other Cereals and Starches

More of the world's teeming millions subsist mainly upon a diet of rice than upon wheat. Nevertheless, rice is used only to a limited extent for bread making, being eaten cooked in various ways, without preliminary reduction to meal or flour.

Second only to rice as a food material for the human race are potatoes, largely exceeding in both quantity and food value the world's wheat crop. Until within the past few years potatoes were not used for bread making, but the manufacture of potato meal or flour has recently become a great and important industry in Germany, Netherlands, and Belgium. This potato flour is not intended for use alone, but is mixed with wheat or rye flour. It is claimed that bread made of this mixed flour is more nutritious than that baked from wheat or rye flour alone, and that it will keep longer without deterioration. It is said that considerable quantities of potato flour are now imported into this country.



Nebraska Experiment Station

DEVELOPMENT OF WHEAT PLANT

1. *Ægilops ovata*, southern Europe; only one grain of wheat in each head.
2. The same species better grown and developed.
3. *Triticum Spelta*, the cultivated spelt of Europe.
4. *Triticum Polonicum*, the Polish wheat, often called giant rye.
5. Head of wheat grown at Nebraska Experiment Station.

THE STAFF OF LIFE—NO. 2

G. H. Heald, M. D.

Man's First Use of Grain

TO ascertain when cereals were first used as food by man, we must go a long way back in the history of the race. In fact, the use of cereals antedates all history. The first records we have of the Nile valley or of the Euphrates valley, our most ancient civilizations, give an account of agricultural peoples cultivating the soil and raising grain.

Grain was probably first eaten without grinding or cooking, and perhaps preferably in the green state. But of this we have no definite account.

This grain, be it known, was not the perfected variety we see on our Western farms. No such grain is found anywhere in nature. Wheat as we have it is the result of centuries of careful selection. Long before man knew or dreamed of the laws of heredity as we now understand them, he practised selection[1] in the propagation of both plants and animals. The result of this selection has been the gradual elaboration of types more useful or more pleasing to man than the wild types.

The cut on page 400, from Bulletin 32 of the Agricultural Experiment Station of Nebraska, shows some of the forms through which wheat has passed in reaching its present perfected stage. The producing of the rust-proof wheat for England, as described in Dr. Connolly's article in the May issue of LIFE AND HEALTH, is only a more scientifically controlled example of what has been going on for ages in wheat selection. The same thing has been taking place in the plant kingdom with the various fruits (note, for illustration, the varieties of apples), nuts, vegetables, etc., and in the animal kingdom, with the dogs, horses, cows, fowls, pigeons, etc.

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A primitive flour-mill, children pounding rice, Korea.

From eating the green heads, man came gradually to store for winter's use the dried heads, and he was not very long in perceiving that he might reduce the work of his teeth by triturating or beating the grain with stones. Among archeological collections may be found rounded pieces of sandstone which were evidently used for breaking up the seeds of the grasses used by man for food; not by rubbing or by rotary motion, but by pounding the seeds against some larger

[1] That is, he selected from among all his seed that which had the most desirable qualities and used that for propagation. The farmer today does the same when he saves seed from his best melon or best tomato.

A more advanced type — donkey-power grist mill, Manchuria, just outside of Port Arthur.

stone or rock. There remain in Ireland and other places, rocks which give evidence of having been used for this purpose. This was the first crude attempt at milling.

Primitive Flour Mills

The next advance in the milling art was the use of the saddle-stone, which was a slightly concave stone, in the hollow of which the grain was rubbed by means of a rounded stone.[2] Saddle-stones have been found in the sand caves of Italy and in the lake-dwellings (dwellings built on piling in the shallow water of the lakes not far from the shore) of Switzerland, showing that they were used in remote times. In Egypt the saddle-stone was in use two thousand two hundred years before Christ, or back in the time of Abraham, as may be seen from the statuettes dating from this period. The Chaldeans and the other ancient nations are also known to have used the saddle-stone.

From the saddle-stone, the next step in the evolution of the flour-mill was the mortar and pestle, a means of grinding very widely used.

Following this came the quern, perhaps in the second century before Christ. This was the first approach to what we may call a mill. In this we for the first time have the rotating or wheel-like mo-

[2] See illustrations of saddle-stone and mortar in Mr. Cowan's article.

A farmer's water-power grist-mill and grindstone, Sweden.

tion. The quern, as first made, might be roughly described as a mortar turned bottom up over a closely fitting pestle, pierced with a hole through which to pour the grain, and provided with a wooden handle. The grinder turned the stone with one hand while he fed grain into the hole with the other.

At first the quern was conical in form, but later it assumed a more flattened form, and grooves were cut in the grinding surfaces, so that it was not unlike a more modern burrstone mill.

The quern seems to have been the original mill of England, and was used as a household mill long after the inauguration of larger mills.

In feudal times the landlord required all his tenants to have their meal ground by the miller of the estate, and, as may be expected in the case of all monopolies, the toll was just as high as the miller dared put it. Many of the peasants had and used querns or household mills, though forbidden to do so; and over this question of making flour were fought many of the battles that helped to decide the long-waged war between democracy and special privilege.

In Rome the first rude mills were run by slaves and criminals, and when, in the time of Constantine, slavery was abolished, cattle were used for the motive power. In the first century before Christ water was used. In England water was in use as a motive power for flour-mills in Saxon times. The location of the Saxon mills is given in the Domesday Book, issued shortly after the Norman Conquest.

Improvements in Milling

After water-mills came windmills, used to some extent in England, but more on the Continent, especially in Holland.

In 1784, when both windmills and

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Huge Minneapolis mills, which supply the world with flour.

water-mills were largely used in England and America, the first steam-mill was operated in London. The wheat was winnowed and ground on flat stones scientifically furrowed, the meal was bolted, and the tailings reground. There was not much further progress until the introduction of the roller process, since which time milling has been thoroughly revolutionized; and now, instead of the flour being made largely in small, isolated mills, it is manufactured in huge industrial concerns, turning out thousands of barrels, or even train-loads, daily.

The curious part of the history of the flour-mill is that all types of mill are still in operation, the saddle-stone, as in Mexico, the pestle and mortar, the quern, the slave-mills, cattle-mills, water-mills, steam-mills, stone-mills, and roller-mills. In accordance with the progress of civilization in a country, there may be still seen a relic of what our present milling operations descended from.

History of Baking

Like the origin of milling, the origin of baking antedates history. The oldest historical records find the people already in possession of a knowledge of the art of baking.

In Abraham's time cakes were made and were thought to be a fit offering for angels.

In Egypt, when the Israelites were there, baking had become a highly perfected art. The Egyptians used several varieties of flour, and made cakes of many kinds and shapes. One of the important servants of the Pharaoh of Joseph was a baker. The staple product of the country seemed to be a cereal,[3] and it was this cereal that Joseph gathered during the seven full years, and doled out during the seven years of famine.

From Egypt the art of baking was carried to Greece, thence to Rome, where the bakers formed a gild, or kind of trades-union, with special privileges.

But evidently in Europe the knowledge of baking antedated this knowledge from Egypt, for excavations made in Switzerland at the site of the prehistoric lake-dwellings have shown the presence

[3] Corn in the Authorized Version, but corn in the British sense, not maize, or Indian corn.

not only of grinding stones, but also of charred loaves. It would seem that not infrequently these pile-dwellings, like those of modern man, would catch fire, and charred bread still retaining the form of the grains, cooking utensils, etc., would drop from the burning building and sink to the bottom of the lake, to remain a mute but sure witness to the customs of those remote days. For charcoal is not susceptible of decay, and is therefore practically everlasting when once burned.

The cakes were round, an inch or an inch and a half thick, flat or slightly concave on the bottom, giving evidence of having been baked by placing them on heated rocks and covering them with hot ashes. The material of which the loaves were made was not flour or meal, as we understand the terms, but grains of cereal, broken up into larger and smaller particles.

The baking art of modern Europe, however, is not the descendant of this prehistoric baking, but of the Roman baking.

During all European history there has been much rivalry between the commercial baking by the tradesmen who considered this work their prerogative, and home baking; but in our modern cities baking is being performed more and more in large bakeries instead of the home.

However, in northern Europe and especially in the country, most of the baking is done in the home, the bread being usually in the form of cakes or rolls rather than of loaves.

Nutritive Value of Breads

The accompanying table shows that bread made from wheat flour, whether white or Graham, is not so far from a balanced food, as far as the proportion of protein is concerned, even according to the high-protein standard of Atwater; and according to the Chittenden standard, a dietary of bread would contain an excess of protein. This may be a surprise to many.

From this it will be seen that with bread as a principal article of diet, a sufficiency of protein, even according to the Atwater standard, would require but the addition of a small amount of animal food, such as milk or eggs, or some leguminous food. If some other carbohydrate poorer in protein is used instead of bread, a larger proportion of protein must be supplied in some other way.

It should be remembered, however, that only about ninety per cent of the protein in white bread and about eighty per cent of the protein in Graham bread is utilized by the body.

	A % prote.	B % fat	C % cardo.	D nutr. ratio	E gms. bread	F gms. prot.
Corn bread	13.4	8.	78.6	1 : 7.2	1015	80
Rye bread	14.3	1.	84.7	1 : 6.1	1036	93
Graham bread	14.2	2.9	82.9	1 : 6.3	1010	90
White bread	14.5	2.	83.5	1 : 6.1	1001	93
Whole-wheat and low-grade-flour-bread	16.1	1.5	82.4	1 : 5.3	1073	104
Atwater standard*				1 : 5.6		100
Chittenden standard				1 : 12		60

Computed from Bulletin 28 of the United States Department of Agriculture, Office Experiment Stations, "The Chemical Composition of American Food Materials." Columns A, B, and C were obtained by dividing the percentage of protein, fat, and carbohydrates, respectively, by the sum of these percentages. Column D is calculated by the formula —

$$\frac{2\frac{1}{4}\ F + C}{P}$$

that is, 2¼ times the weight of the fats, plus the weight of the carbohydrates, divided by the weight of the proteins. Column E is the amount of bread required to furnish 2,700 calories, the amount of energy required by a moderately sized man at sedentary or very light muscular work. Column F is the number of grams protein in that quantity of bread. Two thousand seven hundred divided by the fuel value of one pound of bread gives the number of pounds of bread required to furnish 2,700 calories. This, multiplied by 453, reduces it to grams (E). This, multiplied by the percentage of protein as given in the bulletin, gives F.

