COST OF LIVING NUMBER

LIFE & HEALTH

HOW TO LIVE

FEBRUARY, 1917 PRICE, 10 CENTS

St. Helena Sanitarium

Nestled among scenic foothills, on the sunny slopes of Howell Mountain, like some great white jewel, in a setting of wonderful landscape, is one of the most beautiful, and at the same time one of the most scientifically conducted, institutions in all California.

The ST. HELENA SANITARIUM is a refuge, a haven, a veritable Paradise for the sick, the invalid, and those who need rest and recuperation. Its hospitable doors are open to all who are sick, and everywhere is the environment of kindness and good cheer. The sanitarium is the retreat of the cultured and refined, affording the advantages of a thoroughly scientific institution, where Nature, the physicians, and the surgeons work hand in hand for the alleviation of human ills.

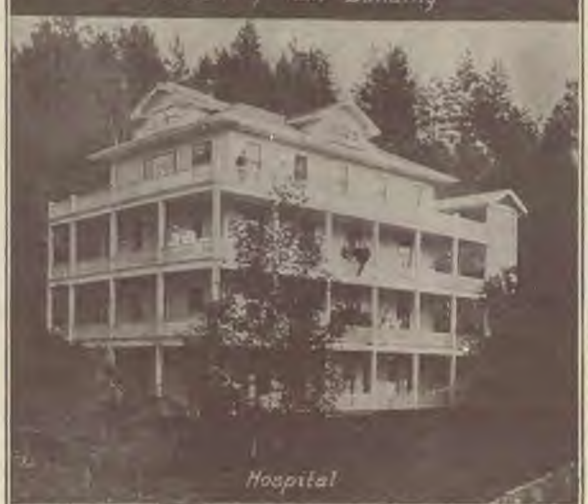
Located sixty-five miles north of San Francisco, in a little hamlet all its own, it is so peaceful, so placid, so serene, that it seems as if it were in a world apart. The main building and cottages wholly lack the depressing atmosphere of a hospital.

Apply for beautifully illustrated booklet "E."

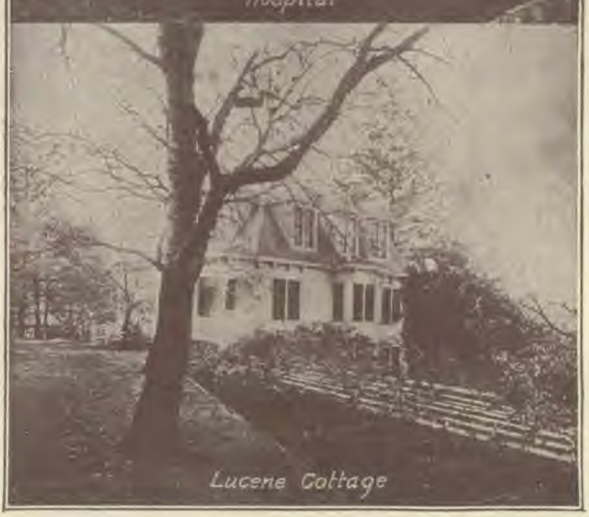
Address the

St. Helena Sanitarium
Napa County
Sanitarium, California

Portion of Main Building



Hospital



Lucene Cottage

LIFE AND HEALTH

February, 1917 *Vol. XXXII, No. 2*

H. W. MILLER, M. D., Editor L. A. HANSEN, Associate Editor
G. H. HEALD, M. D., Office Editor

CONTENTS

Entered as second-class matter June 24, 1904, at the post office at Washington, D. C., under the Act of Congress of March 3, 1879. Published monthly by Review and Herald Publishing Assn., Washington, D. C.

PRICES, POSTPAID

Yearly subscription	$1.00	**Six months**	$ 50
No subscription for less than six months		**Five years** (or 5 subscriptions 1 year)	3.00
Five or more copies, mailed by publishers to five addresses or to one address, postpaid, each			.05

NO EXTRA CHARGE ON FOREIGN SUBSCRIPTIONS

HOW TO REMIT.— Remittances should be made by Post-office Money Order (payable at Washington, D. C., post office), Express Order, or Draft on New York. **Cash should be sent in Registered Letter.**

DATE OF EXPIRATION.— Your address on the wrapper shows the date of expiration of your subscription. To avoid missing any numbers, please **renew early,** for we **stop** all subscriptions **promptly upon expiration.**

CHANGE OF ADDRESS.— When a change of address is desired, both the **old** and the **new address** must be given. The publishers should be notified six weeks in advance of the desired date of change.

SUBSCRIPTIONS GUARANTEED.— Our authorized agent will present signed **credentials** from our **agency nearest you,** also receipt for subscription money. If requested, he will also deliver the first copy to commence your subscription.

ADVERTISEMENTS GUARANTEED.— The reliability of every advertisement found in **Life and Health** is guaranteed.

YOU WILL NOT BE ASKED TO PAY for this magazine unless you have subscribed for it. Some friend may have subscribed for you. The receipt of a sample copy is merely an invitation to subscribe. So please do not refuse the magazine at your post office **for financial reasons.**

Courtesy of the Chalmers Company

THROUGH A SNOW BANK

EDITORIAL

EXTRAVAGANT LIVING

SELDOM in the history of nations have present economic conditions been paralleled. Some necessities have doubled in cost in a few days, and intervals of a few months have witnessed an increase of two or three hundred per cent in the price of certain commodities. Such an unsettled state of the market naturally leads to wild speculation. While apparently we are enjoying prosperous times, people find it more difficult to secure their accustomed food and clothing. Their diet is more stinted, and conditions call for self-denial.

However, an inquiry into the budget of the average family reveals the fact that much of the family income goes for luxuries unnecessary to comfort, health, or culture, and many of which are harmful. If we should eat to live, clothe for respectability and comfort, study for education and culture, this would still be a land of plenty, with a comfortable living within easy reach of all classes.

One should not feel that he is having a hard time, or making a sacrifice, in discarding the use of soda-fountain beverages, chocolates, and the like. The time, rest, and sleep given to theaters or similar attractions are often worse than lost. The poor, attempting to follow the health-destroying practices of the well-to-do, have too often been unable to pay the cost, or to provide the medical care necessary to recover from the effects of their indulgences, and have sunk into deeper poverty. The present crisis is plainly accentuated by what has been aptly termed the " cost of high living," and the solution is to be found in a return to the simple life.

High Living and Degeneracy

Feasting and extravagance result in physical, mental, and moral decadence. Feeble-mindedness and insanity are increasing at a startling rate. Hospitals, sanitariums, and sanatoriums are multiplying, in response to an increased demand; and the inmates of penal institutions number today a higher ratio to population than ever before. Applicable to our day are the words of Luke: " As it was in the days of Noe, so shall it be also in the days of the Son of man. They did eat, they drank, they married wives, they were given in marriage, until the day that Noe entered into the ark, and the flood came, and destroyed them all."

There is nothing necessarily wrong in eating, drinking, and marrying; but the people of Noah's time had given themselves over to excesses in respect to these things until every imagination of the thoughts of men's hearts was only evil continually. For like sins the cities of Sodom and Gomorrah were destroyed. Ezekiel says, " Behold, this was the iniquity of thy sister Sodom, pride, fulness of bread, and abundance of idleness was in her and in her daughters, neither did she strengthen the hand of the poor and needy."

Because of gluttony and feasting the great world empire of Babylon was brought to an end. During the feast of Belshazzar, when the king and his

princes were in a drunken revel, the Median army entered the city, slew the royal family, and took the kingdom.

The downfall of the Roman Empire at the zenith of its power, wealth, and luxury, should serve as a warning to any people or nation that would give themselves over to like indulgence. A nation is no stronger than its people; and having evidence of the physical, mental, and moral decadence of our race, and a knowledge of the displeasure of the God of the universe toward those ancient peoples and nations that gave themselves up to selfish indulgence, we may well take warning as to the way we are tending, lest history repeat itself.

Economy and Simple Living

The use of time should be as carefully guarded as the expenditure of money, for every moment represents an earning capacity. Again, the greater the degree of training, learning, and experience one has had, the more valuable is his time. The latter half of the life should be more valuable, year for year, than the first half of life. The first half of life is an investment. Parents, resources, and time are spent in the training of a child. This has been estimated as having, on the average, an economic value of $250 a year up to the high-school age, or a relative investment of $3,000.

12 years before high school	$ 3,000
4 years in high school	1,400
4 years in college	2,400
5 years of experience	5,000
Total	$11,800

This makes an investment of nearly twelve thousand dollars for every educated person. If such a man lives but five years after his preparation, his untimely death is a great loss. The longer he lives, the more he returns to his country for his investment, and the less there is lost. Today the average length of life is about forty years.

One of the greatest factors in the attainment of true economy in living is the study of how to prolong life. If the average length of life of the real economic contributors to humanity could be increased from forty to fifty years, the strength and efficiency of the race would be almost doubled. A knowledge of the principles of hygiene and sanitation is making possible such an increase in longevity. This magazine will give its readers in each issue valuable instruction on how to keep the faculties well developed, how to cultivate health and live to an old age.

Our cities are too crowded, and our rural districts too sparsely populated. We fail to develop our natural resources. Many today are harvesting from ten acres what others fail to get off of one hundred acres of the same kind of soil. Parts of the Orient support populations averaging five and six hundred per square mile, including their mountainous districts and swamps. From their land, which is no more fertile than the average American soil, they get one more crop a year and a greater yield at each harvest. Our output, while large, is, owing to lack of labor and resourceful development, altogether too small. With a careful conservation of the time and strength now worse than wasted, much more of our natural resources could be developed. A physical blessing would be experienced, a food crisis averted, less sickness would result, and a general promotion of education and culture would follow. H. W. M.

VITAL ECONOMICS

H. W. MILLER, M. D.

IF ever the saying is true, "The best is the cheapest," it certainly proves true when applied to the materials used in the human body. The materials placed in a house or a bridge are carefully scrutinized and thoroughly tested before being allowed to become a part of the structure; for experience has taught that the general appearance, safety, and durability of a building depend on the elimination of every weak spot. Certainly in planning for the nutrition of the body, through which all we are or expect to be is to be evolved, we should manifest no less interest to make it the most nearly perfect mechanism in our power. Just as truly as a board containing worm-eaten spots and knot-holes spoils the appearance and durability of a house, so truly will inferior food products mar and cause inefficiency.

It is a fact that the average man gives time and careful thought to the selection and proper quality of the coal best suited for the furnace in his dwelling, while at the same time he ignores the food combinations and their relative digestibility in providing the necessary warmth and energy for the demands placed upon the body. Nowhere else is there so much waste, extravagance, gross ignorance, and carelessness manifest as is shown in the providing of foods for daily consumption, and in their preparation and the time of eating.

The human machine is the worst treated of all machines, and exists, in spite of this gross neglect, only by reason of its wonderful adaptability and resourcefulness. There is no other time in life when human beings show such plumpness, such glow of health, such beauty of form, as in the days of infancy, when the strictest attention is paid to nutrition. The diet of the child, while very simple, is properly proportioned and measured, and is given at regular intervals. Nothing is permitted between these feedings. The suggestion of giving the baby a few cherries or a piece of banana would shock the mother; for although she does not know all the reasons why these articles are not good for her baby, she is confident that they cause disorder of the digestion, and she could not be induced to allow her child to eat them.

Fortunately, nature has not left wholly to the human family the choice of diet at the beginning of life, since she provides the nourishment herself, and thus the majority of babies have a fair start in nutrition; but how soon are irregularity and extravagance manifested, beginning not later than the second year of life. The child is permitted to eat at any time and almost anything; candy, ice cream, popcorn, cookies, and other indigestibles are eaten at any time. And how soon do the rosy cheeks fade, the restful sleep and peaceful disposition give way to peevishness, bad dreams, nervousness, temper, and insubordination! Not only are many tempting delicacies prepared for the children at an unnecessary expense, but the sickness which is sure to follow entails an added expense in medical service and in the time of the mother or nurse.

The question to be settled, then, is not the market value of foodstuffs today as the sole cause of the increased cost of living, but rather the tremendous waste in overeating, in the indulgence of perverted appetite, in the loss of energy in handling a long list of indigestibles, and also in the consequent sickness, with its attendant loss of time to the afflicted and to his attendants — considerations, the correction and elimination of which contribute most to the economy of a household.

That course in life must be regarded as most economical which gives the greatest food values for the least expense; which insures health, and not sickness; which eliminates poison and

unnecessary articles; which promotes long life, and gives the maximum of energy with the least waste; which promotes thoroughness in the cooking of foods, their ready digestibility, etc.

It would be impossible to do justice to the subject of the high cost of living without giving careful consideration to the diet best adapted for the nutrition of the human organism. There are today many articles eaten which are not in the true sense foods. The index of poisons in these foods is so high that while they contain some food value, yet the elimination of the poisons, by the too often already overworked organs, causes a great waste of energy. Among such articles might be mentioned spices, coffee, and especially flesh meats. Flesh meats as compared with cereals contain only about one third the amount of nutrition per pound; whereas digesting and assimilating meats, as a rule, require from one third to one half more body energy than does an equal amount of any cereal food.

Again: when it is understood that about nine pounds of feed are required to produce one pound of animal flesh,[1] another marked extravagance is seen. Thus in a country dependent upon its own products for existence, it is impossible to increase the human population, if flesh is eaten, to the extent that people living upon a nonflesh diet are now populating the Oriental countries. The Orientals have demonstrated that, even in a hill country, one square mile will furnish food for from five to six hundred persons subsisting on the products of the soil; whereas a much smaller number, about one fourth to one third, has been considered the maximum of population per square mile where animals are fattened from the soil, and afterward used as food.