* For a man without muscular work. Such a man requires the greatest quantity of protein in proportion to the amount of carbohydrate and fat. The greater the amount of muscular work, the greater the proportion of fuel food required, for the muscle energies consume fuel food. For hard muscular work, the ratio, according to Atwater, is 1 : 63, just about that of wheat and rye bread.

The Minerals in Bread

But proteins, fats, and carbohydrates are not all there is to nourishment. There are certain other food constituents exceedingly important to the body, such as lime for the bones, phosphorus for the bones and nervous tissues, iron for the blood. If these are not present in proper amount, the nutrition of the body suffers, no matter how well supplied it may be with proteins, fats, and carbohydrates. Far more important is it that the body be supplied with all the various elements needed, in available form, even though those elements are required only in minute quantity, than that the food supply come from a certain "kingdom." The great and important question is, Does the food contain a sufficiency of all the different building stones required in the body, as well as a sufficiency of fuel?

Iron

One of the most important elements in the economy of the body, though it is present in only minute quantity, is iron. The expression, "It makes red blood," if ever applicable to any food, should be used in reference to foods rich in iron in a form available for use in the body; for the hemoglobin of the blood — the red coloring matter — contains iron as an important constituent. An anemic person lacks iron in the blood, and a red-blooded person has an abundance of iron. Anemia is sometimes the result of parasites in the blood, which destroy the hemoglobin; sometimes it results from a failure in the blood-making organs sometimes from malnutrition because of poor digestion or poor food. Perhaps a large proportion of anemia, where it is not due to parasites, is the result of insufficiency in the food.

In general, the grains have a moderate amount of iron, but this is largely in the germ or in the outer coats, and is taken off by the modern milling processes in the manufacture of white flour and polished rice. It is a notable fact that herbivorous animals are not so subject to anemia as the carnivorous animals, and this fact ought to furnish food for thought for those who think that juicy beefsteaks are necessary in order to "make red blood." It is true that meat contains iron, but as Sherman says, "The iron of meat, as already mentioned, is largely due to the blood retained in the muscular tissue. The nutritive value of the blood is often questioned. So far as the iron compounds of the blood are concerned, it seems to be established that hemoglobin and hematin may be absorbed and assimilated to some extent, but probably not to such good advantage as the iron compounds of eggs, milk, and vegetable foods." This will probably explain why the meat-eating animals are more likely to suffer from anemia than the herbivorous animals, and in connection with that fact is strong presumptive evidence against the proposition that meat is needed in order to make red blood.

Chlorophyl, the green coloring matter of plants, is somewhat similar in composition and function to hemoglobin, the red coloring matter of blood. We may, in fact, call it vegetable hemoglobin. Both chlorophyl and hemoglobin are complex nitrogenous compounds containing iron, and both are important factors in the chemical changes in the organism. Chlorophyl in the plant liberates oxygen, forming carbohydrate; hemoglobin in the animal carries oxygen to the capillaries to be combined with carbohydrate. Deoxidation in the plant and oxidation in the animal are dependent on the presence of iron. Possibly you have already guessed that the chlorophyl-containing plants are important sources of iron supply for animals, and your guess is right. The green vegetables, generally, are rich in organic iron, in a form readily appropriated by animals. Spinach is especially rich in iron. This would suggest the propriety of having a fairly liberal supply of green vegetables in the dietary, not for their protein, fat, and carbohydrate content, in which they are poor, but because of their iron content.

Van Noorden, a strong advocate of a meat dietary, says: "The necessity of a generous supply of vegetables and fruits

must be particularly emphasized. They are of the greatest importance for the normal development of the body and of all its functions. As far as children are concerned, we believe we could do better by following the dietary of the most rigid vegetarians than by feeding the children as if they were carnivora, according to the bad custom which is still quite prevalent."

It will be understood from this that the cereals, though they contain appreciable quantities of iron, should be supplemented with green vegetables.

Another point of importance regarding cereals is that the ash is acid forming, and tends, consequently, to reduce the alkalinity of the blood, as do eggs and meat. Milk and vegetables, on the other hand, contain an alkaline-forming ash. As far as the iron and the reaction of the blood are concerned, the body will thrive much better on milk and vegetables than on the cereals, meat, and eggs. This would suggest the importance of adding fresh vegetables and fruits to the dietary.

Other Elements

There is another consideration which may have more significance than many have supposed; namely, that in the cereals, meats, and eggs, the proportion of calcium or lime to magnesium is small compared to the proportion in vegetables and milk. So on a diet of cereals, meats, and eggs, one may have lime starvation, fragile bones, rickets, osteomalacia, and the like, or at least these conditions may be favored.

But phosphorus, the other bone-making material, is plentiful in the outer part of the grain, though absent from the interior. There is practically no phosphorus in white flour. According to Sherman, "present food habits are more likely to lead to a deficiency of phosphorus than to a deficiency of protein in the diet, and it is not improbable that many cases of malnutrition are really due to an inadequate supply of phosphorus compounds." It has been thought by some that the body is incapable of absorbing phosphorus from the outer part of the grain, but this appears to be a mistake. Undoubtedly much of it is lost, but some of it is certainly absorbed, and doubtless the body can get an adequate supply from this source, for the herbivorous animals get practically their entire supply in this way. Among the animal foods, milk, cheese, and egg yolk furnish our richest supplies of phosphorus.

Because of its high content of lime and phosphorus, and its alkaline ash in addition to its supplies of protein, fat, and carbohydrate, milk is well-nigh an ideal food. It is rather poor in iron, however, one living on milk and white bread would have a deficiency of iron, and would not be long in showing signs of anemia, if the diet were not supplemented with green vegetables, fruits, or other iron-containing foods.

Sixteenth century bas-relief, Rouen, France. Now in Museum of Comparative Sculpture, Paris.

TOO MUCH ENERGY WASTED IN KNEADING BREAD

ACCORDING to Miss Hannah Wessling, the expert bread maker of the Department of Agriculture, who knows how to make all kinds of bread from the German pumpernickel to the Hawaiian banana bread, the American housewife wastes too much energy in making bread. Instead of doing so much kneading, one should use more yeast, says Miss Wessling, and do away with the "setting process," which so many housewives seem to think necessary in order to obtain good bread.

Miss Wessling has been carrying on a series of experiments, says the Washington *Times*, to determine the relative nutritive qualities of various kinds of flour and flour substitutes.

Her tests show that banana flour when mixed with white flour gives a fine bread. One fourth banana flour and three fourths white flour make a loaf that is of fine brown appearance and has a slightly "foreign" taste that is pleasant.

"No bread can be entirely satisfactory without wheat flour, however," declares Miss Wessling. "It must have the wheat flour in order to be 'light,' and everybody wants that kind of bread." Wheat is the one cereal that makes light bread.

Expert's Rule for Good Bread

Take twelve ounces of flour for a one-pound loaf. Use one-fourth ounce of sugar, one-fourth ounce of salt, and ten ounces of tepid water.

Mix the yeast, salt, and flour, and then let them ferment for an hour instead of using them immediately after they "foam." Warm the flour and mix with the ferment.

Allow the mass to stand one hour. Don't handle it. It doesn't need much kneading. Mix it up and allow it to stand another forty-five minutes, when it is ready for the molds.

The entire process should be conducted in a room where the temperature is 80 to 86 degrees. Any warmer means sour bread, and any cooler, soggy bread.

It is a duty to cultivate cheerfulness when seated around the table spread with the bounties of life.

HEALTHFUL COOKERY

AMERICANIZED COFFEE CAKES — NO. 1

George E. Cornforth

CAKE and bread, made especially to eat with coffee, are used largely by the Germans, who are skilled in making them. These cakes are made light with yeast. In fact, I am told by persons who have come to this country from Germany that what is called cake in this country is seldom made in Germany, and is known only as a luxury; but the Germans make a great variety of cakes made light with yeast, and prefer them to the cakes that are common in this country. It is not possible to make the former very sweet because a large quantity of sugar in the mixture so hinders the action of the yeast that really sweet cakes cannot be made light with yeast. The Germans seem to prefer cakes that are not very sweet, and it would be better for us if we had similar tastes. Many of the cakes for which recipes are given in this lesson are the result of the experimenting of a young man of German descent, my chief assistant, who used to live in a German family and help with the cooking, and who remembers the cakes that were used by the German people. A little more sugar is called for in these recipes than is commonly used by Germans, in order to make them more suited to the taste of Americans who are accustomed to sweeter cakes. I ought to say that, while German people eat these cakes with coffee, using the coffee to soften them and wash them down, we do not recommend drinking cereal coffee or any other liquid with them. No liquid should be used to soak food so that it can be more easily swallowed. We have simply borrowed the name. The cakes should be well masticated and moistened with the saliva.

I might explain briefly why we do not recommend the use of soda, baking-powder, or other chemicals in the making of bread and cake. Soda is an alkali. If great care is not taken in using it, some of it will be left in the food not neutralized by the acid with which it is used. In making biscuit, cream of tartar and soda are used in the proportion of two and one-fourth level teaspoonfuls of cream of tartar and one level teaspoonful of soda to one pint of flour. This will leave in the biscuit one hundred fifty grains or two and one-half level teaspoonfuls of Rochelle salt. Rochelle salt or any other chemical in food is not food, cannot be used by the body, and must be eliminated. Extra and useless work is thus put on the eliminative organs, especially those whose duty it is to take care of poisons and prevent them from injuring the body. When soda is used with milk, sodium lactate is left in the bread; when it is used with vinegar or molasses, it is sodium acetate. All these interfere more or less with digestion and with the life processes of the body, especially in those who are not vigorous and who do not live an active outdoor life.

Baking-powders are mixtures of soda and one or more acids. They are carefully put together so that their use leaves no soda in the food. What is left will depend upon what acid is in the baking-powder. It is believed that a baking-powder which contains alum is more harmful than one which does not contain it. It is commonly believed that the pure food laws are a protection against impure and inferior food products, but in many

cases all they require is the printing on the label of the ingredients that the package contains. A few years ago people used two round teaspoonfuls of baking-powder to one quart of flour. No one ever thinks of investigating to find out whether the use of baking-powder leaves anything harmful in the food in the making of which it is used. It seems to be commonly believed that all that baking-powder does is to make food light, and that it leaves nothing behind. I suppose that people have reasoned that if a little is good more is better, and the recipes in all the latest cook-books call for four level teaspoonfuls to one pint of flour, which is about twice as much as was formerly used. I took four level teaspoonfuls of the baking-powder which I had bought, poured on it some hot water,— hot enough to cause chemical action but not hot enough to cook the starch which is used in baking-powder,— to prevent the ingredients from lumping and to prevent chemical action between the ingredients. I kept the mixture hot till chemical action ceased, then I filtered it to get out the corn-starch. I evaporated the liquid which remained and obtained one hundred and thirty-two grains (2 1/5 level teaspoonfuls) of crystals, which would be left in the bread made with one pint of flour. Some baking-powders contain phosphoric acid and leave sodium phosphate in the food. I believe that it is better for digestion, and that the organs of the body which are involved in taking care of these chemicals will not wear out so soon, if we eat food that is free from such chemicals.

One of the precautions to be observed in order to make good cake with yeast is not to allow it to rise too much. It is natural to expect a loaf of cake to rise as much as a loaf of bread. After the mixture has been put into the cake pan, it should be allowed to stand only long enough for the yeast germs to start to work well. In some cases we allow a cake to stand only from five to ten minutes, and in no case do we allow a cake to rise more than one half an inch, and the rising will be completed in the oven. If the cake is allowed to rise too much, it will be coarse-grained and will have a yeasty taste. When properly made, these cakes seem to us to be quite equal to similar cakes made with baking-powder.

It is necessary to use much more yeast in these cakes than in making bread, because the sugar and shortening hinder the action of the yeast. Raisins and currants to be used in these cakes should be boiled in a little water till plump, then

EGGLESS COFFEE CAKE

drained and dredged with a little flour. The boiling helps the fruit to remain better suspended in the cake. The water in which the raisins and currants are boiled makes a good drink. Flour should always be sifted before measuring, sifting it lightly into the cup and leveling it off with a knife; do not shake the cup to level it, as that will cause the flour to settle and the measurement would be too large.

Eggless Coffee Cake

1 compressed yeast cake
1½ cups lukewarm milk
5½ cups sifted pastry flour
¼ teaspoon salt
¾ cup sugar
½ cup warm oil
¼ cup chopped citron
½ cup raisins
½ cup currants
Grated yellow rind of one-half orange
Grated yellow rind of one-half lemon

In 1 tablespoonful of water dissolve the yeast cake, then add ½ cup of milk, ¾ cup of flour, or enough to make a rather thick batter. Set this sponge in a warm place to rise. When light, which may be in one hour, add 1 cup milk, salt, sugar, 3 cups of warm flour. Mix well and allow to rise again. When light, add the oil, citron, raisins, currants, orange and lemon rind, and 1¾ cups of warm flour. Let rise. When light, put into a pan in which it will be about one inch deep. Brush the top with oil, sprinkle with sugar and chopped nuts, let rise one-half inch, and bake in a slow oven.

Dutch Apple Cake

1 compressed yeast cake
3½ cups sifted flour
½ cup warm oil
1¼ cups warm sugar
1 teaspoon lemon flavoring
1 beaten egg
¼ teaspoon salt

In 1 cup lukewarm milk dissolve the yeast, then add 2 cups sifted pastry flour to make a sponge. Beat well. Set in a warm place to rise. When light add the oil, sugar, flavoring, egg, salt, and 1½ cups warm flour. Beat well together. Spread out in a sheet one inch thick and place sliced apples on top in rows. The apples should be peeled, cored, and cut into eighths, then pressed into the cake with the thin edges all the same way. Sprinkle with sugar. Let rise five minutes, and bake in a slow oven till the apples are tender.

The next article will give recipes for several other kinds of coffee cake.

DUTCH APPLE-CAKE

EDITORIAL

TYPES OF DIGESTIVE DISORDERS

ONE more article we devote to the views of Herter on digestion, with the realization that in so brief a summary as is necessary in this series it is difficult to do justice to the thought of the author. It is but proper to state that very little of what he laid down in his book was considered by him as final. He realized that on the subject of bacterial infections as affecting digestion, nutrition, and the general health, our investigations have thus far merely scratched the surface.

Herter describes two general types of intestinal infection, the indolic and the saccharobutyric, and a combined infection involving both types of bacteria. He pictures the indolic type in children somewhat as follows: Abdomen bloated with gas; intolerance of carbohydrates; voluminous, light-colored, usually gray and fatty stools containing much gas; often excessive sweating of the head; condition of chronic fatigue; emotional irritability; retardation of growth; part of the symptoms being due to the absorption of poisons, part to the fact that the bacteria use up a large portion of the nutrient, leaving insufficient for the needs of the body.

These patients can use fats and proteins well, but carbohydrates should be permitted only in small amount, and chiefly in the form of well-cooked rice or hominy. It may be better for a time to peptonize the milk in order to secure early absorption. In some cases it may be best to allow only two meals a day. High irrigations should be practised in order to avoid as far as possible the putrefactive decompositions of the large intestine.

Improvement is sometimes so slow that every one interested in the case is discouraged, but sometimes a cure may be effected even after years of extremely slow progress. "But in order to make this improvement, it is *impossible to make concessions in diet, and a policy of largely excluding carbohydrates must be enforced.*"

Dr. Herter further believes that "there are many persons in the community whose digestive derangements date from early life, and in many of these cases the less pronounced forms of the type of chronic intestinal indigestion which has just been described have doubtless constituted the foundation of invalidism in adult life."

This recalls the fact that our public-health officers are doing much to increase the average length of life, but this is largely by the saving of infants. The insurance companies have shown that at the ages of forty and fifty, the deaths from diabetes, Bright's disease, heart-disease, and the like are on the increase. These are precisely the diseases that are very likely caused by affections of the intestinal tract, and if this is so, the remedy for this state of affairs is in a better understanding of the principles of personal hygiene, including dietetics; and here it must be admitted that there is much yet to learn, even by those who pose as leaders.

In the saccharobutyric type of putrefaction the intestinal contents have an

intense rancid-butter odor, and on account of the contained gas, float on water, and are light-colored. This type of putrefaction is wide-spread among adults, but relatively uncommon among children. There is, as might be expected, a very great difference in the degree of the affection, from those who are nearly normal to those who are confirmed invalids.

> "There are notable persons who during an entire lifetime have digestive disturbances, usually slight but sometimes more marked, which are dependent on this form of putrefaction. Under such circumstances the duration of life may not be appreciably shortened. Persons who have long had disturbances of this sort may attain to seventy or seventy-five years of age. They, however, suffer in various ways a diminution of efficiency, and are subject to various disturbances."

In those who develop this type of disorder to a high degree, "the evidences of intestinal indigestion are pronounced, and there is, after a time, a decline in the capacity of the organism to perform work. Such persons develop a condition of distinct invalidism, and life may be considerably shortened in consequence of the intoxications arising from this condition." But the most severe cases are among those who have a combination of the indolic and the saccharobutyric putrefactions.

In the saccharobutyric type there is a tendency to irritation and rawness of the digestive tract, including the mouth. The use of carbohydrates may be followed by intense intestinal flatulence and sometimes diarrhea. Sugars and acids are badly borne. On account of the irritation of the intestinal tract, slight causes will bring on a diarrhea.

In advanced cases there is considerable anemia even of a pernicious type, and in some cases there are depressive mental symptoms, though well-marked nervous symptoms are not a feature of this class. After a time there is loss of weight and muscular power. In spite of good appetite, patients are unable to maintain weight and strength, and frequently the signs of premature old age are present, such as wrinkling of the skin.

In the combined type, nervous symptoms show themselves comparatively early, there is "excessive emotional irritability, an inclination to mental depression, and the early onset of muscular and mental fatigue." Later the patient is distinctly anemic, and the whole tendency is downward, "and from year to year the patients become a little less robust and less capable of rapid recuperation under favorable hygienic conditions. After a time — commonly, however, not until the process has been a very marked one for ten or fifteen years — the patients lose so much strength as to be unable to attend to ordinary business occupations without great effort. A period of carefully regulated living, free from anxieties, may be followed by a considerable degree of improvement, but this improvement is usually extremely slow. In certain cases the anemia ultimately deepens, and the patient may present the picture of progressive pernicious anemia. In other instances it is especially the nervous symptoms that increase, and the periods of depression become more and more marked and of longer duration. The mental depression may become so pronounced as to necessitate a residence of the patient in a sanitarium or asylum, the conditions being those of mild or pronounced melancholia."

The patient reaches a state of chronic invalidism more rapidly than where either condition is alone present. Early loss of weight and power, premature senility, atrophy not only of the muscular cells but also of the cells of liver and kidney, mental depression, nervous disorders, multiple neuritis, and pernicious anemia help to make up the picture of helpless and hopeless invalidism. The treatment of these cases, after the suggestions of Herter, we will give in the next issue.

J. Weald

Pellagra

PELLAGRA is one of the most mysterious, one of the most sinister diseases with which the modern doctor has to deal. A short time ago it was unknown by name to the ordinary person; and even to physicians, at least in this country, pellagra was only a name. Now it has come to be a disease bulking large in the reports and in the problems of health officers, and the physician who does not keep it in mind as a possibility will sooner or later make a blunder in attempting to treat symptoms when he should be giving prompt and radical treatment for this disease.

A most disconcerting and humiliating fact is that we know practically nothing, with absolute certainty, regarding the cause of the disease. It has been for many years supposed, especially in Italy, where it has long had a footing, that it is caused by the use of corn, particularly spoiled corn. But there are victims of the disease who have used no corn whatever, and others who have used it only in very moderate amounts. Some in this country believe it to be caused by the use of cottonseed-oil. But there are many cases of the disease where no cottonseed-oil has been used; and it is more prevalent in districts where hog grease is much more common than cottonseed-oil as a constituent of the food.