Then we must not ignore the fact that a large number of diseases, such as Bright's disease, arterial hardening, rheumatism, gout, and many intestinal disorders, are the direct result of using a flesh diet. Disease and sickness must be counted as factors mitigating against economy.

A large number of people, especially those of sedentary habits, would get along much better on two meals a day than on three. From the examination of a large number of stomachs, we have found that it is an exceptional stomach that empties itself in four hours; and that in a certain per cent, especially among office employees and clerks, the stomach will not free itself of its contents within five or six hours. Just a few of these cases will be illustrated by actual photographs taken of the stomach with the X ray six hours after meals. (See next page.)

To crowd more food into an alre dy overworked and dilated stomach, is an unnecessary loss, as well as a clog to the process of digestion. Two good meals a day would mean either less work in their preparation, or more time for better cooking and a selection of the foods best adapted to digestion. It would also reduce the loss in time required going to and from meals; or in the case of a busy man, it would permit his taking a longer time for the proper mastication of food during the two meals.

Too much emphasis cannot be placed upon the proper selection and cooking of foods. The digestion of foods is in a marked manner affected by the length

[1] In order to show the cost of producing animal foods, a few figures are given from bulletins of the United States Department of Agriculture. Farmers' Bulletin 655 gives the results of a number of feeding experiments. For instance, to make 100 pounds of gain in weight the following amounts of feed were required: —

In one experiment, 179 pounds of cottonseed meal, 435 pounds of cottonseed hulls, 315 pounds of mixed hay,— a total of 929 pounds to make a gain of 100 pounds in weight.

In another experiment, 133 pounds of cottonseed meal, 65 pounds of corn-and-cob meal, 425 pounds of cottonseed hulls, and 310 pounds of mixed hay — a total of 933 pounds feed made a gain of 100 pounds in weight.

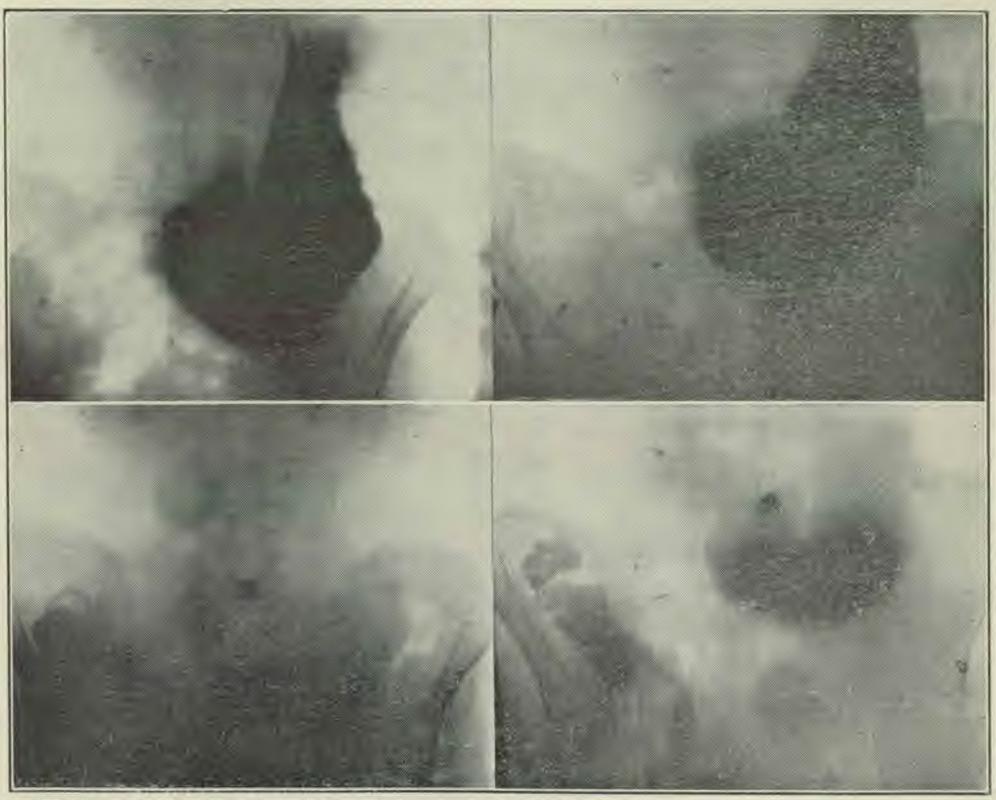
In another experiment, a total of 1,178 pounds of feed was required to make a gain of 100 pounds of meat; in another experiment, in which silage or green feed was used for part of the feeding, it took 2,265 pounds of feed to make a gain of 100 pounds in weight.

In an experiment with three-year-old calves (Farmers' Bulletin 724), a daily feed of 6 pounds of cottonseed meal, 60 pounds of silage, 6 pounds of bundled Kafir, or a total of 72 pounds, made a gain of 1¾ pounds.

It should be remembered that this "gain in weight" does not mean a gain of that amount in edible flesh, by any means. The bones, hide, and other inedible parts of the animal are also increasing in weight,— at least till the animal attains maturity.

of time they are cooked, and by the proper combinations of the food elements. A great deal of the cooking nowadays represents tremendous extravagance, in that the elements are so poorly combined that the food is unappetizing, and so little of the starch granules are broken up by the heat that the mess is indigestible. The most indigestible articles of food, such as pies, cakes, fancy buns, preserves, and confections, are often those on which cooks spend the larger portion of their time, and into which they put the most expensive ingredients. The desire for all such foods is, as a rule, the result of a poor or perverted appetite, which has either been benumbed by hot sauces and pepper or by crowded feeding, so that a natural appetite for the simple food products does not exist. As a rule, the more simply foods are prepared, granting a sufficient time between meals to develop an appetite, the more enjoyment there is in eating them.

Statements made by very conservative physiologists would lead us to conclude that the surplusage found in the American diet would support a population in this country equal to that already existing. If this were the only waste, this thrifty country could well endure it; but it is just this added quantity, above the needs of the body, that exhausts the digestive organs, and at the same time crowds an overabundance of waste upon the liver and kidneys and other organs that have to do with carrying off the body poisons. This added burden is the predisposing cause of many



Washington Sanitarium

In each instance the lower plate was taken six hours after the one above it.

Plates 1 and 2 (to left). A man aged 60, of active life, but emaciated from overcrowding of the digestive organs. His stomach was never empty. Two meals would nourish him better than three.

Plates 3 and 4 (to right). A high United States official, anemic and emaciated by reason of digestive disturbance on account of too heavy and too frequent meals. He has since greatly improved his condition by less frequent feeding.

chronic diseases. Not until conditions force us to face the question of existence by reason of food shortage, will it be possible for us to appreciate food values to the fullest extent. However, with the increase in the price of foods, the man of average means, who has no surplus money to be expended for physicians' fees or unnecessary delicacies, should certainly familiarize himself with the food that gives the greatest value for the least expenditure of money.

We believe that this is one of the great economy questions before the American people, and that proper attention to it will be rewarded with great results in the access of happiness, health, comfort, and financial prosperity.

❦ ❦ ❦

ECONOMY IN NUTRITION

G. H. HEALD, M. D.

IN the industrial world, economy is one of the basic elements of success. The institution that is to succeed must study and practice rigid economy. With industrial plants dependent for power on fuel, an important economy is the use of a fuel that develops the required power at the least cost. A fuel sold at a very low rate per ton might be objectionable because it does not develop sufficient steam per ton, or because it is expensive to handle. For instance, a low-grade coal may contain such a proportion of ash that it is expensive at any price. Or waste wood might be cheap, and yet be objectionable because too much labor is required in feeding the furnaces. A high-grade fuel might be objectionable because of the excessive cost. Another fuel might burn out the grates too fast.

In the problem of human nutrition there are similar considerations. One food, say cabbage, though comparatively low in cost, requires an immense amount of work from the digestive organs in proportion to its nutritive value, and it develops little energy. Another so-called "food"— alcohol — while it gives an intense heat, as it were, burns out the boiler in the process. Most people know how to avoid the two extremes of excessive bulk and excessive energy, and yet there is much to be learned by the average person regarding the economy of nutrition. It is not only a problem of furnishing fuel, but of keeping the engine in repair; for food must furnish not only the fuel to make the living engine go, but also the material to replace the worn tissues of the body. This is not a simple problem. The body is a very complex machine, made up of some fifteen chemical elements and a large number of intricate compounds. If any of these is lacking in the food, or if the body is unable to make them from the food supplied, there is deterioration.

One would naturally suppose that the most appropriate food would be one corresponding in composition with the body tissues. This evidently was the belief among cannibal races, who ate their captives, not because of hatred, but because they believed human flesh to be best adapted to develop a fine type of manhood and physical efficiency. Though modern man rejects the notion that a species needs food from its own species in order to thrive best, we have not all gone beyond the belief that one will thrive better on a diet containing some form of flesh than on a nonflesh dietary. The belief is well established in a large proportion of the human race, civilized and savage, that some form of flesh food is necessary to the best nutrition of man.

So great a chemist as Liebig believed that starches and sugars are burned in the body to furnish heat, but that the tissues themselves were in a way consumed in the development of muscular energy, and that the loss must be made up by an increased consumption of protein food. Later investigation showed that increased work increased the con-

sumption of sugar in the body, and not of protein, and that the tissues themselves wear very little from work. The realization of this fact made it plain that protein is not needed in the large quantity once supposed. It is no longer a mystery that the ox and the horse on a low-protein diet can do so much sustained physical work.[1] Confirming this is the work of Chittenden and others, who have demonstrated that the body can be maintained in health and efficiency on less than half the protein formerly supposed to be needed.

Recent investigations have shown that there is a great difference in proteins, some being completely available in the formation of body tissues, others being only partly available. There are "complete" proteins and "incomplete" proteins. If the proteins of a certain food are of the complete kind, a much smaller quantity will be required to keep the body well nourished. Only about half the protein in white bread is in a form that can be utilized in building tissue. The proportion of complete protein in rice and potato is much larger. From this it will be understood why it might not be wise to depend on the minimum protein allowance (60 grams per day for a man of 150 pounds). A person might live well on a mixed diet containing 60 grams of protein, but in a diet consisting largely of white bread or cornmeal, 60 grams of protein would be wholly insufficient, for there would be much less than the 60 grams utilized by the body. This may explain why some vegetarian diets have been found to be inadequate. There has not been enough care to supply a sufficiency of complete proteins.

Hindhede, a government nutrition expert of Denmark, who believes that the use of meat in the dietary is a useless expense, has a daughter in magnificent health, whom he has reared on a diet consisting essentially of potato. This may seem astounding when we know what a small proportion of the potato is protein; but when it is considered that this potato protein is of the best kind, and is completely utilizable in the repair of tissue, we are better prepared to believe in Hindhede's achievement.

Owing to the fact that a number of the proteins, especially those in some of the cereals, are deficient as tissue builders, it is not wise to attempt to live on the minimum protein allowance as developed by Chittenden's experiments; but it is best to use a somewhat larger amount, say seventy-five grams a day. This will be quite readily accomplished if a little animal protein, as milk or egg, is added to the ordinary vegetarian menu; or if these have soared above the pocketbook, by the use of dried beans, or especially dried peas. It should be remembered that it is easy to get an excess of proteins if the diet consists largely of peas and beans.

---

[1] An amusing anecdote will bear repetition in this connection: —

Near a sanitarium located a few hours north of San Francisco, Cal., which furnished its patients a non-meat menu, lived an old farmer who had in early days crossed the plains from Missouri. The neighbors called him Dick Hicks. Many of the patients who came to the sanitarium for treatment found the vegetarian doctrine and practice so counter to their lifelong beliefs and habits that they were "from Missouri" in the modern sense of that expression, notwithstanding the fact that they attended the parlor lectures by the physicians, and saw patients leave the institution cured of the ailments for which they had come. Rarely did they venture to discuss the question with the physicians, but once in a while they would make inquiries of the neighbors.

One day some of the patients went up to the mountain home of Mr. Hicks. Evidently something was brewing in their minds. One, speaking for the rest, asked: "Mr. Hicks, do these doctors and nurses actually live without eating any meat? They look so well it is hard to believe that they do not take a little meat on the sly."

With a quizzical expression, Mr. Hicks, pointing to his faithful old horse, said: "See that horse? He has been in my service for years, has been used to the hardest kind of work, has been exposed to severe weather, has never had a sick day, and so far as I know, he has never had a taste of meat."

Whether they saw the point or not, the questioners had no more to say. Possibly they inferred that Mr. Hicks had been subsidized to make such statements.

RELATIVE COST OF FOODS AS COMPARED WITH THEIR NUTRITIVE VALUES

G. H. HEALD, M. D.

HOW many readers of this journal would believe that flour at nine dollars a barrel is cheaper as a source of protein, or as a source of energy, than potatoes at one and one-half cents a pound? Three bushels of potatoes will bulk larger than a barrel of flour, and will cost, at a cent and a half a pound, $2.70, furnishing 82,800 calories of energy. Sixty pounds of flour at $9 a barrel would also cost $2.70, or a trifle over, and would furnish 99,600 calories. So one gets more calories from, say, ten cents' worth of flour at $9 a barrel than from ten cents' worth of potatoes at one and one-half cents a pound. The sixty pounds of flour would contain 2,990 grams of protein; the three bushels of potatoes, 324 grams of protein. The protein in the potatoes would be more than eight times as costly as the protein in the flour. Potatoes are largely bulk and water. This is not an argument against the potato, which is an excellent food, but a demonstration that the price of a food does not necessarily indicate that it is a cheap food. One must consider the nutritive value of the foods in connection with the prices.