Dr. Deeks,[1] of the Ancon Hospital, Canal Zone, believes pellagra is caused by the excessive use of carbohydrates and cane-sugar to the exclusion of proteins, green vegetables, and fruits; and he has been very successful in his treatment of patients, effecting cures in two thirds of the cases and improvement in others, by the use of a carbohydrate-free and sugar-free diet, containing an abundance of proteins, green vegetables, and fruits, and the use, medicinally, of dilute nitric acid (15-30 drops dilute nitric acid in two-thirds tumbler water three times a day on an empty stomach).

Sambon and others are confident that the disease is caused by some insect's transmitting the infection, something as the mosquito transmits the infective agent of malaria. Against the theory that pellagra is directly infectious is the fact that more than one pellagrin is rarely found in a family. On the other

[1] *Southern Medical Journal*, July, 1913, 25 cents, Southern Publishing Co., Nashville, Tenn.

hand, Dr. W. A. Dearmon, of Long Beach, Miss.,[2] has succeeded in inoculating a monkey with what seems to be typical pellagra by feeding it upon a piece of membrane and some of the saliva from a pellagrin. The monkey, in apparently excellent health at the time of the feeding, showed the first symptoms of pellagra in thirty-seven days,— loss of appetite, followed by progressive emaciation and an intractable diarrhea, characteristic skin symptoms, etc. Nineteen days later, the monkey died, and post-mortem examination showed conditions strongly suggestive, if not typical, of human pellagra.

Thus we have the theories that pellagra is produced by certain and various foods, produced by the bite of certain and various insects, as the sand-fly, the stable-fly, and last but not least, we have the possibility of its direct transmission from man to monkey, in such a manner that it might easily be transmitted from person to person by the *public drinking-cup,* the *public towel,* etc. But if diet causes the disease, how can it be the result of an infection transmitted from one person to another, directly or indirectly?

Circumstances seem to indicate that Deeks is right in his contention that a carbohydrate and sugar diet in a warm climate is an important factor in the causation of the disease. That this does not exclude infection as another and perhaps necessary factor has been recently shown in the fact that scurvy, for ages almost, attributed to faulty diet — a starvation, in fact, as regards certain important food elements — has been shown to be an infection. The proofs seemed to be conclusive. Victims of typical scurvy in South Africa, who could not be cured by antiscorbutic diet and medication, were cured by *oral hygiene* alone (that is, careful attention to bad teeth, proper use of the tooth-brush, etc.), *without a change in diet.* If any medical theory was ever supposed to be fixed forever, it was that scurvy is entirely a dietetic disease. Now, it seems that diet is only a favoring cause, and that the real cause is an infection, usually through defective and badly kept teeth and gums. It would seem that the terrible mouth condition symptomatic of scurvy is really a contributory cause of the disease, by permitting the entrance of the infective germs. Confirmatory evidence is needed before the infectious nature of scurvy will be generally accepted.

From this, however, it will be readily understood that pellagra might be due, in one sense, to the use of an inadequate dietary, and yet in all cases be an infection. After all, in most cases of infection, there must be some previous preparation of the soil so that the infective agents may maintain their foothold.

Deeks in his treatment forbids absolutely the use of carbohydrate and sugar, and gives meat broth, fruit-juice, and milk until the active gastro-intestinal symptoms are past, then gives meats, fish, eggs, and milk, with all kinds of green vegetables and fresh fruits. For medication, he gives fifteen to thirty drops of dilute nitric acid in two thirds of a tumbler of water three times a day on an empty stomach. On recovery, he cautions his patients against going back to a diet of carbohydrate and cane-sugar, and continues the nitric acid. Possibly as good effects might be obtained by the use of milk and eggs as by the use of meat and fish.

[2] Id., page 483, editorial.

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Diet and Constipation

THE Boston *Medical and Surgical Journal* of May 22 has an article by L. H. Newburgh on the dietetic treatment of constipation, in which he says: —

"If we investigate the habits of persons who are suffering from habitual constipation, we find that the disease has usually followed certain definite changes in the diet. If these dietetic changes are adopted by a class of people who then become constipated as a class, we are more justified in believing that this factor is a causal one than if we can merely discover isolated individuals who have become constipated at some period after changes in diet have taken place."

He then relates that Russian Jews who have come to the United States present themselves in large numbers to the outpatient department of the Massachusetts General Hospital for the relief of constipation. Questioning many of these persons, he found that in Russia they had access to green vegetables, which they ate at one or two meals a day. Meat was seldom eaten, and bread of the coarsest variety was often the main article of diet. Milk, cream, and potatoes were plentiful, and cereals were a constant constituent of the dietary. Coming to this country, they take very kindly to the American beef and to the white-flour bread, and they soon tire of cereals, and are living on a diet lacking in bulk on account of the absence of green vegetables and the coarse cellulose envelopes of the whole cereals.

Questioning isolated foreigners of other races having constipation, he finds also that they have adopted the American white bread and meat diet. He finds that by adding proper articles of food to the diet the constipation is ended. Dr. Newburgh writes: —

"The logical treatment of constipation must, then, consist in giving our patient a diet which contains sufficient bulk in the form of cellulose to make the bowels move normally. The presence of cellulose in the diet presumably means normal defecation for the following reason: Cellulose has the property of holding large quantities of water. Bran soaked in hot water for two hours increases its volume threefold. Since it is not absorbed by the intestinal tract, it must consequently add two qualities to the feces, bulkiness and softness."

Newburgh gives this as about the typical history of such a patient: Leaving off his native diet, he becomes progressively more constipated: there may be hyperacidity and gastric distress. His physician probably reduces the coarseness and bulk of his diet, thinking the symptoms due to these two factors; and the patient, of course, goes from bad to worse. The most generally useful articles of diet in this connection are: of the cereals, oatmeal, corn-meal, and cracked wheat; of the vegetables, lettuce, cauliflower, celery, cabbage, spinach, asparagus, tomatoes, beans, and peas; of the fruits, apples, grapes, prunes with the skins, dates, figs, and berries. He advises against the use of laxatives.

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Prevention of Tuberculosis

We have long regarded tuberculosis sputum and the careless spitter as the cause of the spread of the disease; and perhaps it is well enough not to let the pendulum swing too far to the other side; for it has begun to swing and has attained a considerable momentum, as may be seen from this quotation from the New York *Medical Times:* —

"In the case of tuberculosis a vital error has been sunk into the minds of the people; namely, that most human beings are free from tuberculosis, and that prophylaxis consists mainly in the care of sputum and the segregation of the clinically active cases, to the end that those free from the disease shall not be infected by the diseased. We know now that practically every member of the race is infected from a very early age, and that while the care of the sputum of infected individuals is most important, the chief thing to be emphasized is the maintenance of resisting power in those who, though infected, have managed to hold the invader at bay."

What we would emphasize is that the care of the sputum has not ceased to be important. It is undoubtedly true that England has greatly lessened her tuberculosis rate by segregation of bad cases in hospitals, thus lessening the danger of contamination from infectious sputum. Doubtless the chances for such contamination are principally in the homes of the poor where there is a lack of cleanliness, sunlight, and ventilation. These conditions increase the danger of exposure.

But aside from these housing conditions there are matters of personal hygiene,— the measures that build up a stronger resistance power,— and it is here that proper diet, proper exercise, recreation, rest, and sleep, and the avoidance of stimulants, narcotics, and sexual and other excesses come in; and those unfortunates who are so situated that they cannot comply with these simple requirements, or who are too ignorant or

careless to appreciate their value, are the most likely to fall victims to the scourge. And it matters little whether it is the lighting up of an infantile infection or a new infection from a neighbor's sputum. When a man is dead of tuberculosis, he is dead; and in the past history of every tuberculosis case there will doubtless be found more or less insanitation and more or less disregard of the requirements of personal hygiene; and we are reminded of the words of the Book, "Whatsoever a man soweth, *that* shall he also reap."

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"Guaranteed Under the Food and Drugs Act"

INASMUCH as we receive letters of inquiry regarding certain nostrums indicating that the writers believe that the expression "Guaranteed under the Food and Drugs Act" is an official recognition by the United States government, it may be well to consider the nature of this supposed guaranty. We quote from the *Journal A. M. A.*, April 26, page 1316: —

"Much misunderstanding exists regarding the working of the Food and Drugs Act, and the meaning of the legend 'Guaranteed under the Food and Drugs Act.' This act ('the pure food law'), does not require the manufacturers of 'patent medicines' to make public the composition of their nostrums. It merely demands that if the medicine contains any one of eleven drugs, or the derivatives of these drugs, the quantity or proportion of such drugs must be given on the label. These eleven drugs are: alcohol, morphin, opium, cocain, heroin, alpha-eucain, beta-eucain, chloroform, cannabis indica, chloral hydrate, and acetanilid. The nostrum may contain any number of the hundreds, possibly thousands, of other drugs known, and the public be none the wiser. It may contain some of the most dangerous poisons known to science, such as strychnin, arsenic, prussic acid, and aconite, and no warning need be given of their presence so far as the clause 'Guaranteed Under the Food and Drugs Act' is concerned; it means only that the manufacturer has applied to Washington for a serial number. This application is entirely optional, and in making it, he is not required to give any information about his product. The 'patent medicine' may be, and in some cases has been, proved to be a fraudulent product, that is, misbranded or adulterated within the meaning of the act. These facts are not considered in the issuance by the government of a serial number; the only value of the guaranty is the protection it gives to the individual retailers of the product should it be declared misbranded or adulterated under the act. In other words, it throws the responsibility for misbranding and adulteration back on the manufacturer and not on the retailer."

The Canadian law, framed about three years after ours, sufficiently long to give opportunity to observe some of the weaknesses of our law, specifically forbids the use of the term "guaranteed." Our pure food law, though much better than no law at all, is still in need of a little doctoring.