In order that the reader may be in a position to judge of actual, as contrasted with apparent, cost of foods, the accompanying tables have been prepared.

In estimating the nutritive value of foods, there are two important considerations: —

1. How much protein, or tissue-forming material, is present?

2. How much heat and energy does the food furnish?

In the accompanying tables, the protein has been calculated in grams (453 grams to the pound). The ordinary adult probably requires about seventy-five grams, or one sixth of a pound, of protein a day. The energy has been calculated in calories. A calorie is a heat unit, representing a certain amount of heat or work. An adult whose work is mental rather than muscular, probably requires a daily energy intake of about 2,500 calories, possibly as much as 3,000 calories.

According to recent investigations, an adult weighing 150 pounds consumes energy in accordance with his occupation.

	Calories per hour
Asleep	65
At rest	100
At light work	170
At active work	290
At severe work	450
At football, rowing, etc.	600

A person of sedentary habits, sleeping for eight hours, sitting for ten hours, and taking light exercise for six hours, would thus consume 2,540 calories of energy. Thus, one requires energy food (essentially starch and sugar) in proportion to the amount of physical exercise he takes.

It may seem strange, but it is a fact, that increased muscular exercise does not require increased consumption of protein. The navvy or stevedore does not require a large quantity of eggs, beans, and foods rich in protein, but rather of rice, potatoes, and similar starchy foods; and it usually is such foods that form the bulk of the menu of the laboring man. The belief that the laboring man requires large quantities of meat and other protein foods, which formerly was held by all dietitians, has been shown to be without foundation.

A careful study of the accompanying table will be profitable to the provider for the household. It will show, in the first place, that even at $12 a barrel, flour is our cheapest food. Twelve-dollar flour seems expensive because we have been accustomed to pay much less. The cheap sources of heat and energy are the cereal foods (not the proprietary carton foods), breads, peanuts, legumes, Italian pastes, etc. Vegetables, except potatoes, have not been given in the table. They

would appear near the bottom. In general, the animal foods will be seen to be expensive as sources both of energy and of protein. Canned fruits are more expensive than dried fruits. The cheapest source of protein at these prices is rolled oats, followed by split peas and Graham flour.

Most of the prices for the cereals and other nonperishable articles are based on the November price list of a New York mail-order house, with two cents a pound added for freight. The perishable articles are priced according to present quotations in the city of Washington.

In studying the table, one should keep in mind the difference between prices here given and the local prices. For instance, if flour is $10 a barrel instead of $12, and rolled oats are eight cents a pound instead of seven cents, oats will no longer stand at the head of the list as the cheapest source of protein.

There is another fact worthy of consideration; namely, that there is a difference in the availability of proteins, the proteins of potato and rice being much more completely utilized than the proteins of corn, wheat, and some other cereals. For this reason rice and potato should rank higher as sources of protein than appears in the table.

Another consideration: Though the green vegetables and the fruits rank very low as sources of energy, they have a high value as sources of mineral salts and of alkaline ash needed by the body to neutralize the acid ash of the cereals and the animal foods. For this reason the menu should contain some of these foods, even though the price is out of all proportion to the amount of protein and energy they furnish.

NUTRITIVE VALUE AND COST OF FOODS

	Cents per pound	Amount for ten cents: Grams protein	Calories
Flour, Graham	6	100	2,780
Flour, white	6	85.7	2,760
Oats, rolled	7	108	2,645
Sugar, white	7½	.....	2,480
Bread, white	5	83.4	2,433
Cornmeal	7	65.9	2,365
Potatoes	2	31.7	2,300
Peanuts, shelled	12	97.3	2,130
Rice	8	45	2,040
Wheat, rolled	9	67.5	1,877
Bread, white	5 (12 oz.)	62.6	1,824
Peanuts in shell	11	80	1,780
Bread, whole-wheat	5 (12 oz.)	66	1,710
Beans, Lima, dried	11	74	1,680
Cornstarch	10	.....	1,675
Crackers, oatmeal	14	38	1,670
Macaroni	10	60.7	1,665
Spaghetti	10	54.7	1,660
Peanut butter	17	77.9	1,660
Vermicelli	10	48.9	1,625
Peas, split	11	101	1,500
Crackers, Graham	14	32	1,390
Gingersnaps	14	21	1,350
Coconut, shredded	24	11.9	1,300
Beans, navy, dried	14	73	1,180
Egg noodles	16	33.1	1,040
Bacon	26	16.6	1,035
Butter	40	.....	900
Prunes	15	5.4	790
Pecans in shell	21	11.3	770
Dates	19	4.5	760
Pears, dried	22	5.8	750
Brazil nuts	22	17.7	755
Ham	23	28.5	725
Milk	10 (qt.)	29.9	649
Walnuts, shelled	52	14.4	630
Apricots, dried	22	9.7	585
Walnuts in shell	24	13	575
Almonds in shell	30	17.3	555
Pecans, shelled	70	7.1	495
Sausage, Frankfurter	24	36.9	487
Lamb, leg	25	29	452
Apples	5	2.7	440
Almonds, shelled	70	13.6	435
Olives	25	.....	390
Steak, round	25	34.4	358
Steak, porterhouse	35	24.7	317
Salmon, canned	22	40	310
Veal cutlets	35	26	197
Peaches, canned	12	2.6	185
Eggs	48 (doz.)	13.5	159
Beef, dried	50	23.9	156
Oysters, canned	30	13.2	112

BREAKFAST FOODS AND THEIR RELATIVE VALUE

L. A. HANSEN

CEREAL breakfast foods have become popular with many within the last decade or two as a regular food. There are many brands of them, with many claims. Little has been known by the average consumer of their comparative cost and food values.

Investigations have been made by various State experiment stations and by the United States Department of Agriculture. Bulletin No. 168 of the Agricultural Experiment Station of the South Dakota State College of Agriculture and Mechanic Arts gives some of the latest information on cereal breakfast foods, presenting data that are particularly interesting in connection with the present high cost of living. We give herewith some of the facts and figures presented in the bulletin.

Analyses were made of twenty-six brands of foods, all bought in packages from local stores. Ten of the twenty-six varieties were short in weight. Seven of these were the raw kinds. The accompanying table shows some of the comparative cost and value figures.

The retail price of these foods varies from 7.2 cents to 43.9 cents a pound. None of the raw varieties cost over 11.7 cents, while none of the ready-to-serve cost less than 12.2 cents. Rolled oats give the most food value for the money, and puffed wheat the least. Of the flaked foods, No. 23 costs twice as much as No. 12. The puffed preparations (rice, corn, and wheat) are in a class by themselves as regards price, being on the average twice as costly as the highest-priced flake foods.

One must, of course, take into account that the raw preparations must be cooked, and that the ready-cooked foods show a little saving in this connection. This saving, however, is not enough to warrant the higher cost of the ready-cooked foods. Personal tastes and preferences may have some weight in favor of the prepared foods.

It must be admitted that these breakfast foods, either the raw ones properly cooked or the ready-to-serve, are nutritious and healthful. It may also be admitted that there is no reason why one should pay twenty-four cents a pound for a food preparation which a person does not relish any better than one which costs twelve cents a pound, other conditions being equally satisfactory. The nutritive value for a pound of any of these foods does not vary so materially; one gets nearly as much food out of a pound of one as of another.

An exact standard of comparison will be found by comparing these breakfast foods with the ordinary preparations sold in bulk. These foods are prepared from oats, corn, wheat, rye, and rice. From these grains we secure oatmeal, wheat flour, rye flour, cornmeal, and rice. The manufacture of these grains into breakfast foods adds nothing to their nutritive values. By a little care desirable breakfast foods can be selected at a saving of from thirty to one hundred per cent, or even more.

None of the package breakfast foods are strictly economical. Their sole popularity is because of their package form, which insures the foods reaching the consumer under satisfactory sanitary conditions. Inasmuch as bulk grain preparations must be cooked anyway, the question of sanitation does not perhaps enter as largely as some seem to think it does.

The general rise of prices for food products is also seen in the case of breakfast foods, the price having advanced during the last fifteen years about thirty-three per cent. There are now from thirty to thirty-five breakfast foods on the market sold in packages. The paper carton must bear its proportion of the increase in price, and while

it is convenient and sanitary, it is also expensive.

The net weight of a package of corn flakes is about eight ounces. The contents is simply corn, and its food value cannot be greater than that of corn in any other shape, say cornmeal, for example. Buying corn flakes at ten cents a package means paying $400 a ton for cornmeal.

The net weight of a package of wheat breakfast food is from twelve to sixteen ounces. Its food value is that of an equal amount of wheat, and no more. At ten cents a package, the consumer is paying from $9 to $12 a bushel for wheat. The paper carton costs more than the food it contains, yet we throw the paper carton away, and at the same time deplore the high cost of living.

The manufacture of grain into the various forms of ready-to-serve foods involves expense, and of course, must make the product more costly than the raw material. It does not put more food value into any food product. Nature alone can make food value.

These manufacturing processes may prepare foods for easier digestion, and make the food values more available for certain classes of invalids. Such persons will find these foods highly valuable. They may be well worth their cost to others who for one reason or another cannot cook their grains properly. The average consumer, looking at the matter from the standpoint of economy, will find them expensive luxuries.

Laboratory No.	TRADE NAME	Price per pkg.	CHEMICAL ANALYSIS						Cost per lb., cents	Cost per 1,000 calories of food value, cents	Cost per lb. of protein, cents
			% Water	% Fat	% Fiber	% Protein	% Ash	% Carbohydrates			
	Raw										
1	Dr. Price's Rolled Oats	10c	6.55	7.84	1.17	15.81	1.70	66.93	7.2	4.0	45.4
2	Post Tavern Porridge	15	7.11	.58	.34	10.75	.56	80.66	7.7	4.6	71.6
3	Monarch Food of Wheat	15	10.05	.81	.25	11.87	.38	76.64	8.1	5.0	68.0
4	Cream of Barley	15	5.52	.83	.68	10.44	1.02	81.51	8.1	4.8	77.0
5	Cream of Wheat	15	8.66	.91	.40	11.00	.44	78.59	8.6	5.1	85.1
6	Cream of All	15	6.62	1.06	.44	12.00	1.32	78.56	9.0	5.1	74.7
7	Wheat Hearts	15	7.05	3.15	1.57	16.12	1.82	70.29	9.5	5.6	58.9
8	Pettyjohn's	15	6.96	2.19	2.05	13.31	1.68	73.81	9.9	6.0	74.3
9	Sims	15	9.10	.90	.56	13.37	.76	75.31	9.9	6.0	74.3
10	Dr. Price's Rolled Rye	10	8.64	3.39	1.77	11.62	1.80	72.78	9.9	6.0	85.1
11	Cream of Rye	15	10.24	1.48	1.80	11.62	1.66	73.10	11.7	7.4	100.6
	Ready to Serve										
12	Post Toasties — new	10	2.82	.17	.42	12.75	.74	83.10	12.2	6.8	95.2
13	Kellogg's Toasted Wheat Biscuit	10	4.80	.80	2.52	15.50	2.36	74.02	12.2	7.4	78.7
14	Kellogg's Toasted Corn Flakes	10	4.32	.26	.46	7.87	1.38	85.71	13.6	7.6	172.7
15	Washington Crisps	10	5.44	.26	.41	8.50	.98	84.41	14.0	8.2	165.6
16	Kellogg's Toasted Wheat Flakes	10	5.40	1.35	3.81	13.62	2.78	73.04	14.9	9.0	108.8
17	Kellogg's Crumbles	10	4.77	1.05	2.72	15.37	2.48	73.61	14.9	8.9	96.9
18	Grape-Nuts	15	2.75	.44	1.36	12.50	1.36	81.59	15.8	9.0	126.4
19	Dr. Price's Corn Flakes	10	8.78	1.64	1.82	8.10	.62	79.04	18.0	10.5	221.4
20	Uncle Sam	25	3.87	18.61	3.71	18.50	2.60	52.71	18.5	9.0	99.9
21	Triscuit	15	5.40	1.17	2.47	11.50	1.72	77.74	19.0	11.2	165.3
22	Shredded Wheat	15	4.61	.96	2.61	13.50	1.72	77.60	19.0	11.0	104.6
23	Egg O-See	10	6.12	.92	1.47	11.20	1.74	78.55	24.4	14.4	267.2
24	Puffed Rice	15	7.18	.26	.30	8.25	.31	83.70	38.0	22.3	459.8
25	Quaker Puffed Corn	15	5.42	.26	.55	9.25	.34	84.18	38.1	22.0	411.5
26	Quaker Puffed Wheat	12	5.62	1.80	2.00	16.19	1.20	73.19	43.9	25.4	272.2

KITCHEN ECONOMY

G. H. HEALD, M. D.

IN these times of unprecedented prices, kitchen economy is important for two reasons: —

1. Foods are rapidly increasing in price.

2. We Americans are particularly wasteful in our kitchens.

It has been said that a French family will live well on what an average American family wastes. If this statement seems exaggerated, the fact remains that observing foreigners comment on the reckless kitchen waste of American families.

In November, 1916, a Washington, D. C., newspaper commented editorially on the effect of increased prices on the contents of the garbage barrel. Washington garbage-men, it would seem, report a marked shrinkage in the amount of garbage collected, and this is particularly true as regards the expensive foods — the proteins and fats. Some Washingtonians are evidently practicing an unwonted and long-forgotten economy, and perhaps they have only made a beginning.

The following is a convenient classification in kitchen economy: —

1. Careful buying.
   - *a.* Selection of foods that give greatest nutritive value for the money.
   - *b.* Careful marketing, verifying weights and measures of foods purchased, and scrutinizing the quality.
2. Avoidance of waste in storage and preparation.
   - *a.* Through decay and deterioration.
   - *b.* In discarding the refuse.
   - *c.* In the use of fuel, time, labor.
3. Avoidance of waste of prepared foods.
   - *a.* The utilization of leftover foods.

The first phase of careful buying is considered in other articles in this issue ("Relative Cost of Foods," "Breakfast Foods and Their Relative Value," "Economical Purchasing," "The High Cost of Being Sick," "Substitutes for Meats"), but it may be said in brief that Americans use too much animal food. They use too much prepared food. We are addicted to the baker's bread habit, and baker's bread is not so nutritious, nor so palatable, nor so economical as good homemade bread.[1]

One miller is credited with saying that not one tenth as much flour is sold to the grocers now as twelve years ago. We are using large quantities of carton foods and canned foods, which, while they may fill an important place in the provisioning of the nation, are expensive as compared with some other foods.

The careful housewife will supervise the buying of her own foods. To trust this function to the average servant is usually most expensive. Every kitchen should be provided with scales and standard measures, and the quantity of each purchase should be verified. When goods are delivered, such as potatoes or apples, they should be poured into another container before the deliveryman leaves, and if they are short measure, or are inferior to the sample, they should be sent back. An "easy" customer, who accepts underweight and inferior goods, is a gold mine to the dealer.

By all means pay cash, and buy where you can get the best value for your money. One who runs an account invariably pays dearly for it. The credit merchant must charge enough to pay the additional expense of bookkeeping, collecting, and bad debts.

Storage

It has just been remarked that foreigners comment on the culinary waste of Americans. This waste occurs with both the raw materials and the cooked food.

Care in the storing of foods will prevent serious losses from deterioration.

Perishable foods, as fruits, vegetables, and milk, should be kept in a cool place. Butter and other foods that must be kept cool, may, in the absence of ice, be placed on bricks which have been dipped in water and laid on the cellar floor,

[1] This statement requires some modification. Where the time of the housewife and the cost of fuel are important considerations, baker's bread may be more economical.

preferably in a draft of air. The evaporation of the water lowers the temperature.

Cereals should be kept in a cool dry place, and canned fruits, if in glass, should be kept in the dark.

To prevent the drying of root vegetables, the tops should be left on, and also some of the soil. Sweet potatoes keep better in cool dry sand.

Vegetables, such as cabbage, cauliflower, and lettuce, which have a stem, may be kept in good condition for a comparatively long period by standing the stem, but not the leaves, in water. The water would tend to rot the leaves. Wilted vegetables may be restored by soaking in water for an hour.

Fresh berries should be washed in their original container soon after they arrive, and then be poured into a shallow dish, the bad ones being picked out to avoid contamination of the sound fruit.

Preparation

Avoid waste in separating the refuse from the edible portion of the food. Too often a considerable portion of the good goes into the garbage barrel with the refuse. In the preparation of vegetables, a little care will save an appreciable amount of nourishment, such as is ordinarily thrown away. By using a small sharp knife to pare potatoes, apples, etc., one can make the peel much thinner, and thus avoid unnecessary waste. This is particularly important as regards the potato, which has a moderate supply of protein immediately beneath the skin. The protein of potato is more valuable as a flesh former than that of wheat and other cereals. It is a remarkable fact that potato and rice — foods generally looked upon as having a very low percentage of protein — have protein in a form that is much more fully utilized in the formation of tissue than are some of the other vegetable proteins. This may explain why it is that vast populations live on a diet consisting essentially of potato or rice, with a minimum of animal protein. As the potato is ordinarily pared, a large portion of this protein is wasted, and what is left is largely starch. The ideal way to prepare potatoes is to peel them after boiling. This saves not only the protein, but also the mineral matter which dissolves out in the water if the potatoes are pared before they are boiled. The baked potato, while it has excellences that recommend it, is open to the objection that a considerable proportion of the nutriment is sacrificed with the skin.

Beets should not be pared or cut into until after they are boiled, otherwise a large part of the nutriment, flavor, and color is lost. If potatoes or other vegetables are pared before boiling, the water may be used as an ingredient in soup or gravy.

The stems of root vegetables, often thrown away, make good greens, valuable for their content of iron and other minerals.

Small pieces of cabbage stem and other solid vegetables, dried in the oven and ground, are valuable as an addition to soups, both as a flavor and as a source of vegetable salts.

Leftovers

Many bits of leftover foods may be utilized as the basis for a soup that is, in fact, more nourishing than the bouillon soups. Other leftovers may be mixed with bread crumbs and made into a roast. The ingenious housewife will thus make such successful dishes that she will be asked for the recipe, which, of course, it would be impossible to give, for such dishes are never made exactly the same.

Leftover bread, even when dry, should be saved, and dried in the oven, either in the form of rusks, broken into crumbs, or in the form of zwieback. The former can be used in the same manner as some of the expensive breakfast foods, and probably has as high a nutritive value as the proprietary foods, especially if the bread is made from the whole wheat. Such dried bread can be used as a thickening in soups, or in the preparation of roasts, and in various other ways.

ECONOMICAL PURCHASING

L. A. HANSEN

CASH buying is decidedly the most economical. It gives the freedom of buying at various stores where certain goods are cheaper. Handing out real money encourages careful thought in purchasing. It helps one to bear in mind constantly that things cost.

Credit buying encourages purchasing carelessly and too freely. A credit business must take care of losses caused by bad accounts, and those who pay must meet these losses.

Paying bills by check is good if it does not encourage overbuying. It seems easier to give a check than to give the cash.

Buying over the telephone is likely to be expensive. There is economy and general satisfaction in personal marketing.

Fruits and vegetables out of season are expensive, and when shipped some distance, are not so good. A few weeks' wait for home-grown stuff, or till products are more plentiful, may mean a considerable saving.

Careful and economical buying means guarding against adulterations. Money paid for something that you are not getting is thrown away, and may be worse than thrown away when it comes to foods.

Short weight or scant measure may add quite a percentage to the cost of goods. It does not take many such purchases to entail loss enough to pay for a pair of small family scales. It will also pay to own containers of standard measure for receiving goods. Let potatoes, apples, or other articles be turned into your measures, and if they do not run true to standard, reject them.

Quantity purchasing of products that will not spoil readily is advisable. Two or three neighbors would better combine to purchase a barrel of apples, a barrel of potatoes, a quantity of butter, a case of eggs, a box of oranges, a case of canned goods, or other products in quantity, and divide, than to purchase the same amount separately in small parcels.

Direct dealing with the source of supply is desirable, and is made possible by quantitative purchasing. The elimination of middlemen means the saving of expense for handling, commissions, and profits. Usually it also means securing fresher goods.

Parcel-post purchasing is now a recognized advantage in many communities, putting the consumer in touch with the producer, and affording regular deliveries of butter, eggs, vegetables, fruits, etc.

A careful study of the nutritive value of foods will often lead to an immense saving in the purchase of cereals in the raw form rather than in a ready-cooked state, or prepared by special and patented processes. The saving of time in cooking to the housewife is not sufficient to cover the expense of factory preparation, advertising, and marketing. Certain health needs of the family or individuals may require the use of specially prepared foods, but a general use of them must mean an expense. (Other articles of this issue of LIFE AND HEALTH treat this question more fully.)

Butter may be kept for a month or more by placing in a jar and inverting in a larger jar of strong salt water. Tub butter is not necessarily inferior to print butter, and it usually costs less. Bear in mind that processed, or worked-over, butter may have an addition of water that makes the butter expensive. About fifteen per cent is the usual amount allowed to butter, whereas it may run as high as twenty-five per cent.

Two bad eggs out of a dozen storage eggs costing thirty-six cents make them really cost forty-two cents per dozen. Better buy good ones. It is best to buy in September or when cheapest, and preserve in water glass. Eggs keep perfectly six or seven months this way.

Sugar bought in hundred-pound lots or by the barrel before fruit canning season or when low in price, effects a saving worth the investment. Flour purchased by the barrel also pays.

Berries at two quarts for a quarter, bought from an unreliable huckster and running short measure, and half spoiled, are not so cheap as good berries in full measure at fifteen cents a quart from a reliable market.

Cheap canned goods, with here and there a spoiled can and the rest slightly off-flavor, are not cheap after all.

* * *

THE LURE OF THE CARTON AND THE HIGH COST OF ADVERTISING

G. H. HEALD, M. D.

HAS the reader ever pondered on the question of the millions of dollars annually expended in this country in advertising proprietary foods? A glance over any of the popular magazines will reveal food advertisements representing an expenditure that would be staggering were it not for the fact that such advertising pays well. The advertising account of one of the great food manufacturers is his best investment. A food that, so far as manufacturing cost is concerned, might be sold for six or eight cents a package, may sell for twelve or fifteen. Does the advertising increase the food value of the preparation? We all know that it does not. There is something in the constitution of the human mind that makes one willing to pay a half more for flaked oats or toasted corn flakes put up in a pretty carton, under some widely advertised name, than would be paid for the same food in bulk. Possibly the carton food is a little cleaner — possibly. But even granting that it is, there is a question whether, if it is to be cooked, this difference warrants the difference in price. For ready-to-eat foods, there is a great advantage in having them prepared aseptically, and without the touch of human hands; but when we eat daily, without wincing, such a food as baker's bread, which has been handled several times, it is inconsistent to place emphasis on the cleanliness of uncooked foods.

Perhaps in some instances, the carton is a guaranty of quality. Often in the past, its guaranties have amounted to nothing. Perhaps even yet there is not so much to this as is claimed by the advertisers.

This article is not written to condemn the proprietary foods. Many of these foods are very commendable preparations, which, however, should be classed as luxuries rather than as necessities. For nearly every proprietary food there can be found some substitute nonproprietary article that is much cheaper, and in every way as healthful a food.

For instance, bread, preferably bread from the entire grain, when dried slowly in the oven and slightly browned, may take the place of some of the breakfast foods.

Clean, whole wheat, such as may be obtained from the seedsman, is an efficient low-cost substitute for some of the high-priced breakfast cereals, and it has the advantage over some of them that it has not been denatured, that is, deprived of important constituents, by the milling process. It requires longer cooking than the proprietary foods, but this can be obviated by the use of a fireless cooker.

By purchasing a small mill one can grind his own wheat meal or Graham flour, superior to much that is sold as Graham. This will be practicable particularly to those who need to economize strictly in the expenditure of money, and who have spare time that could be profitably utilized.

THE HIGH COST OF BEING SICK

DANIEL H. KRESS, M. D.

IT pays to keep in health. It always has paid to keep well, but it seems that from now on, sickness can be afforded only by those of means. The poor *must* henceforth keep well. They cannot longer afford to be sick. The cost of being sick will be too high.

According to the *New York Medical Journal,* doctors are already planning to demand larger fees. The fee heretofore one dollar, it is suggested "should become two dollars;" and the fee which now is "two dollars, should become three dollars." Fortunately, it has been suggested that this should be made public in order that the laity may not be taken unawares. A fair warning is given. Now is the time to take up a boycott against sickness. This can be done by learning how to avoid sickness, and thus disappoint the doctors.

The flooding of the system with poisons wears out prematurely the vital organs which have to deal with them. Conditions are found in men and women of forty and fifty which should be found only in persons of eighty or ninety. Old age is reaching down into middle life. Organic diseases are increasing rapidly. Mortality from heart failure, apoplexy, diseases of the arteries, kidneys, and liver, is daily increasing.

One third of the world's coffee crop reaches America. We are a nation of coffee drinkers. The digestive organs of the tea and coffee drinker are in a state of chronic derangement. The habitual indulgence in these beverages leads to persistent disorders of the nervous system. It produces irritability, fear, worry, and later, insomnia, melancholia, and not infrequently insanity. Much of the disability of women is traceable to these beverages.

Cocoa is the most recent, and is considered the least harmful, of the popular table beverages employed. The theobromine in cocoa is, however, similar in its effect to that of caffeine. The amount of caffeine present in one pound of coffee is estimated to be about 175 grains; the amount present in tea, 70 grains; while cocoa contains 59 grains to the pound. Cocoa contains an astringent similar to the tannin present in tea, and in addition it contains undefined products resulting from the fermentative action to which the cocoa seeds are subjected in their preparation for commerce. The exact composition of these, or their effect on the system, is not yet clearly defined.

The prevalent use of cocoa and chocolate is making its impress upon Americans. A cup of chocolate costs ten cents. Chocolate ice-cream sodas are already being dispensed at some soda fountains at fifteen cents. Coca-cola and one hundred other soft drinks are being sold at these fountains, all of which contain caffeine, and some of them even products more harmful. These beverages are responsible for many of the headaches which render men and women unable to work, and yet it is difficult to convince them of that fact. Many depend upon these beverages to keep them up, when they are really responsible for keeping them from rising up. These beverages act as whips. They spur up for the time being, but leave the consumer in a fatigued condition later. Every artificial "up" is marked with a corresponding "down." The habitual drinker of these beverages is never in a normal condition. His life is marked by extremes. He is either in a state of exhilaration or in a state of depression. Real health he never enjoys.

There are beverages which are wholesome. The best of all is pure water — nothing can equal it. If a nutritive drink is desired, malted milk may be used. The fruit juices also are excellent. If substitutes for coffee are desired, these may be obtained at less cost, and their use will not be followed by the ill effects of coffee.