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Correct Styles for Women

WHEN a reform begins within instead of from without, there is more hope that the reform will accomplish some good. For many years it has been known that the fashions in women's clothing were subject to great abuses, the fashions being not only meaningless and often offensive to good taste and even morals, but an unnecessary burden on the purse of the providers. But all attempts at reform from the outside have been futile. The evil increases rather than diminishes. Now there is a National Ladies' Tailor and Dressmakers' Association, which is attempting to bring in a reform, for, as is generally known, the evil is the result of the attempt of the dressmakers to increase trade. The following, taken from an advertisement published by a Washington City ladies' tailor who is the president of the association, speaks for itself. No comment is necessary: —

"Too often new styles are merely a matter of business. They are the result of the avarice of the manufacturers and not of the wishes of customers. Ingenuity is used in making some new and strange thing. Then it is stamped as the new and proper mode, though nobody on earth knows who does the stamping. Yet the average woman feels it her duty not only to hurry up and buy it, but to pay the highest price for it. This highest price is, of course, the price for novelty alone, not value. Do we ever hear of marked-down sales of silk velvets or ermine, for instance? Competition helps avarice in this mad race for novelty. The moment the other ready-made shop has the new thing which the other shop has brought out, it is no longer the new thing for the one shop. Thus no sooner is a novelty chased in than it is chased out again. All these things are good only while they are new, owing to

the inferiority of materials used. This is due to the hurry in which these things are made, and the great quantity of them forced on the market. Quality does not count when one simply looks and grabs. What a contrast between what a young woman has today and that which her mother had forty or fifty years ago! Indeed, it is foolish to speak of the present-day wardrobe, because, in most cases, it doesn't exist. Do we find any real lace, any bolt of silk, or pieces of silk-backed velvets, any India or Paisley or Cashmere shawls? A simple dress made of handsome material has more style than a handsome dress of cheap material."

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Smoking in Public Places

THE London *Lancet* in its issue of April 26 has an editorial article entitled "Smoking in the Theater," from which it seems that the suggestion has been made to permit smoking in the theater in order to increase the number of patrons. This, the *Lancet* thinks, would submit the public, "whether they liked it or not, to an atmosphere of burning pipe, cigar, or cigarette, which cannot add to the health of the surroundings." Says the *Lancet:* —

"Scientific evidence is hardly needed to show that to some extent the person breathing a smoke-tainted atmosphere is liable to the same evils as the person who is smoking; for the experience of a non-smoker who has spent an evening in an atmosphere of a smoking concert is often that he sustains a disturbance of health similar to that sometimes complained of by the excessive smoker."

The *Lancet* suggests as a compromise that a certain section of the theater be reserved for smokers, and so ventilated as to prevent effectually the smoke from annoying the non-smokers. "If this is impracticable," thinks the *Lancet,* "then the prohibition of smoking in theaters seems to us to be reasonable." Most certainly. No one should be allowed to pollute the air of a public place with fumes that are annoying and poisonous to some who have a right to be present.

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Passive Recreation

No argument is required to convince one that every one engaged in serious work of any kind needs recreation periods, and some kind of recreation which *re-creates.* There may be a difference of opinion as to just what does *re-create.* We are inclined to think that any form of recreation that consists in sitting on a bench or in an opera chair only partially fills the bill at best, and agree with the *Playground* (June, 1913) in classing such as "inactive or degrading recreation." This is what it says: —

"As for the recreation which does prevail in America, it is too largely passive. We are amused by the theater, vaudeville, or moving-picture shows, but it were better for us if we could engage in active games or sports. Even our popular athletics are very largely vicarious; the exercise which the 'fans' derive from baseball is principally vocal."

These are the inactive recreations. But there are active recreations that are actually degrading notwithstanding they furnish exercise. The *Playground* further says: —

"In Chicago eighty-six thousand girls and boys throng the dance-halls in a single night, and Mrs. Bowen says you can always tell when you approach a dance-hall because you see so many young couples in the dark hallways, alleys, and other hiding-places of the neighborhood."

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Experimental Arteriosclerosis

W. E. DIXON, F. R. S., in an article on "Alimentary Toxemia," in the London *Lancet,* makes the following significant statement: —

"In recent years it has been shown by different workers in our Cambridge laboratory that any drug which has the power of considerably raising blood pressure will, when injected into the circulation of healthy animals, bring about degeneration of the middle coats of the arteries [arteriosclerosis]. Generally about six injections must be administered before any changes are observed, and the effects occur alike in young and middle-aged animals. It has been shown that digitalis, squill, apocynum, barium, lead, adrenalin, nicotin, and even the inhalation of tobacco smoke, will bring about these changes."

Doubtless much of the arteriosclerosis is of alimentary origin, and due to poisons generated from the food; but we should not forget that any substance that has the property of markedly increasing blood pressure has a damaging and perhaps disastrous effect on the blood-vessels. He does not mention caffein, but it is a noteworthy fact that caffein has a marked effect in raising blood pressure.

A Prayer for Efficiency

O GOD, as to an earthly father, we each bring thee our yearning confession of failure to realize to the full the powers thou hast given us as laborers in thy kingdom on earth. May we learn through this, our mutual prayer, to be charitable to one another's shortcoming. Teach us, by love if it may be, by bitter rebellion if it must be, that our prayer may be answered only as we are firm to lend a hand in mutual aid and sympathy to the less fortunate. Let each in strength supply his neighbor's weakness, and build up in him the efficiency which is his birthright.

Thus, in humility of heart, we pray for justice to our overstrained and blighted brothers who never catch up, who grind their lives into sieves of despair and deficit, each grist the harder because there is less of life to spare. Think upon the handicapped in body and in soul, for whose backwardness we are jointly responsible through our inefficiency. May we give them health and leisure and knowledge and, therefore, joy and inspiration so that, restored to themselves, they may in free good will repay a hundredfold, in deeds of brotherly gratitude and justice to others, for thy sake.

And chiefly we pray for those in whom we have put our trust; that their strength may be equal to the temptations of the power we have given them from thee. May they realize that not their own gain, but social justice, must measure the efficiency of their efforts. Bring home to their minds and hearts the far-reaching power, for evil and for good, of industry and government, of church and press; let them remember vividly the remote effects of indifference and negligence in the web of modern life.

May the getters of gold give justice to its producers; may its earners have charity toward its spenders; may the givers of gold be gifted with wisdom and courage; and may all social workers feel the weight of an especial responsibility; that the surplus wealth of which they are guardians may be husbanded for its true purposes and not be betrayed, nor delayed, nor wasted in their hands; that thou mayest have gratitude in turn toward all, for thy children's sake. Thus may thy kingdom grow on earth into fuller and more abundant life for each and all. Amen.—*The Survey.*

THE MEDICAL MISSIONARY AT WORK

A NURSE'S EXPERIENCE IN URUGUAY

Frances Brockman

I HAVE had some splendid experiences in my work here. Now and then, when discouragement over what seems wasted effort presses hard, something takes place to cheer and comfort and start me on my way rejoicing again.

The other day I called on a woman who a year and a half ago was a patient in the British hospital, where she was to be operated upon. At that time I was the general night nurse. After I had attended every one else, I went to cheer her up, as she was very nervous and fearful. My command of the Spanish was limited, and beyond ordinary conversation I feared to go; but almost before I knew it I had asked her if she would like me to pray. She was delighted, and I knelt and in very broken Spanish asked God's blessing upon her, to give skill to the surgeon, etc. (She was French-Swiss.) A few days later I gave her a religious paper. I visited her occasionally, and mailed her more papers. I procured her subscription for the health journal.

SOUTH AMERICAN MISSIONARIES

Last week I again called on her, taking with me a copy of the same paper. "O," she said, "it is you who have been sending me this! I want to subscribe." She then told how she had wondered who had sent the paper, and if some one would come to collect at the end of the year, and only a few days before my visit had remembered that I gave her one of the papers at the hospital. We had a talk of over two hours. She told how she had wanted her husband to read the paper, but he had said, "O, that's only for women!" But as she always retires early, leaving the paper in a conspicuous place, he reads it through each time before laying it down. So perhaps the little seeds scattered in the past will sometime bear fruit. The text, "My word . . . that goeth forth out of my mouth; it shall not return unto me void, but it shall accomplish

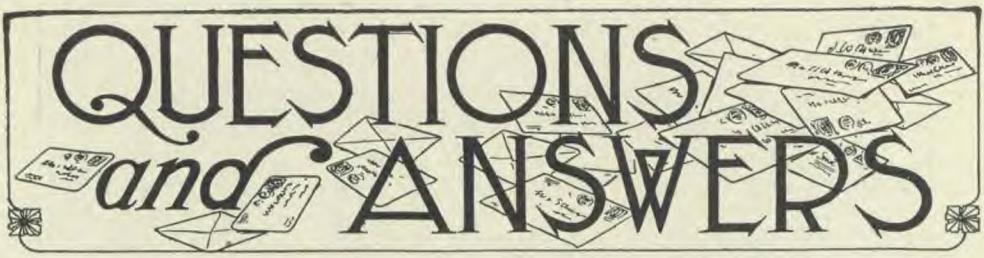
MISSIONARY CONFERENCE IN SOUTH AMERICA

that which I please," often comes to me with special meaning and cheer.

Another woman whom I had met and who had bought several papers, said she could not continue to take them for financial reasons; so I either took or sent her papers occasionally. But for some reason for more than five months I had not even thought of her, when one day while walking home through that part of town from attending a patient, the question flashed through my mind, " Why don't you call at 158 Vasquez? " I did so, and she was delighted to see me. After one and one-half hours spent in talking of different religious topics, and in prayer, I left, having made arrangements for Bible readings. I gave her two, but was then called away for several weeks. When I returned she had begun work in town, rising early, and coming home worn out at 8:30 P. M. So I have been working in another way.

One woman is reading " Patriarcas y Profetas." But that which fills our hearts with joy unspeakable is that the first-fruit of Montevideo was baptized two weeks ago,— none other than our little protégé, the girl we sent up to the sanitarium to take the nurses' course. She has two sisters for whom we have an interest, but their surroundings are not favorable. One must stay at home and care for the invalid mother, as the father and brother drink, and beat her and her mother at times most shamefully. The other must work; she is governess in an English family, where wines flow freely.