SUBSTITUTES FOR MEATS IN THE DIETARY

In the Nov. 25, 1916, issue of the *Weekly Bulletin* of the Department of Health of the city of New York is an article showing how the Municipal Sanatorium saved money by substituting eggs for meat in the patients' bill of fare. A substitution of milk for eggs made a further reduction. Substitution, in whole or part, of peas, beans, or lentils would lower still further the cost without lowering the nutritive value of the menu. Of course, there might be some objection to the use by tuberculous patients of such "hearty" foods as the legumes, but there are many families to whom the present rise in prices is nothing less than a calamity, and the strictest economy will be necessary to make both ends meet. The substitution, in part at least, of cheaper vegetable proteins for the high-priced animal proteins is one of the most logical and beneficial economies that can be made. It is not an economy, however, to attempt to live on corn meal, molasses, and soda biscuits, for poor health is always expensive.

THE following tables, which represent changes in the dietary at the Municipal Sanatorium at Otisville, should be of especial interest to hospital administrators generally. These changes have not only resulted in economy, but have also added to the attractiveness of the menus. The prices of meats are becoming almost prohibitive, so that eventually all but the very well-to-do of our population may be compelled to use substitutions for part of the meat content of their meals. The tables here given illustrate the relative difference in price and quantity of some of the substitutes for meats: —

Table 1 — Savings Following Substitution of Eggs for Meats at Breakfasts Covering a Period of Four Weeks

No. of meals	Variety of food	Per meal	Total	Price, cts. (1914)	Cost
8	Steak	260 lbs.	2,080 lbs.	20 per lb.	$416.00
8	Chops, loin	145 lbs.	1,160 lbs.	19.3 per lb.	223.88
	Chops, rib	125 lbs.	1,000 lbs.	10 per lb.	100.00
Total for meat					$739.88
16	Eggs	80 doz.	1,280 doz.	23.6 per doz.	302.08
Total savings for period of four weeks					$437.80

Table 2 — Comparative Food Value and Cost of Milk and Eggs

		Protein	Fat	Carbo-hydrate	Total calories	Cost per Capita per diem
Eggs, 2 per portion	Grams	13.50	10.54	.....	.....	(Eggs 26 cts. per dozen) 4.33 cts.
	Calories	55.31	105.46	.....	161	
Milk, ½ pt. per portion	Grams	7.48	9.08	11.34	.....	(Milk at 6 cts. per qt.) 1.5 cts.
	Calories	30.66	84.44	46.49	162	

Saving per capita per diem, when milk is substituted, 2.83 cents.

Cereals, such as cornmeal, hominy, and especially oatmeal, are rich in nourishment, and are much cheaper than the patented cereals.

American cheese, dried beans and peas, are comparatively cheap, and contain a great deal of protein, which is the most important food element found in meat. . . .

Rice is a very cheap food, and can be served in many different styles. It should be used more frequently than it is in the dietary of those of moderate means. It contains a very high percentage of carbohydrate, one of the very necessary forms of nourishment. Every one knows how extensively it is used among the peoples of Asia.

It is not necessary to state that bread, preferably of whole wheat, a form which is rich in very important food elements called "vitamines," also sugar and potatoes, should occupy prominent places in the dietary of the working man and woman.

There are many other cheap foodstuffs, notable ones being macaroni and cheese. Used judiciously, they serve to lessen the cost of the dietary without in any way impairing its food value.

THE LEGACY OF THE INTEMPERATE USE OF TOBACCO

ROBERT ABBE, M. D.

The following article, by Dr. Abbe, senior surgeon to St. Luke's Hospital, New York, which appeared in the *Medical Record* of May 27, 1916, was evidently written to impress upon the medical fraternity some of the evils of tobacco.

To one idea advanced in this article, we could not subscribe — that of advising the *temperate* use of tobacco. If one uses tobacco at all, and is susceptible, he is in danger of using it to his great detriment.

We publish the article as a whole for the reason that it shows how one disposed to "deal tenderly with the smoker," makes out a very serious case against the tobacco habit.

THE public looks to the medical profession for advice — not for reform." Doctors are better observers than moralists, use tobacco quite generally, and deal tenderly with the smoker until he gets into trouble with nervous overstimulation, heart irregularities, precancerous condition, or well-developed cancer of the mouth, or, possibly, with throat cough, or indigestion only.

Patients showing the ill effect of tobacco are only those who have been *intemperate* in its use. Intemperate is a word with shifting meaning. Every man's limit of tolerance for tobacco is different. Some can never touch it without suffering. Others seem to be immune and have no limit. This apparent freedom to use it without restraint constitutes the danger. In this class are found all the victims of its dangerous effects.

I once said I had never seen serious mouth disease in any patient who had not smoked more than three cigars a day. A larger experience confirms that statement. I also said, several years ago, that I had not seen such bad effects from cigarettes, but closer study of many cases has shown me numerous serious cancerous or precancerous mouth conditions in men who used only cigarettes. The last one smoked daily two boxes of ten each. He was a comparatively young man.

The insidious increase in the amount used is associated with the slow augmentation of its effect, usually unrecognized by the victim. The cumulative results in bringing about ultimate degenerative changes are capable of mathematical determination. Indeed, the only safety for those of us who enjoy tobacco in moderation is that we live threescore and ten years instead of twice that. Else we, too, would suffer in larger proportion.

I have been more impressed of late years with the number of men, in commercial life especially, who are inveterate smokers, whose vest pocket bulges with cigars, who sit in an office smoking and being smoked at, forgetful of the successive hours during which they smoke. While there is less drinking of liquor, there is more smoking. The corner saloon is being replaced by the convenient corner cigar store, a welcome social change. The effect in practice is, that we see fewer cases of cirrhosis of the liver and alcoholic gastritis, but more cases of cancer of the mouth. Physicians may well take note and wisely advise the *temperate* use of tobacco for those who find it an agreeable habit at home and a help in business. Strangely enough, it seems to be a helpful stimulant to business men of some temperaments. A charming gentleman and successful merchant once told me he couldn't conduct business sitting "dry-mouthed" on opposite sides of a table with a man, unless they had cigars. But if he had a cigar, he could always talk and think better and get the advantage of his customer. Such is competitive business!

[How about the effect of the cigar on the customer?]

The intemperate use of tobacco is apt to be a legacy. An intelligent Italian of middle age recently appealed to me for relief of cancer of the tongue, too far advanced for hope from any known remedy. Not long after, his well-to-do brother came to see if the burning pain on his tongue was the beginning of cancer. Both brothers had been heavy smokers from boyhood. The father and mother smoked constantly. On inquiring details the son said his dear little old mother always had her pipe in her mouth. For three years before her death she was crippled with rheumatism. Every joint was crippled so that she could only lie awkwardly in bed, from which she was lifted in and out. He imitated the cunning way in which she would twist her hand up to her mouth with the ever-present pipe; and if at night she couldn't sleep, she had a pipe by her bedside and would smoke, even at 3 A. M.

The son was quick to see that he and his brother were victims of tobacco, and abruptly stopped it. He had in his mind a new generation of his own children.

That same week two fine young men, brothers, came to me with beginning cancer of the mouth. They might have been twins in appearance and in disease. They could not remember when they had not smoked, beginning with cigarettes at twelve years old. I asked if their parents sanctioned it. "Why, yes. Father smoked all the time himself." I asked about *his* health. "Very well, except until lately he had a cancer of the whole lower lip, and the doctors had to cut it all away and make him another." Both men gladly and easily broke the smoking habit, and one told me, two months later, he was "gaining flesh, was less nervous, and never felt so well or was so successful in his business."

To make clearer the point of the legacy of tobacco, let me state briefly the case of a gentleman who recently consulted me for an early stage of mouth cancer, to whom I gave the usual counsel that I could do nothing until he gave me his help by stopping his inveterate smoking. He said he had once stopped for a few weeks, and he could do it again. I said this time it must be for good. His wife said she would see that he did. In two weeks he came to report his success, and was ready to be treated. I had advised him to get all his cigars out of his room to avoid temptation, and asked him if he had cleared his desk and library of tobacco. He said, "Yes, indeed, I gave *all* my paraphernalia — pipe, cigar cutters, everything — to my son." "What," I said, "to *your son?* That's a nice legacy!" "Oh," he said, "he's one of the steadiest of men — very temperate. I can trust him not to overdo it." I could not help reminding him that one of our great national heroes smoked incessantly, as every one knew, and suffered and died from the consequence of disease of his throat. His distinguished son, also a heroic figure in our army, adopted the same habit, smoked equally incessantly, and suffered and died of the same terrible consequence. This is a heavy price to pay for the intemperate use of such a throat-irritating and unnatural habit.

Tobacco smoking is increasing year by year in our country. Collegians are lured by seductive advertisements, which are excluded from two college papers only, and form a large part of the paying advertisement. Of the senior class in one of our finest universities, among 230 members were 136 smokers, 50 of whom began after entering college — a legacy of the college to its alumni.

There is no reason to believe that smoker's cancer is in any sense an inheritance, but merely the legacy of a habit which, when intemperately indulged, results in identical bad results, in a certain number of cases. Whatever the frequency of this grave result, the fact of its unquestionable relation to the intemperate use of tobacco is established.

THE SIMPLEST EXERCISE CHEAPEST AND BEST

WITH all the paraphernalia of the gymnasiums, the golf links, the tennis courts, and the athletic fields, we have yet to find an exercise more universally applicable and more beneficial than walking. Lest the writer be accused of making an unwarranted statement, it may be well to quote from an editorial in the November issue of the *Southern Medical Journal:* —

" The ideal form of exercise is walking. One of its greatest advantages is its almost universal availability. Then, too, unlike many gymnasium forms, it does not develop one set of muscles and neglect others. It calls into a greater or lesser degree of action most of the organs of body and mind, and is less liable to result in serious exhaustion than any other form of exercise.

" Professional walkers are long-lived, and are good insurance risks, but professional athletes are shunned by life insurance companies because too many of them die early of enlarged hearts or hardened arteries.

" When a man walks for exercise, he generally does so out of doors, and his whole physique participates in the effort. The blood absorbs the resulting carbon dioxide, and races to the lungs to discharge it and receive increased quantities of oxygen. The heart responds with stronger impulses, and sends new nutriment to the remotest tissues to repair their loss. The heat centers respond to the stimulus, the cutaneous capillaries expand, and the sweat glands eliminate more freely the retained impurities. The attention of eye and ear is required to direct his progress; and interest in his environment is awakened, so that he forgets that exercise is his object, and enjoys what Stevenson calls 'the wonderful pageant of consciousness.' "

In this day of street cars and motor cycles and automobiles, we should not forget the virtues of the exercise universal, which civilization is attempting to relegate to the scrap heap. The *Journal* gives some cautions in regard to walking which should be heeded by those who are not vigorous: —

" Tramps of five or ten miles a day may do for the young and vigorous, but not for the aged, the infirm, or the convalescent. The golden rule is: Never walk until fatigued. One hour of great fatigue may undo a month of careful upbuilding.

" We must teach our patients to remember that they must not go so far that the return trip will make them very tired. For most convalescents the instructions should call for a walk of half a mile away, a good long rest sitting down, and then the walk back again. Even this would be too much for many."

G. H. H.

UNITED STATES GOVERNMENT ROUNDS UP THE NOSTRUMS

THE United States Department of Agriculture has brought action against certain proprietary preparations, or rather against the manufacturers or dealers, for violation of the national Food and Drugs Act, on the ground that the labels or other reading matter accompanying the packages contained extravagant or misleading claims. In some cases the nostrums were ordered forfeited and destroyed, in others fines were imposed, sometimes as high as $300. Among the preparations against which decrees were obtained are the following:

Dr. Thatcher's Liver and Blood Syrup
Stella Vitae
Walker's Pain Destroyer
Electrozone
Root Juice Compound
Black's Pulmonic Syrup
Musterole
Snyder's Bitters
Orange Blossom Female Suppositories
Tuberculoids
Dr. Miller's Vegetable Expectorant
Dr. Simpson's Vegetable Compound
Hamlin's Wizard Oil
Brazilian Balm
Tu-Ber-Ku
Dr. Stuart's Specific Drops
Dr. Kaufmann's Sulphur Bitters
5 Drops
Collins' Ague Remedy
Swaim's Panacea
Swayne's Panacea

Dr. D. M. Elmore's R'eumatine Goutaline
Armstrong's Croup Ointment
Anticephalalgine
Dr. Sullivan's Sure Solvent
Hesperian Tonic
Temple of Health
Vegetable Pulmonary Balsam
The-Best Cough Remedy
Spohn's Distemper Cure
Mecca Compound
Croxone
Birch Mountain Medicinal Tea
Russell's White Drops
Dr. Freeman's Balsam of Fir Wafers
Gem Balsam
Pneumovita (Life of the Lungs)
Mayr's Wonderful Stomach Remedy
Schuh's Yellow Injection
Schuh's White Mixture
H G C
Wright's Rheumatic Remedy
Renne's Pain Killing Oil

An account of these proceedings, with the misstatements on the various labels, is given in S. R. A.— Chem. Suppl. 18, of the United States Department of Agriculture, which may be obtained by sending fifteen cents *in coin* to the Superintendent of Documents, Washington, D. C. Supplements 19 and 20 have since been issued, giving the judgments against a large number of other nostrums for which fraudulent claims had been made. The fact is, if it were not for fraudulent claims, patent medicines would find comparatively few buyers.

G. H. H.

ECONOMY HINTS

L. A. HANSEN

Look over potatoes, apples, etc., regularly for spoiled ones.

Airing the cellar helps to keep vegetables and canned fruit.

Old laundry soap usually sells cheaper than new, and is all the better for its age.

When some vegetables are too high for your purse, be satisfied with substituting others; if cauliflower is out of reach, use cabbage.

Good cooking and dainty service go a long way toward making cheaper foods attractive.

When setting egg yolks away, cover with water to keep them from drying.

Don't be afraid to live up to your own standard. It is better than to pretend to be able to live above your means.

Don't let fictitious values of appearances and display run you into debt.

It is the cost of high living that pulls down hard on some people. Add to that the present high cost of living, and little wonder that it is felt.

Don't scorn thrift and economy, nor work done by your own hands.

Remember that housekeeping is a *business*, and should be run on business principles. That means, for one thing, that to succeed it must have an income sufficient to cover the outgo, and then some.

Consider the personal tastes of the family. Food thrown away means money, labor, and time thrown away.

Leftovers represent a finished product value, including raw material, time, and labor. Pound for pound they are the most valuable food material in the house.

Less variety on the table helps toward good cooking, wholesomeness, and true economy.

The fireless cooker has been fully demonstrated to be a saver of money, time, labor, strength, and worry. Besides, it makes better cooking possible.

Don't buy breakable dishes for kitchen use. Gradually acquire aluminum ware.

The Tungsten filament electric-light bulbs are decidedly money-savers, and give greater satisfaction in the quality of light, giving increased light with reduced current consumption.

End-of-the-season buying of clothing generally means a substantial saving. A conservative cut or style helps toward longer wear.

Mixed goods are easier to clean and press than plain; rough goods are preferable to smooth ones in this respect.

Fewer clothes will allow better ones. One tires sooner of figured fabrics than of plain ones.

Bargain sales that require haste in buying usually bring regret when there is more leisure to examine goods. Take time to know what you are buying, and make sure it is what you want.

Learn what are standard goods of their kind, and purchase only such. "Seconds" in guaranteed goods are better than "firsts" of poorer grades, provided, of course, the defect in the "seconds" is not too serious.

Saving little amounts toward the purchase of clothing enables one to buy a better quality, and to select the most suitable opportunity for buying.

Goods that are "marked down" are not necessarily bargains. It depends on what the original price was, and what the present value of the goods is.

This is a service for subscribers to LIFE AND HEALTH.

If a personal reply is desired, inclose a two-cent stamp.

If you are not already a subscriber, send also the subscription price with your question.

Replies not considered of general interest are not published; so if your query is not accompanied by return postage for a personal answer, it may receive no attention whatever.

Remember that it is not the purpose of this service to attempt to treat serious diseases by mail. Those who are sick need the personal examination and attention of a physician.

State your questions as briefly as possible, consistent with clearness, and on a sheet separate from all business matters. Otherwise they may be overlooked.

Blood Purifier

"What do you think of sulphur as a blood purifier?"

The principal use of sulphur is as a laxative. The fact is, physicians now make very little use of the term "blood purifier." If given half a chance, the blood will purify itself. This is best done by the avoidance of indigestible foods and foods that result in intestinal decomposition, and by exercising, bathing, etc.

Nervousness and Worry

"I had quite a bit of trouble with nervousness during the summer, and still have it. Throughout the day everything seems to worry me, and life really seems dismal. Kindly suggest some relief."

It is not easy to determine from your description whether your condition results from some disappointment, or whether the worry of which you speak is secondary to some nervous condition, or some disturbance of your internal secretions.

One of the most valuable and infallible remedies for worry is a sound Christian experience. One who has become acquainted with God, who has learned the value of prayer, and who can from day to day commit to his keeping all the affairs of life, will be in a sphere where worry cannot touch him.

Atomizer Formula

"Please give me a formula for the best mixture to use in an atomizer for catarrh. My throat is dry and my nose sore a great deal of the time."

You might find glycerin and water, half and half, to be useful in preventing the dryness of which you complain. It is possible that this same solution used in the nose, if it is not too irritating, will prevent the cracking and bleeding. I will suggest also the use of vaseline, preferably the carbolated vaseline. If this application is made frequently, it will prevent very much of the dryness and cracking of which you complain.

If you desire a cleansing solution, you will find the alkaline antiseptic tablets (usually sold by druggists) excellent for this purpose; or you can prepare a solution yourself by using baking soda and common salt, equal parts, a teaspoonful to a pint of water. That would be about one-half teaspoonful of each. Or you can mix salt, baking soda, and borax, and get excellent results. If you get a proper proportion of the mixture to the water, it will be an agreeable application, but if it is either too strong or too weak, it will be irritating. The water should be about the temperature of the body to produce best results.

Irritable Eyes

"My sight is fairly good, but on windy days my eyes run with tears, which blind me. In the morning the lids are very red, and the secretions have become very sticky. I am fearful of quack eye specialists. Kindly give me some advice."

It is possible that you might relieve your eyes by the use of some antiseptic wash, for instance, a saturated boracic acid solution. To prevent the stickiness, you might, in the evening, after the use of the boracic acid solution or dilute peroxide of hydrogen, apply vaseline to the ball and lids of the eyes by means of a swab made by twisting a small wad of absorbent cotton on the end of a toothpick. But there is a possibility that your difficulty is serious, and if allowed to continue, might result in the destruction of your eyesight.

You are right in fearing to go to a quack eye specialist, but there are eye specialists who are not quacks. You will doubtless find some reputable oculist in your own city who is known to be such by other physicians. If you have a family physician, or a physician with whom you are acquainted, he will gladly direct you to some reputable oculist.

Obesity

"Kindly inform me whether the inclosed advertisement [one of the quack remedies for reducing flesh] is harmful, or would it be helpful? Is there any cure for obesity?"

I know nothing of the particular nostrum mentioned in the clipping sent by you; but this I do know, that no antifat preparation that has ever been examined has proved to be anything more than an unmitigated fraud.

Those that have any effect whatever accomplish their purpose by ruining the digestion, so that while one loses flesh, he loses health at the same time.

When one tends to abnormal increase in weight, there are two legitimate remedies,—one, to cut down the intake of food, and the other, to exercise more. Both are ordinarily difficult for one who has good digestion and a keen appetite, and who is carrying weight which makes exercise irksome.

We shall publish later an article on the treatment of obesity. We are frank to say, however, that the home treatment of this disease is not very satisfactory, and if you can possibly go to a sanitarium where you will be under strict supervision, you will be more apt to see results from the treatment.

Treatment for Stomach Disorder

"I have gastric catarrh. Will massage to the stomach and intestines accomplish the same as sinusoidal electricity for dilated stomach? Can dilation of the stomach be cured?

I doubt that either massage or electric current will have very much effect on a dilated stomach. These treatments, however, are beneficial in improving the symptoms. A "dilated stomach" is not necessarily connected with bad symptoms, and it is possible, if the condition is not excessive, that you may be able to mitigate the symptoms so that you will have no further cause of complaint. This, however, will necessitate a careful regulation of your diet.

Among the things necessary to give you the best service from your stomach will be good teeth conditions, with dental attention to any cavities or diseased gums, thorough mastication, and ample time between meals.

If you can possibly arrange to do so, we should strongly advise that you have a course of sanitarium treatment.

Chronic Malaria

"In 1894 we lived in a swamp, and all the family had chills. I have lived in various places since, being subject to considerable exposure, and have had attacks of chills and fever at different times. I tried to attend school in 1913-14, but would catch cold in the schoolroom. I also had headache part of the time. At my last attempt I could not make passing grades on some of my studies. When I felt worse, my skin seemed to color my clothes; and if I scratched it, a yellow fluid came out. A trip to the mountains improved me wonderfully, but I still have some constipation and catarrh. When I try to study, my blood seems to stop circulating, and I am unable to use my mind. Is it wise for me to continue going to school?"

I judge that you are a sufferer from the effects of repeated attacks of malaria. The yellow oozing you mention would indicate a jaundiced condition, probably caused by a disturbance in your blood by malarial parasites, though it may be due to disturbance of the gall bladder. Most of your other symptoms are possibly due to malarial infection.

There is a possibility that your drowsiness is due to hookworm infection. This could be determined only by a microscopic examination.

I should think from what you write that it would be unwise for you to continue your studies. You probably will not be able to improve yourself enough to pay for the time and the expense involved. As your health is not so good in school as it is when in the open, it would seem to me that it would be better for you to select some comparatively high altitude away from any malarial influence, and make your living, as far as possible, by outdoor occupation. Life in the open, even when it involves more or less exposure, is better for you than life in the schoolroom.

Mouth Wash and Toothbrush

"Kindly recommend a mouth wash, and an antiseptic to be used for a toothbrush."

For a mouth wash, one may use almost any of the antiseptic preparations if he cares to pay for them, such as dilute peroxide of hydrogen, but there is no evidence that any of these preparations have much effect on germ growth. A little plain water, or salt water, will serve the same purpose. The tooth pastes are of some little advantage in that they help to remove matter from the surface of the teeth that would not be readily removed by the toothbrush.

Regarding the toothbrush itself, some dentists believe that it cannot be improved with an antiseptic, and that the germs on the brush, if it is properly cared for, would be the germs that are naturally in the mouth, and hence would not be injurious. The toothbrush should be thoroughly dried, if possible in the sunlight.

I should suggest the purchasing of a cheap brush, to be renewed as often as necessary. In Washington a brush can be obtained for ten cents. It is much better to buy five of these, and throw them away at short intervals, than to buy a fifty-cent brush and keep it for a longer period.

Cure for Tobacco Habit

"Please tell me a harmless cure for the tobacco habit."

If you refer to some medicinal or chemical cure for the tobacco habit, I know of none such. There have been cures of this kind advertised, but I know of none that is worth anything for this purpose.

Dr. D. H. Kress has had great success in treating victims of the cigarette by painting the mouth with a weak nitrate of silver solution, or by having the patient rinse his mouth with such a solution, say one grain of nitrate of silver to an ounce of distilled water.

Mr. Max MacLevy, who was a victim of the tobacco habit and cured himself, has written a book, "The Tobacco Habit Easily Conquered." This book can be obtained from us at the publisher's price, $1.25; or we will send it to you with a year's subscription to LIFE AND HEALTH, or the extension of a subscription for a year, for $1.50. This practically gives you the book for 50 cents.

An article on the cure of the tobacco habit will be published in a future number of LIFE AND HEALTH.

SANITARIUM NEWS NOTES AND PERSONALS

Washington Sanitarium, Takoma Park, D. C.

The new gymnasium and swimming pool are proving very popular with the sanitarium family, both patients and workers, and also with the people of the community. The chief regret regarding these recent improvements is that so much enjoyment has been lost in not having had them earlier.

The superintendent, Dr. H. W. Miller, recently made a visit of inspection to the sanitariums in Indiana, Illinois, and Wisconsin, besides making a few visits of clinical interest on the way.

Mr. C. C. Pulver, formerly connected with the business office of the Washington Missionary College, has for some time been assisting in the business affairs of the sanitarium, with great satisfaction to his associates.

A news item from the Washington Sanitarium Mission Hospital tells of the marriage of Miss Lillian Harris to Dr. L. H. Ritzhaupt. She is a graduate of the training school of the Madison (Wis.) Sanitarium, and he is taking the fourth year of his medical course at the George Washington University Medical School. He is also acting as house physician at the hospital. Mrs. Ritzhaupt has taken up her duties as head nurse and matron of the hospital.

Miss Elsie Thompson, who was recently graduated from the Ohio State Hospital, at Columbus, has connected with the Washington hospital. Miss Okel Holderman, a graduate of the same institution, has also connected with the hospital.

A recent addition to the hospital is an obstetrical ward and delivery-room. To provide these additional rooms necessitated the removal of the nurses, which led to the opening of a nurses' home. This is situated near the hospital.

New England Sanitarium, Melrose, Mass.

The New England Sanitarium *News Letter*, under the capable editorship of Mrs. H. B. Steele, is proving of interest to a large circle of readers, including a number of nurses and other workers who have from time to time gone out from the institution, as well as a large family of stay-at-homes. We glean a few items, which we give herewith: —

Dr. W. A. Ruble has found time from his busy institutional work to give health talks in connection with a series of gospel meetings conducted in a suburb of Boston.

A number of the family have assisted Pastor E. L. Cardey in the Saturday night meetings in Boston. These meetings have been held from automobiles, and have attracted audiences of hundreds of people.

Mr. Orson C. Warner, with several years of sanitarium experience, renders valuable aid as assistant manager.

Mrs. H. B. Steele is the present sanitarium matron, filling the vacancy made by the departure of Mrs. J. G. White for the China mission field.

The patronage of the institution the past season has been the largest in its history. At times the patients' dining-room has been so crowded that additional room had to be utilized.

Mr. and Mrs. L. J. Borrowdale, graduates of the institution, were recently appointed as missionaries to the Inca Indians of Peru.

Miss Nora Lacey, head nurse, rejoices over a recent addition to the nurses' family. The newcomer was much desired. She is perfectly helpless, yet is of great service to all the family, especially those of the training school. In order to secure her to the institution, a fund was raised by general subscription of the workers. While she is not a beauty, she is, after all, greatly admired. "Emily" is a hospital doll of unusual qualifications.

Mr. G. E. Cornforth spent some time at Portland, Maine, conducting a school of health under the auspices of the Housewives' League. The interest was good from the first, the attendance increasing until it numbered from seventy-five to one hundred. Demonstrations in the preparation of foods were given, with explanations. Nurses demonstrated treatments, which were also very interesting. Some of the expressions of appreciation given at the close of the health school were to the effect that the instruction received was a godsend.

Kansas Sanitarium, Wichita, Kans.

Pastor M. A. Altman, recently of Colorado, is now acting as chaplain. With the assistance of Mrs. Lillie Bland, a Bible worker, the freshman nurses are receiving training in field missionary work.