A NATIVE VILLAGE



THE editor can not treat patients by mail. Those who are seriously ill need the services of a physician to make a personal examination and watch the progress of the case. But he will, in reply to questions sent in by subscribers, give promptly by mail brief general directions or state healthful principles on the following conditions: —

1. That questions are *written on a separate sheet* addressed to the editor, and not mixed in with business matters.

2. That they are *legible and to the point.*

3. That the request is *accompanied by return postage.*

In sending in questions, please state that you are a subscriber, or a regular purchaser from one of our agents; or if you are not, accompany your queries with the price of a subscription to LIFE AND HEALTH. This service is not extended to those who are not regular readers.

Such questions as are of general interest will, after being answered by mail, also be answered in this department.

Coffee Substitute.—"In your May issue I find a discussion on substitutes for coffee. A very acceptable substitute is roasted rye. I like this better than barley or the cereal coffees put up under various names and brands. I also like the 'real' coffee, but I find I am not making any sacrifice when I drink the rye coffee. It cannot be brewed as quickly as the regular bran coffee, but it has an added advantage in that it can be warmed over again and again, with probably a little water added and maybe a little more grounds, and it tastes even better than a fresh brew. When making a fresh lot it must boil about half an hour before it gets the rich, mellow taste which one comes to appreciate after a little; and when mother cleans out the can (which sometimes is not oftener than twice a week), she puts in the fresh coffee and water and sets it on the stove in the afternoon to simmer until done. Then she simply has to heat it in the morning, and it is a fine drink."

This suggestion is well worth trying by those who desire some hot drink at meals.

Vegetable Gelatin.—"Kindly inform me whether I can obtain gelatin that is not from an animal source, suitable for use in cooking, and how it is used."

The Japanese seaweed known as agar-agar, or agar, is now quite commonly used as a vegetable substitute for animal gelatin in cooking. The following directions are furnished by Mr. C. E. Garnsey, of Loma Linda, Cal.: —

"Put one ounce of agar-agar to soak in warm water for one hour. Drain well and put into a kettle, to which add one quart of boiling water. Let it boil about ten minutes — after boiling begins — or until clear, then strain through cheese-cloth, and it is ready for use. One ounce will solidify three quarts of liquid, inclusive of the water in which the gelatin is cooked."

Salvarsan.—"I should like your advice about the new German remedy "606," known also as Salvarsan. I have a dear friend who has syphilis."

Salvarsan, when administered properly, is of distinct value in this disease. At first it was supposed to be an absolute cure, but this is now known to be a mistake. I think, however, it is safe to say that it is the best remedy that we have, but it should be used intelligently, and not to the exclusion of other remedies. More or less skill is required in the administration of this remedy, and the success depends, to some extent, on the man that gives the treatment.

Well-Water.—"To drink ordinary well-water seems to affect my appetite. Would boiled water be a help, or the use of the enema for supplying the body with water without drinking?"

There must be some reason why you have trouble from drinking water. It is possible you have what is known as dilated stomach. If so, after drinking a glass of water you ought to be able to hear a splashing sound by pressing suddenly on your abdomen just below the umbilicus. This condition, if present, should have careful attention by a physician.

You say that drinking water seems to affect your appetite; I suppose by that you mean it takes away your appetite. It may be possible that there is some constituent in the particular water that you have that affects you that way. It may be that boiling the water would help. You might try it, or try some other water.

I do not think you would long care to practise the plan of supplying your bodily need of water by means of the enema.

St. Vitus's Dance.—"Please suggest treatment for St. Vitus's dance. My daughter, aged ten, has suddenly become afflicted with

this disease. It affects her upper and lower limbs and also her speech. The doctors here prescribe arsenic."

The child should not be exposed to mental stress. I should not keep her in school, and I should be careful not to say anything to her about her trouble. The more she thinks about it, the more it brings the trouble on. Be careful about criticizing or trying to discipline her. In every way possible give her mind complete rest.

For hydrotherapy, give a hot pack say two or three times a week. This may give temporary or even permanent relief.

Regarding the use of drugs, arsenic is the remedy which seems to have given more general satisfaction in this disease than any other remedy.

Intestinal Trouble.—"I have not been well for about three months. Have a soreness in my bowels the greater part of the time, and am bloated some; am quite weak and very nervous; have some heart trouble. I am able to be up a good part of the time. My tongue is furred, with the prints of my teeth around the edge; have a very good appetite, but do not eat much solid food. The physician here says it is intestinal indigestion, and that I may eat almost anything that agrees with me. My stomach never hurts, and I seldom have a headache. I want your opinion as to what diet would be best. Is my trouble anything serious?"

It will be much safer for you to place yourself in the hands of some good, conscientious physician who can give you a careful examination. It is impossible to do justice to a person by reading a description of a few symptoms. I could not tell whether your condition is really serious, whether you require an operation, or whether it is something that might be remedied by means of diet.

It is possible that by adopting the two-meal system, and perhaps preceding it by fasting for a day or so, you may bring about a different condition. Further than this I cannot say. I do not know what you are now doing, nor what foods would be most likely to agree with you.

Peanut Skins.—"Is there any harm in eating the inner skin of the peanut?"

A plant apparently excretes part of its waste, the same as an animal. At any rate, many plants, especially those rich in nitrogen, such as the pulses, have something analogous to uric acid in the skin. It is always better to remove the skins of peanuts, beans, etc., before cooking, or at least before eating.

Grape Seeds and Skins.—"Before swallowing grapes is it best to remove the skins and seeds from them?"

There are very good arguments in favor of removing both skins and seeds from grapes before swallowing. The skins always harbor bacteria, some of which may be very harmful, and many of which will at least increase the decomposition in the intestines. Both skins and seeds may be decidedly detrimental to the inflamed, or irritated, or delicate intestinal canal. The ideal way to eat such Eastern grapes as the Concord, is to boil them in water, press out the juice, sweeten to taste, and sip slowly, when cool, after the manner of Fletcher. More enjoyment is obtained out of the same amount of grapes, and besides, a greater proportion is apt to be assimilated without paying toll to the germs.

Thyroid Extract for Bed-Wetting.—"I read that one-half-grain doses of thyroid extract are given to children for bed-wetting. How should it be given, and how many doses a day?"

Thyroid extract is better administered under the care of a physician, as it may produce conditions which would be as bad as the one you are attempting to treat, that is, in case the bed-wetting is not due to a deficiency of thyroid. Thyroid extract is a sovereign remedy in case of deficient thyroid activity, but there is a possibility that the trouble may in this case be due to something else. I should not advise a mother to administer thyroid extract except under the direction of a physician.

Cooking Oil and Pellagra.—"Some prominent physicians here believe that cottonseed-oil causes pellagra. What do you say?"

I have no faith in the belief that cottonseed-oil is the cause of pellagra. The scientific physicians here in Washington, who are making a careful study of the matter, do not think it is; in fact, they are quite pronounced in their opinion that it is not. They do believe that diet, especially an excess of carbohydrates, predisposes to the disease.

It is possible that corn, especially spoiled corn, and perhaps cottonseed-oil, might, if it injures the digestion, form a favorable soil for the implanting of the disease.

I feel quite confident that it will be proved definitely, although we cannot say it is so now, that the disease is parasitic in nature, that some form of low animal life or vegetable life, parasitic to the human body, gets a foothold and by its growth causes the disease. Investigators are becoming more and more convinced that this is the true solution of the question. But although parasitic, we must remember that there may be conditions, such as diet, which favor the implantation of the disease.

Cottonseed-oil is used more largely in the North than in the South. In large regions of the South where hog lard is used almost exclusively, and no cottonseed-oil, there is more pellagra than in the Northern districts where more cottonseed-oil is used. The fact that the disease attacks not only the poor, but also the wealthy sometimes, would indicate that nutrition is not the whole solution of the problem.

Peanut-Oil and Nutrition.—"Please state what you think of gaining flesh by the use of peanut-oil, which is said to be extremely fattening. The usual dose is two tablespoonfuls after meals and two more at bedtime. This quantity of oil has been known to cause a weekly gain of four pounds of firm, healthy flesh.

"I am on a milk diet, using two quarts of milk and one-half pint of cream daily — no solid foods in connection. Would it be all right to use some of the peanut-oil in connection with the milk? and about how much? Is the peanut-oil constipating?"

I had not heard of the use of peanut-oil for fattening. I do not know of any objection to it. I know olive-oil to be very fattening, in fact I once gained ten pounds on one bottle of oil, and there were others using out of the same bottle, which shows that it was not the oil itself (because I did not use much more than a pound of oil), but the effect of the oil on my nutrition.

Regarding your last question, I do not know what you are on a diet for, and if it is at the direction of some other physician, it would be better to follow his directions, and not work under the instruction of two at the same time. Too many cooks spoil the broth. I do not know any reason why the oil should be objectionable with the milk diet, but not knowing all the facts in the case, I do not feel competent to give a definite opinion. I have had no personal experience with peanut-oil, and do not know whether it is constipating. My opinion is that most of these oils are laxative.

Prolapsed Abdominal Organs.—"What can be done for a prolapsed condition of the lower bowel, with inactivity of the muscles?"

A properly fitted abdominal supporter or corset made for this purpose, will do as much to relieve the condition as anything.

There are a number of exercises for developing the abdominal muscles, such as lying on the back and raising the limbs straight up in the air, lowering them again, and continuing this until tired. There are various modifications of this movement. Walking on all fours around the room is also an exercise which strongly develops the abdominal muscles. Gardening, or any occupation requiring frequent bending at the hips till the hands can reach the ground, is excellent. However, in most cases it will take a very long time for exercise alone to accomplish much, and an abdominal supporter will probably be your mainstay. Unless this supporter is properly fitted, it will do you no good.

Dandruff.—"Please tell me a cure for dandruff."

Dandruff is not one condition that will uniformly yield to the same remedy. Usually, it is probably an infection of the scalp by a germ, though it must be remembered that the skin of the entire body continually sheds, and that the scales, being held by the hair, may cause unnecessary fear by a scrupulous individual Every scalp ought to shed some scales, and doubtless some normally shed faster than others.