The new head nurse, Miss Ada Page, a graduate of the Washington (D. C.) Sanitarium, is carrying on her work acceptably.

A number of improvements in the main building have been made. Mr. Burton Castle, the business manager, writes very encouragingly of the outlook for the institution. He states that the recent patronage has been highly satisfactory.

The sanitarium has opened a city branch, with treatment-rooms and physician's office located at 204 North Topeka Ave. The local patronage of the sanitarium has developed to such an extent that the establishment of these treatment-rooms was warranted. Mr. and Mrs. Roy Birdwell, graduates of the sanitarium, are in charge. Dr. R. L. Stokes, the superintendent, has daily consultation hours there.

Loma Linda Sanitarium, Loma Linda, Cal.

Dr. and Mrs. A. W. Semmens, and their son Keith, sailed for Auckland, New Zealand, Nov. 28, 1916. The doctor was graduated from the Loma Linda Medical College in June, 1915, and was placed in charge of the Loma Linda hospital the following September. He and Mrs. Semmens, who is a graduate nurse with many years' experience, have faithfully carried the responsibility of the hospital. They will take up medical practice in New Zealand, from which place they came to the States about seven years ago.

Mr. Ernest Lloyd and his assistants are making a decided improvement in the appearance of the grounds around the sanitarium, by trimming the large pepper trees.

The new Southern Pacific station is almost completed, and is ready for painting. The community feels gratified to see such a roomy, substantially constructed building erected at this place.

Dr. J. L. Maroon has lately arrived from Portland, Maine, and has assumed the work of house physician, a position heretofore filled by Dr. L. V. Trott.

Dr. Lillis Wood-Starr, Clarence Nelson, and Philip Acosta are conducting a series of lectures in two of the San Bernardino public schools,— the Meadowbrook School and the West Fifth Street School. They visit the first-named school every Thursday evening, and the other every Saturday evening. The lectures are of an educational character, dealing with simple principles in anatomy, physiology, personal hygiene, sanitation, and health and temperance. The instruction is given entirely in Spanish, since the patrons of these schools are Mexicans. The interest seems to be increasing. The stereopticon is freely used to illustrate what the speaker says. There is always singing, accompanied by instrumental music, in which all take part, using Spanish songbooks; and sometimes specially prepared slides are used to throw Spanish music on the screen. Several school officials of the city, as well as the teachers in these schools, have attended, and expressed themselves very favorably as to the value of these lectures to the students and their parents. Messrs. Nelson and Acosta are students in the medical school here. They are frequently assisted by others who are able to speak to the Mexicans.

Nebraska Sanitarium, College View, Nebr.

Forty-five nurses are in training. The institution is finding a great demand for its graduates.

The surgical ward has for some time been full, and the patients are doing well.

The parlor and dining-room show marked improvement, with their newly tinted walls and other repairs.

Public lectures, with demonstrations, given by Dr. Eva Shively, Mr. C. A. Skinner, and others, have been appreciated by nurses and patients.

Florida Sanitarium, Orlando, Fla.

Mrs. A. M. Lord, head of the culinary department of the Attleboro Sanitarium, recently made a visit to the sanitarium. During her visit to Florida, Mrs. Lord attended the wedding of her daughter, Miss Edna Lord, to Mr. Joseph Currier. Miss Lord was a nurse at the Florida Sanitarium, and Mr. Currier is a prominent business man of Orlando.

The opening exercises of the new nurses' class were held in the sanitarium church on the evening of November 16. Very appropriate remarks were made by the president, Pastor W. H. Heckman; the superintendent, Dr. R. S. Ingersoll; and the matron, Miss Emma Dinesen. Those composing the class are Misses Harvey and Jones, of Daytona; Misses Currier, Datson, and Shreve, of Orlando; Miss Whidden, of Useppa; and Miss Ogletree, of Tampa. The class motto was "In His Service."

Mr. and Mrs. W. W. McCabe, nurses, formerly of the Attleboro Sanitarium, have recently connected with this institution. Mr. McCabe will have charge of the men's treatment-room, and Mrs. McCabe of the ladies'. The sanitarium is very much pleased to secure the services of these competent workers.

From present appearances the winter season in Florida will be an exceptional one. Already thousands are seeking this Mecca of health, and are enjoying the balmy air and sunshine. The sanitarium has an excellent patronage, and a large number of inquiries for rates and accommodations are being received.

Madison Sanitarium, Madison, Wis.

Dr. and Mrs. Riley Russell, recently from Korea, spent a few days at the institution, giving the family several very interesting talks on mission work in the Orient, where the doctor and his wife have spent a number of years.

Many improvements to the buildings have been made the past summer, and a new store has been added, connected with the kitchen. Some of the outbuildings have been reconstructed.

Pastor H. H. Hicks, formerly of Michigan, has connected with the institution as chaplain and Bible teacher.

The sanitarium family took an active part in the Harvest Ingathering campaign for mission funds, and at the last report had raised over $200.

A large amount of critical surgical work has been done of late, with satisfactory results.

St. Helena Sanitarium, Sanitarium, Cal.

A visit from Pastor A. G. Daniells just before his departure for Asia, was greatly appreciated by the entire sanitarium family. He found time to give a sermon in the chapel, and to meet with the departmental leaders, presenting especially the medical missionary opportunities of the Orient.

The beautiful autumn weather and the new treatment facilities have brought to the sanitarium the largest autumn patronage it has had for years.

Pastor J. N. Loughborough has been making his home at the sanitarium for the past two months. His presence is a constant inspiration to the family.

The sanitarium workers and guests were delightfully entertained Sunday evening, Nov. 19, 1916, by the Pacific Union College orchestra, composed of twenty-three pieces, and very ably directed by Prof. Noah E. Paulin.

The sanitarium is contemplating the installation of a complete refrigerating plant during the present winter, at an estimated expense of about $3,500.

Mrs. N. Z. Town, of Takoma Park, Washington, D. C., has been spending several weeks at the sanitarium while her husband is out in the mission field.

Thanksgiving Day was appropriately celebrated at the sanitarium, the institution taking this opportunity to entertain all its workers and their families at a family dinner. The occasion was greatly enjoyed by all.

The annual week of prayer was entered into by the sanitarium family with a longing for a real spiritual uplift. A great need was felt

for a preparation of heart and hands to meet the demands of the hour for true, helpful service. Pastor E. E. Andross was present a part of the time, giving good help.

General

Dr. G. T. Harding, of Columbus, Ohio, has recently opened the Indianola Rest Home, located in another part of the city from his downtown office. Dr. M. E. Houser, for many years connected with the New England Sanitarium, is associated with Dr. Harding. On their staff of workers we note the following: Mrs. M. J. Nelson, a graduate of the Battle Creek Sanitarium; Miss Maisie Heise, a graduate of the Tri-City Sanitarium; and Miss Clara Umlandt, a graduate of the New England Sanitarium. Late reports state that the new institution is already enjoying a full patronage.

Dr. W. C. Dunscombe, many years practitioner and surgeon in Japan and Africa, has recently spent a little time in Washington, D. C. Together with Dr. H. W. Miller, he visited some of the sanitariums and hospital clinics in the Central States. He has been appointed medical superintendent of the Wabash Valley Sanitarium, at La Fayette, Ind., and has already taken up his duties there.

Miss Fanchon Roth, a graduate of the Washington (D. C.) Sanitarium Nurses' Training Course, has taken up her duties as head nurse and matron of the Wabash Valley Sanitarium.

The Southwestern Sanitarium, of Cleburne, Tex., which opened about six months ago, is enjoying a patronage that encourages its promoters to believe that the institution will be highly successful. Of special interest is the surgical work, which has included a number of serious cases.

L. A. HANSEN.

Geriatrics: The Diseases of Old Age and Their Treatment

by I. L. Nascher, M. D. Second edition, revised, 517 pages, 50 plates, 81 illustrations. Price, $5 net. P. Blakiston's Son & Co., Philadelphia.

When Nascher, in 1914, presented to the medical profession a volume on the diseases of old men, he was entering a new field. The demand for the work has necessitated the publication of a second edition, in which, to bring the text up to date, some changes have been made, and a chapter on "Surgical Procedure in Senile Cases" added.

Nascher has avoided the recommendation of new and untried remedies, and has taken a conservative position regarding the value of glandular therapy in old age. Moreover, he has not hesitated to recommend remedies which have in the past been found efficacious, even though there may be no discovered physiological basis for their use.

He treats his subject under the general heads, "Physiological Old Age," "Pathological Old Age," and "Hygiene and Medico-Legal Relations."

The Prevention of Disease

by Kenelm Winslow, B. A. S., M. D. 1916. Cloth, $1.75 net. W. B. Saunders Company, Philadelphia.

Professor Winslow has prepared a volume that gives, in language adapted to the lay reader, the consensus of medical opinion regarding the prevention of disease and the prolongation of life.

His statements are conservative, and would be approved by sanitarians generally. Following the accepted teaching, he sees no harm in a moderate use of tea and coffee, and believes that one should have a moderate amount of meat. The editors of LIFE AND HEALTH are not prepared to accept this teaching, believing that the arguments favoring the use of these articles would not be considered valid were it not for the fact that it is overwhelmingly customary to use and to believe in these articles.

Regarding the harm resulting from the use of tobacco and alcohol, Winslow is much more emphatic.

He gives due consideration to the hygiene of married and of unmarried life.

Among the topics treated (we can select only a few) are: Hygiene of digestion, exercise, clothing, baths, ventilation, and the complexion; prevention of baldness and of germ diseases; the usual "contagious" and infectious diseases, including colds and infantile paralysis. An important chapter shows how local troubles in nose, mouth, and throat cause serious general diseases. Chapters are devoted to the prevention of cancer, rheumatism, children's diseases, the diseases of middle age, nervous and mental disease, food poisoning, obesity, and deformities.

War Diet in Germany

According to an editorial in the *New York Medical Journal*, Nov. 25, 1916, "it has been stated that the Germans, who were accustomed to a generous way of living, and who never stinted themselves in the matter of meat, on the restricted diet rendered necessary by the exigencies of war, are now in better health." Of course! Any one who is eating meat without stint will be better off if some superior power prevents his getting all he wants of it. After all, many of us are children when it comes to eating.

Too Much Meat

The lesson to be learned from a study of the restricted diet prevailing in the belligerent countries of Europe, is that, provided there is a sufficiency of food, and that the various articles of diet are well balanced, the need for meals consisting principally of meat and potatoes is greatly overestimated. In fact, it might be affirmed that in prosperous times many persons not only eat too much, but meat forms too great a proportion of their diet.— *New York Medical Journal, Edit., Nov. 25, 1916.*

Increased Use of Heroin

There has recently been an alarming increase in the consumption of heroin, most prevalent among boys and young men. A meeting of the committee on drug addiction of the National Committee on Prisons, investigating the matter, reached the conclusion that heroin is the chief promoter of vice and crime. Resolutions were adopted stating that since heroin is not so indispensable that its place cannot be easily taken by other less harmful things, the committee recommended federal legislation to prevent the importation, manufacture, and sale of heroin.

Goiter in the Alps

Formerly it was supposed that the prevalence of goiter in the deep valleys of the Alps was due to some impurity in the soil, causing a change in the character of the drinking water. It would seem that this is true, but not in the sense formerly supposed. Dr. Francis Messerli, of Lausanne, Switzerland, as a result of a series of exhaustive researches, has shown that the goiter is due to an infection; that this infection is transmitted to the soil with the intestinal discharges of goiter patients, and thus is transmitted after the manner of typhoid fever, by means of the water. There is nothing in the nature of the soil of the Alps to cause goiter,— no mineral poison,— but a living organism, analagous to the organisms which in this country cause typhoid fever, dysentery, and hookworm disease, by contamination of the soil.

Alcohol Handicaps Surgery

At the annual meeting of the American Association of Anesthetists, physicians participating in the discussion agreed that alcoholism increases the perils of anesthesia, the greatest peril being in the fact that anesthetists are not always aware that the subject is an alcoholic, and so are not on their guard.

Epilepsy a Germ Disease?

Charles A. L. Reed claims to have found an organism which may be the specific cause of epilepsy. It seems to be present in the blood of all epileptics, as far as examined, in large numbers. It is often if not usually present in the intestines of healthy persons, according to Hinklemann, and if it causes epilepsy by entering the blood stream, it must enter from some abrasion of the wall of the alimentary tract. There probably is more than one cause for epilepsy. Jacksonian epilepsy is the result of some injury of the skull, or a tumor affecting the cortex of the brain. Other cases of epilepsy seem to be directly connected with some poison from the intestinal tract.

Ethyl Alcohol from Sawdust

An excellent quality of "grain" alcohol is now manufactured from sawdust, and is said to be indistinguishable chemically from the regular grain alcohol. Wood alcohol is made by distilling the wood. To make grain alcohol, it is necessary first to convert the sawdust into sugar by treatment with dilute acid. This sugar is then fermented and distilled. By a somewhat similar process, the liquor which is a by-product of the paper pulp mills is also made to yield alcohol. It should be remembered that while alcohol used as a beverage is a source of evil, it has many legitimate uses, among which are, as a solvent, as a fuel, as an antiseptic or germicide.

To Destroy Flies

Sodium salicylate and forty-per-cent formaldehyde are the best fly poisons, according to Phelps and Stevenson in *Public Health Reports*, Nov. 3, 1916. Three teaspoonfuls of either of these, according to these writers, added to a pint of water, gives the requisite strength. Nearly fill a tumbler with the solution, place over this a piece of blotting paper cut in a circle a little larger in diameter than the tumbler, and invert over this a saucer. Invert the whole device, and insert a toothpick under the edge of the tumbler to allow access of air. The blotter will remain moist until the tumbler is empty. A little sugar sprinkled on the paper will attract flies. A child would probably not swallow a harmful dose of the formaldehyde, and the salicylate would be practically harmless.