Where the dandruff is pathological, that is, where it is caused by some germ, it ought to be treated, as doubtless it is the precursor of baldness. I should suggest the following: —

Shampoo the head once or twice a week, drying the hair as thoroughly as possible by means of a towel. Once or twice a day rub the following preparation, which is a germicide, into the scalp: —

Resorcin	gr. 60
Ether	fl. dr. 1
Olive-oil	fl. dr. 1
Alcohol	fl. oz. 6

Shake well, and apply by means of a small brush between the locks of hair. It is the skin, not the hair, that is to be treated. Follow this with a thorough rubbing with the fingers.

Pimples.—"Is there any external remedy that will help pimples on the face? Are they caused from eating rich foods or meats or from some blood disorder? If there is any diet that you think would benefit, kindly explain it to me, or some remedy that you think would cure this trouble."

Acne, or pimples, is quite common during adolescence, and is about as apt to afflict those who are full-blooded as those who are weak. In some cases, the pimples seem to persist almost in spite of all treatment, until finally they leave of their own accord. I should advise the use of good soap, and if there are blackheads, perhaps the use of a watch-key for pressing out the contents. Where there is an excess of fat in the skin, the surface may be gone over with a cloth moistened with ether, before washing, rubbing briskly enough to remove the fat. (Do not use ether around an open flame). Often one can greatly diminish the tendency to pimples by avoiding the use of butter and other fatty foods. In some cases, dieting does not seem to have much effect.

Syphilis, which is what I suppose you refer to by the expression "blood disorder," has a "papular stage," that is, a stage characterized by an eruption of pimples. Needless to say, this form of pimples cannot be remedied by face washes or diet, nor can it be remedied by advertising quacks. If one suspects that he may have anything of this kind, he would better go straight to his family physician, tell him the whole story, and get his honest advice. Syphilis may mean not only the ruination of one life, but of a whole family, including innocent children. One may be sure that the family physician will keep all secrets, whereas the first thing an advertising quack does is to *sell* the letters he receives to other concerns, so that others may "work" the same "sucker."

New Thrills in Old China, by Charlotte E. Hawes. Net, $1.25. George H. Doran Company, publishers, New York.

This is a strong story of trials and sacrifice, of perils and missionary faith, of the wrath of the dragon and the victory of Christ, the scene being laid in the celestial kingdom.

During the most thrilling portion of China's history, Miss Hawes has been working earnestly for her Master. She tells how, during her lifetime, a new generation of Chinese, under Christian influence, has given up paganism for freedom and enlightenment.

The book gives a very intimate account of the Boxer rebellion and some of its sad incidents, and of the triumph of the republic. We give herewith one incident connected with the pioneer work of the Christian missionaries in China: —

"One day his [Dr. Corbett's] heathen neighbors gathered around his house with lighted torches, preparing to set fire to the dry thatched roof. Dr. Corbett, hearing of the trouble, entered the house and knelt down, offering a prayer for God to protect this family of believers. Instantly a heavy shower of rain fell and soaked the roof, and the heathen were so struck by the speedy answer to prayer that they left the place and never bothered them again."

The following custom, formerly very common, indicates how much the Chinese were in need of the gospel of Christ: —

"The heathen believe that when a child dies, if its body is not given at once to the dogs, the dog being the nearest relation to the wolf, the real wolf will come and take another child. Hence the awful custom keeps up in China, and it is a common sight; but Christianity is helping the children more and more every year to leave the 'children's god,' and come to the Christ-child."

Lotus Buds, by Amy Wilson-Carmichael. Net, $2. George H. Doran Company, publishers, New York.

With such unfeigned modesty the author writes her preface that if it were not for the very charm of the language, one might be led to expect a very commonplace account.

One finds, however, a very plain and yet chaste and delicate life-picture of some of the appalling conditions that, in the name of pagan religion, are permitted in India. Life histories of rescued girls are given, describing the terrible ordeals through which Oriental children often have to pass in the name of religion, and showing the contrast that has come into the lives of these little ones through Christianity.

The author is evidently characterized by a deep affection as well as strong religious conviction, and the story she has told, embellished as it is by unusually excellent photographic reproductions of India's scenes, makes this a valuable addition to the literature of Christian missions.

The Great Acceptance, the Life History of F. N. Charrington, by Guy Thorne. Net, $1. George H. Doran Company, publishers, New York.

Rarely will a young man refuse a fortune of six million dollars because he cannot approve of the business that made the fortune.

When young Charrington came to age, he realized that the beer that was the output of his father's establishment was making sots and paupers, and, to the disappointment and grief of that father, he refused to accept the property. Giving up a princely future and apparently every prospect of advancement, he devoted himself to the amelioration of the condition of the poor in the East End.

Beginning in a modest way with a few boys in a hay-loft, he later became a national figure whose great work was the uplift of the East End of London.

Mr. Charrington's work brought titled men and women to the East End — the London slums; they came to satisfy curiosity. Numbers of them, spurred on by his illustrious example, stayed to do good work.

It is a book of achievement, a worthy book for a young man or young woman to read who desires to learn that the days of magnificent service in the Master's work are not past,— nor are the opportunities for further work.

Making the Farm Pay, by C. C. Bowsfield. Net, $1. Forbes & Co., Chicago.

This book tells how to get the biggest returns from the soil, and make farm life more attractive and successful.

Farming opportunities, the marketing of produce, the raising of vegetables, fruit, and poultry, dairy products, and all phases of agriculture are discussed by an expert.

It is one of the most helpful farm books ever published.

A Table for Two, by Eldene Davis. Net, $1; post-paid, $1.15. Forbes & Company, Chicago.

This is a book of good things to eat, with the recipes given in quantity for two persons. It contains hundreds of recipes not found in other cook-books. However, the expression "good things to eat" is in the gustatory and not in the hygienic sense. One must look quite carefully through the book in order to find recipes that would meet the standard which places simplicity and healthfulness before the pleasures of the table.

Society to Control Cancer.— An organization has recently been perfected in New York City for the purpose of combating the increase of malignant disease in the United States. The name selected for the new association is "The American Society for the Control of Cancer."

Pellagra in South Carolina.— More than four hundred cases of pellagra were found in one county in South Carolina, principally among cotton-mill workers. It is planned to erect a hospital at Spartanburg, in that State, for the treatment of sufferers from this disease.

Diphtheria and Croup.— These are not strictly children's diseases, though they are confined largely to the young. The death-rate for these diseases in the registration area of the United States during 1911 was 18.9 per 100,000 population, or nearly twice as much as either measles, scarlet fever, or whooping-cough.

Mothers' Pension Laws.— We are told that fourteen States now grant pensions to widowed and needy mothers, on the principle that it is better for the children and for the State if the children are reared by their own mothers than if they are brought up in an institution for orphans. Six of these States which pension mothers, have given suffrage to women.

Cancer Still a Menace.— In 1911 malignant growths caused 44,024 deaths in the United States registration area. While this was a slightly lower rate than for 1910, it is higher than any previous year for which there are records. Cancer is one of the diseases of which we do not know the cause, and for which we have no efficient cure, though removal by surgery in the early stages is often efficient.

Tuberculosis From Brushing Clothes.— An interesting series of experiments has been performed in France, showing that dried sputum may not be so innocent as we have of late been led to suppose. Clothes soiled with dried tuberculosis sputum were brushed in such a way that guinea-pigs inhaled the dust. Clothes having sputum from two to four days' old infected all guinea-pigs, but in proportion to the length of time over four days the infectiousness diminished, though one pig was infected from sputum dust that had been drying on the cloth for sixteen days.

Infant Death-Rate.— There has been a marked decrease in the infant death-rate in recent years. All the registration States and most of the registration cities show a marked decrease. There is in the case of a few cities an increase in the number of infant deaths per 1,000 population under one year, in 1911 over 1900, but this is probably due to some local epidemic. The cities that show an increase are Minneapolis, St. Paul, Syracuse, and Portland (Oregon). Doubtless the decrease in the infant death-rate is largely due to the campaign for better milk, and the education of the mothers regarding the importance of safeguarding infant life by nursing and by the use of clean milk, or at least of Pasteurized milk.

Alcohol in the Austro-Hungarian Army.— Experience has shown that whenever a period of endurance was required of the soldiers, those who took no alcohol were much more fit for work than the other men; and in mountain climbing the consumption of alcoholic beverages was distinctly detrimental to accuracy of stepping. Such experiences obtained by the army officers, we are informed, will no doubt lead to the complete elimination of alcohol, as "war rations" unless, perhaps, where it may seem to be needed medicinally. It has also been noted that total abstainers form a negligible fraction of the soldiers who have been disciplined for disorderly conduct, although total abstinence is frequent now among the rank and file of the army.

Low Death-Rate.— The total number of deaths returned for the registration area of the United States for the year 1911 was 839,284. The estimated mid-year population of this area was 59,275,977, or 63.1% of the total population of the United States, and the death-rate for the year was 14.2 per 1,000. This is the lowest death-rate ever recorded for the registration area. The preceding death-rates, beginning with the year 1900, are: 17.6 16.5, 15.9, 16.0, 16.5, 16.0, 15.7, 16.0, 14.8, 14.4, 15.0. The average for the five-year period from 1901 to 1905 was 15.9, and for the five-year period from 1906 to 1910 was 15.0. But we have not much to boast of yet, for Australia, since 1891, has had a lower death-rate than our lowest, and at the present time it is 10.4. Other countries with a low death-rate are: New Zealand, 9.7; Great Britain, 13.5; Denmark, 12.9; Norway, 13.5; Ontario, 14; and Sweden, 14.

Tuberculosis Deaths.— The total number of tuberculosis deaths in the registration area (less than two thirds of the population of the United States) was 94,205, or 158.9 per 100,000. This is slightly lower than for the five-year period 1906-10, though the rate for the last three years has been practically at a standstill. All that is now being done to conquer the disease, all our increased knowledge, has not in the last three years served to make any material reduction in the tuberculosis death-rate.

Health Pledge by Schoolboys.— The schoolboys of New York City were asked to sign a pledge, to remain in force until June 6, that they would abstain from the use of cheap candy, unwholesome pies, greasy pastry, and soda-water flavored with highly colored sirups. This was in accordance with a request of the public-school athletic league, the consideration being given that those who make and keep the pledge would be more likely to excel in the athletic events. But why were cigarettes not included in the pledge? Was it thought that cigarettes are so universally used, and that the boys are so enslaved by them, that no pledge regarding their use would be effective? It certainly was not because cigarettes are harmless or uninjurious to boys expecting to engage in athletic events, and it certainly was not because the boys of New York City are not using cigarettes.

Nutritive Value of Pasteurized Milk.— In order to settle the controversy as to whether Pasteurization injures the nutritive quality of milk, the United States Public Health Service, in connection with the Bureau of Animal Industry, has decided to conduct a series of experiments and observations extending over a number of months, thus determining the effects of Pasteurization on milk, and also the relative nutritive value of raw and Pasteurized milk for invalids and infants.

The British Insurance Act Unpopular.— Lloyd George's pet, the Insurance Act, has been a bitter pill to the physicians, who consider it practically destructive of their profession. In fact, as our readers know, the British Medical Association attempted to "balk," that is, they refused to "work" the act; but the government found sufficient physicians to carry the provisions of the act into effect, and so the act has been in operation. But it has proved not only unsatisfactory to the physicians, but also to the friendly societies. Moreover, there are many entitled to the benefit of free treatment under the act who nevertheless prefer to go to a physician of their own choice, who, perhaps, has not accepted service under the act, and they must lose the price of the treatment; and there are other abuses under the act which need adjustment. And now it seems inevitable that it will be amended so as to relieve it of its worst features.

Waiters Must Be Healthy.— The Pennsylvania Railroad has made an important rule regarding its dining-room and restaurant employees. Hereafter there will be a quarterly physical examination of every employee having anything to do with the handling of food, including the dish-washers, kitchen helpers, cooks, and waiters, and only one hundred per cent report on their physical condition will continue them in the service. Those suffering from tuberculosis, diseases of the eye, skin, and other communicable diseases will not only be debarred from employment in connection with the handling of foods, but also in places where linen and tableware are kept. This is a most exemplary provision, and shows a determination on the part of this great railway system to look after the health of its patrons.

Discussions at School Hygiene Congress. — Special discussions have been arranged for the International School Hygiene Congress (Buffalo, August 25-30), by committees or associations which specialize in the respective subjects. The following have been provided for: School feeding; oral hygiene; sex hygiene; conservation of vision in schoolchildren; health supervision of university students; school illumination; relation between physical education and school hygiene; tuberculosis among schoolchildren; physical education and college hygiene; the Binet-Simon test; the mentally defective child. The congress is open to all persons interested in school hygiene, upon the payment of a fee of five dollars. Application for membership should be sent to Dr. Thomas A. Storey, College of the City of New York, New York City.

How a drinking cup may be made out of any square piece of paper.

Cut this out, fold it according to directions, and then have some paper (preferably manila) cut up in 8-inch squares, and you need never be without a drinking-cup, for you will know how to fold your own cup.

Stork Is Active Here.— A quintet of infants was born to Mr. and Mrs. Stiles Tinney, who live about five miles from Conklingville, N. Y. The five are well and expected to live. Besides the five just born, Mrs. Tinney has given birth to three pairs of twins, and twice to triplets. They all are living. There surely is no race suicide here.

Increase in Opium and Morphin Addiction.— Since 1860 there has been in the United States, an increase of 351 per cent in the importation and consumption of opium in all its forms, as against an increase of 133 per cent in population. This means nearly doubling our per capita consumption of these drugs, or an increase of 93 per cent per capita.

Storage of Eggs.— The Annual Report of the Board of Health of New Jersey, for 1911, gives the results of some experimental work on eggs of known history which serve to indicate that eggs laid under clean conditions and stored in cases in a warehouse in such a manner as to be protected from dirt and excessive moisture can be kept for as long as ten months without showing appreciable evidence of decomposition.

Increase in the Use of Cocain.— Notwithstanding the laws forbidding the indiscriminate sale of this drug, its use is so rapidly increasing that it now amounts to more than 150,000 ounces a year, more than 400 ounces a day. The alarming increase in the use of habit-forming drugs, despite the State laws, which seem wholly inadequate to cope with the situation, has led some to think the matter must be controlled by federal law.

Common Hair-Brush.— The London *Lancet* calls attention to another "common" article which may be the transmitter of scalp disease, dandruff, and baldness. As is now known, these scalp affections are microbic organisms, and doubtless are transmitted by the use of hair-brushes, combs, and the like in hotels. There are other things that may be transmitted by combs, but they can be remedied. To remedy a diseased scalp is not so easy.

Pellagra.— There was a large increase in the number of pellagra deaths in the registration area in 1911 over the previous year. Every year the mortality increases. In 1902 there were only two deaths reported, and in 1903 two deaths, and one in 1904. In 1908 there were 23 deaths, all in Southern cities. In 1909 there were 116 deaths, in 1910 there were 368 deaths, and in 1911 there were 659 deaths. So the reported deaths from pellagra are gradually but steadily increasing. This may be due in part to the fact that at first pellagra may not have been recognized, and the death attributed to something else; but taking this into consideration, there is no doubt that the disease is on the increase, and the worst of it is, we do not know what causes it, nor what to do for it. It should also be noted that these figures represent only a small part of the pellagra, for the worst-infected pellagra States are not in the registration area.

Are Fats Needed?— In the *Journal of Biological Chemistry*, July, 1912, is reported a study by Osborne, Mendel, and Ferry on the effect of a fat-free diet on growing white rats. The rats showed a normal rate of growth during almost the entire period during which growth ordinarily continues. Their conclusion is that fats in the food are not absolutely necessary to growth and nutrition.

Nutrition on Isolated Proteins.— The *Journal of Biological Chemistry* (November, 1912) discusses the problem of nutrition of animals on isolated proteins. A large number of laboratory animals have been successfully nourished for long periods, and in many cases for periods amounting to practically the entire adult life of the animal, on single isolated proteins, such as casein, edestin, or gliadin.

Why Bread Becomes Stale.— Recent investigation indicates that bread grows stale as the result of a bacterial process. When bread is stored at a temperature of 50° to 90° C. (122° to 194° F.), it remains fresh indefinitely provided bacterial processes are prevented. When stored at temperatures between freezing and 20° C. (68° F.) it becomes stale. At a very low temperature it remains fresh. The changes in the bread in becoming stale seem to be in the starch, not in the protein. The softening of the crust is due to the absorption of water.

Urges Pellagra Inquiry.— Assistant Surgeon R. M. Grimm, of the United States Public Health Service, in a report on the results of an investigation of several months in the Southern States, urges a sweeping inquiry to unravel this puzzling disease. Dr. Grimm found more cases among whites than among colored, and women of both races seemed to be more susceptible than men. The death-rate was highest among Negroes. More cases, he said, occurred under conditions of poverty, and the rural districts seemed less affected than the small towns and villages. The surgeon declares that possibly some insect plays a part in the dissemination of the disease.

Tobacco Versus the Boy.— Judge Samuel L. Black, of the juvenile court, at a hearing in the Ohio Senate Chamber, said, among other things: "During four years' experience looking after the so-called 'bad boy,' I am impressed with the fact that there is one thing making and contributing more to the bad boy in the cities of Ohio than all other things combined, and that is the cigarette. . . . I believe that I am warranted in the statement that cigarettes are making more of the criminals in the State of Ohio than is the saloon. . . . I have no doubt that as between alcohol and cocain, there is no comparison in results upon the human mind. The same comparison I believe is true, surely so far as my own experience is concerned, in the parallel between whisky and the cigarette; the one can be cured, the other seldom is. Cigarette smoking actually destroys the brain tissue of the growing boy." These are strong words from a man in a position to observe the effects of the cigarette upon a large number of boys, and his words are well worth pondering.

Factory Versus School.— The latest school reports for fifty-three districts in North Carolina, with nearly thirteen thousand children of school age, show that in mill towns only one half of the children enroll in school. In country districts three fourths enroll. North Carolina has this year passed a law compelling attendance at school of all children under twelve.

Typhoid Deaths.— There were 12,451 deaths from typhoid fever in the registration area of the United States in 1911, or 21 per 100,000 population. This is the lowest since the institution of the annual reports, and probably the lowest on record. In the five-year period, 1901-05, the rate was 32 per 100,000. The steady decrease since that time shows that a campaign against the pollution of milk and drinking-water is worth the while. It means a saving of life equal to more than four "Titanic" disasters every year from typhoid alone. But there are represented in the 21,451 typhoid deaths, about eight "Titanics" a year yet,— one every six weeks,— and yet we single out that ocean tragedy as appalling.

Tonsillectomy and Deformed Throats.— Dr. Byron DeForest Sheedy, of New York, reported at the Minneapolis meeting of the American Medical Association in June, that of one hundred cases of removal of the tonsils investigated by him, eighty per cent had deformed throats afterward, thirty-four complained of speech defects of from one to three weeks' duration, sixteen for more than three months, and four had practically lost the ability to sing. Inability to pronounce certain words in five cases continued for at least six months after the operation. He proposes what he calls the eversion method, asserting that the capsule of the tonsil is really a bag that can be reversed as we do a sock, and when it is thus everted it can be removed by means of a snare without injury.

International School Hygiene Congress. — The Fourth International Congress on School Hygiene, the first to be held in America, which is to meet in Buffalo, August 25-30, will be by far the most elaborate effort yet made in this country toward getting the problem of school hygiene before the world. Among the objects of the Buffalo congress are, (1) To bring together men and women interested in the health of schoolchildren; (2) to organize a program of papers and discussions covering the field of school hygiene; (3) to assemble a school exhibit representing the best that is being done in school hygiene; (4) to secure a commercial exhibit of practical and educational value to school people; (5) to publish the proceedings of the congress and to distribute them to each member. The program committee announces a program of two hundred fifty papers and fifteen symposiums considering, (1) the hygiene of school buildings, grounds, and material up-keep; (2) the hygiene of school administration and schedule; (3) medical, hygienic, and sanitary supervision in schools.

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