Tobacco and Narcotics

The relation of tobacco, especially in the form of cigarettes, and alcohol and opium is a very close one. For years I have been dealing with alcoholism and morphinism, have gone into their every phase and aspect, have kept careful and minute details of between six and seven thousand cases, and I have never seen a case, except occasionally with women, which did not have a history of excessive tobacco.— *Charles B. Towns, in the Century Magazine.*

Washington Merchants Pleased

A canvass of Tacoma, Wash., as reported in the Tacoma *Tribune,* shows that the merchants of that city have had a gain of twenty-five to thirty-five per cent in business over last year. That is, the prohibition of liquor has increased legitimate business by that much. The financial secretary of the Carpenters' Union says that work is fifty to seventy-five per cent better than last year. Professional men and manufacturers report like gains.

Effect of Antinarcotic Law

At a meeting of the American Pharmaceutical Association, Dr. H. C. Wood, Jr., of Philadelphia, expressed the opinion that the Harrison antinarcotic law had reduced the sale of narcotics by fully 50 per cent. He also expressed the belief that the solution of the problem of narcotism lies in educating the general public to the danger of habit-forming drugs, and a strict adherence by physicians and druggists to the policy of using and selling narcotics only in cases where nothing else will suffice.

Tonsillitis and Heart Disease

W. D. Hoskins *(Indianapolis Medical Journal,* September, 1916) asserts that acute tonsillitis in children is not infrequently complicated by acute endocarditis, or heart disease, resulting in permanent injury to the heart. He advises that children suffering from acute tonsillitis be kept in bed until the fever has entirely subsided and all evidence of tonsillar infection has disappeared. This period of rest will give opportunity for the heart to recover. Care in this matter may save a life, or at least prevent chronic invalidism.

The Injury of Tobacco

Arguments in favor of tobacco for any physical reason are baseless. It does not aid digestion, preserve the teeth, or disinfect, and it is not a remedy for anything. The good it does — and no habit can become general, of course, unless it does apparent good — can only be mental. Let me admit at once that smoking confers mental satisfaction. It seems to give one companionship, when he has none, something to do when one is bored, keeps one from feeling hungry when he is hungry, and blunts the edge of hardship and worry. This sums up the total agreeable results of tobacco. The results I mention — let me admit at once — are both immediate and apparent. On the other hand, the injurious results, after one has become inured to tobacco poison, are both unapparent and delayed.— *Charles B. Towns, in the Century Magazine.*

Diet and the Teeth

Jay I. Durand, in the *Journal A. M. A.,* states that decayed teeth are found in from eighty to ninety-six per cent of school children, and are common in very young children. Diet, he finds, has much to do with the condition. Breast-fed babies and those fed on cow's milk have decay in about forty per cent of the cases. Those fed on sweetened condensed milk have caries in about 70 per cent of the cases.

Ragweed and Hay Fever

According to the *Scientific American* it is now believed that fully eighty-five per cent of the hay fever prevalent in the autumn is due to the pollen of the common ragweed, while the goldenrod, which has been popularly credited with being the chief cause of the disease, is almost innocent. The pollen of ragweed is carried in great abundance by the wind. That of goldenrod is borne chiefly by bees and other insects.

War Causes Straight Thinking

Sir James Crichton-Browne, at a conference held by the Bread and Food Reform League, stated his belief that oatmeal is the most nutritious of cereals, and certainly the most economical. Probably, he said, the people are better fed now in war time than in any previous period; but it is evident that cheaper food will be required to take the place of beef, eggs, and milk. Whole cereals will supply the necessary requirements, but it is essential that they shall not be robbed of their principal constituents. Dr. Salesby urged the importance of utilizing during war time whole cereals, especially wholewheat flour, oatmeal, unpearled barley, and unpolished rice.

Purity of Natural Ice

As a result of careful examination of natural ice from various sources, H. S. Cummings found the ice to be purer than the water from which it was frozen. Only traces of chlorides were found, a pretty safe indication that the ice is not contaminated. In one case where the raw water contained 12,000 bacteria per c. c., the ice from the same water contained only 125 bacteria per c. c. In other instances there was a similar reduction, averaging about 99 per cent. Ice from natural sources, if not badly contaminated, is likely to be fairly pure; moreover, as natural ice stands for some months before use, the number of bacteria diminish. Any ice is liable to be contaminated in handling.

Domestic Remedy for Rheumatism

When we are told that carrying a potato in the pocket or wearing a certain kind of ring will cure rheumatism, we are apt to be skeptical. We should probably class in the same category with such remedies the advice to dust sulphur in the socks; and yet we have word from no less authority than Sir Lauder Brunton, that a patient of his, a woman with rheumatism, whom he failed to cure, was advised by a friend to put sulphur in her stockings and wear them at night; and as a result of taking the treatment she was cured. Brunton comments that at least the remedy can do no harm.

Growing Nuts

The *Scientific American* suggests that it is strange that farmers do not think more of utilizing odd corners of their farms by planting trees bearing edible nuts, such as the walnut, chestnut, pecan, or shagbark. Many farms have waste places not profitable for ordinary crops, which might be made to yield a good revenue. The shagbark hickory is suggested as a promising tree for this purpose.

To Prevent Staling of Bread

Mr. Arnold Wahl, at the recent meeting of the American Chemical Society, described a new method of preventing the staling of bread. The bread is cooled after baking, in an atmosphere of carbon dioxide freshly produced for the purpose by fermentation. Ordinary bread stales by the oxidation of its protein, while bread cooled in an atmosphere of carbon dioxide will remain fresh for several weeks because oxidation is prevented.

Diet and Skin Disease

Recent research shows that practically all psoriasis may be controlled by strictly limiting the amount of protein eaten; that some cases of eczema are favorably influenced by a properly modified diet; that chronic urticaria does not seem to be much modified by diet, though acute urticaria is usually of dietetic origin; and that acne is not much modified by correction of diet.

Metric System in Pharmacopœia

The revised edition of the United States Pharmacopœia now in preparation uses the metric system exclusively. This means that prescriptions hereafter to conform to this standard must be made out in the metric system. The United States Bureau of Standards has accordingly issued a circular on weights and measures for the instruction of physicians and druggists. Doubtless our trade with South American countries will compel exporters to adopt the metric system, and in time it will be in general use, as it is now the only system used in scientific work.

Paratyphoid in Europe

There has been no great outbreak of typhoid fever in any of the armies during the present war, but paratyphoid has been quite prevalent. Widal and Gourmont, after careful observation, advise the use of a triple vaccine consisting of the use of typhoid, paratyphoid A, and paratyphoid B germs. As a result of their experiments they are able to recommend the vaccination as being harmless and protective.

A New Metric Term

For the very common but very inconvenient "cubic centimeter," abbreviated "c. c." or "C. C.," it has been proposed to use the term "mil," meaning a thousandth, the cubic centimeter being a thousandth of a liter or cubic decimeter. The name in full would be milliliter. For a time, until the new one is familiar, it will probably be common to use both expressions, thus: a teaspoonful is equivalent to about 4 mils (4 c. c.).

Correspondence Course in Physiology and Hygiene

The readers of LIFE AND HEALTH may be interested to know that the Fireside Correspondence School of Takoma Park, D. C., conducts a correspondence course in physiology and hygiene, in addition to about forty other courses, including courses in all the common branches, and in German, French, Spanish, and Italian; the language courses with a phonograph if preferred. For particulars, address Fireside Correspondence School, Takoma Park, D. C.

Treatment of Obesity by a Rational Diet

Cornwall, in the Boston *Medical and Surgical Journal*, advises the careful use of scales in apportioning the food given to a patient inclined to be overstout. Where there is an insufficiency of nitrogen metabolism, animal foods should be excluded. Include plenty of fresh fruits and vegetables, avoiding indigestible foods, the purines, and oxalic acid; also consult as far as possible the taste of the patient. Water may be used in ordinary quantities; begin giving one thousand calories less than the normal health ration, making the cut principally in the fat and carbohydrates, with very little reduction of protein. As a rule, do not try to reduce more than two pounds a week. Do not attempt to reduce aged persons who have been obese for a considerable time. Be cautious about reducing those afflicted with serious disease, and discontinue the restricted diet if any symptoms of weakness appear. In most cases allow occasional periods of rest from the rigid diet, and while giving the minimum normal rations note if the weight increases.

The Wabash Valley Sanitarium

La Fayette, Indiana

A modern Medical and Surgical Institution, "on the banks of the Wabash," in a beautiful wooded cove, with a range of picturesque hills as a background. A better location would be difficult to find anywhere.

This institution is thoroughly equipped with all the necessary appliances for giving the very best Hydropathic and other Rational Treatments. A fine X-ray apparatus is included in the equipment.

1836 1917

Adequate Banking Facilities

are offered those desirous of forming a relationship with a sound, time-tested institution

ACCOUNTS OF INDIVIDUALS, FIRMS, AND CORPORATIONS INVITED

OFFICERS:

CHARLES C. GLOVER, President.
MILTON E. AILES, Vice President. WILLIAM J. FLATHER, Vice President.
JOSHUA EVANS, Jr., Cashier. HARRY V. HAYNES, Asst. Cashier.
AVON M. NEVIUS, Asst. Cashier. ROBERT V. FLEMING, Asst. Cashier.

DIRECTORS:

Charles C. Glover	H. Rozier Dulany	E. V. Murphy
Thomas Hyde	Charles I. Corby	Sterling Ruffin
James M. Johnston	Sylvester W. Labrot	Charles Carroll Glover, Jr.
William J. Flather	Robert C. Wilkins	J. Kemp Duval
Milton E. Ailes	Joseph Paul	Louis E. Jeffries

Resources over $16,000,000

The Riggs National Bank

Washington, D. C.

(Formerly Riggs & Co.)

These Sanitariums

Have qualified, regular Physicians, skilled Surgeons, trained Attendants, graduate Nurses, and thoroughly equipped Laboratories.

Their Institutional Apartments are models of convenience for the scientific administration of every modern Physiological Therapeutic treatment.

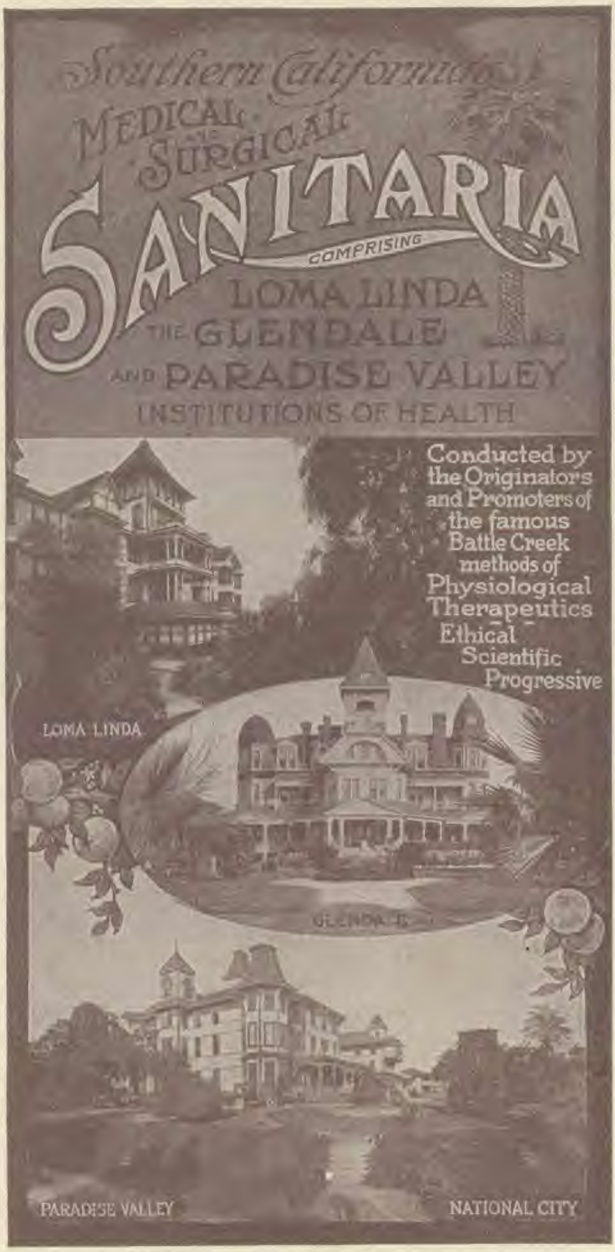
They are conducted in harmony with medical ethics, and physicians who may desire to send their patients to these institutions for special attention and treatment, can do so, knowing that their own instructions and prescriptions will be carefully administered in each case.

All Europe is War! War! War! Come to the Peaceful Pacific and visit the world's fair exposition at San Diego.

While touring Los Angeles and vicinity, rest at the Glendale Sanitarium. When in the Riverside and Redlands district, stop at the Loma Linda Sanitarium, and when visiting the San Diego fair, accept an invitation to the Paradise Valley Sanitarium at National City.

Each of these Health Resorts has its own peculiar points of excellence to offer its patients and guests.

Address for Illustrated Souvenir



THE LOMA LINDA SANITARIUM - - LOMA LINDA, CAL.
THE GLENDALE SANITARIUM - - - GLENDALE, CAL.
THE PARADISE VALLEY SANITARIUM NATIONAL CITY, CAL.

Or the City Office, No. 417 West Fifth Street, Los Angeles, Cal.