

# DIET AND HEALTH

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## WHAT SHALL WE EAT?

If it is true, as many eminent authorities say, that health, happiness, beauty and efficiency depend upon eating more than on anything else, it is worth while to know what to eat.

Henry Ward Beecher said that a man with a poor liver can't be a good Christian. Certainly it is easier to exercise the Christian graces when one is free from biliousness.

When Bishop Fallows says that "You can make a man good or bad according to the way you feed him," he is not denying the importance of the condition of the heart, but emphasizing the importance of the state of the stomach. Daniel prepared himself and his companions for the wonderful ordeals through which they passed by dieting as well as by prayer, and the Master himself by fasting 40 days.

As we watch the amoeba, the typical unicellular organism, which closely resembles a blood cell, under the microscope, we find it changing its form, gradually, continually. It is all stomach, enwrapping its food and digesting it as a single organ; and as a single organ it adapts means to ends in securing a meal, "as perfectly," says Cope, the eminent biologist, "as a statesman adapts means to ends in organizing a government."

The body, therefore, is made up of a myriad of cells, each seeking its own nutrition, its primary, fundamental function, yet possessing the power of socialistic, harmonious action, organized as lungs, liver, heart, etc., subject to the influence of the sympathetic nervous system, which binds all the bodily organs together, so that if one suffers all must suffer in sympathy; carrying on the vital processes into which the nutritional function is organized, unceasingly, while life lasts, yet ever amenable to suggestion through the sovereign, conscious will.

Digestion is not a purely physical process, performed independently by a set of digestive organs. The entire organism is engaged in the process, controlled by the sub-conscious mind, subject to the influence of the conscious mind, the sovereign will. And, conversely, the influence of feeding is not confined to the special digestive organs, nor to certain effects which we denominate "physical." The influence of feeding is all-pervading. It is the mainspring of the mental-physical life. In its essence spiritual, it manifests the life through the use of material substance, food. And upon the quality of the food and the degree of expenditure of vitality in the process of nutrition, depends largely the quality of the life, mental, moral and physical. The question: "What Shall We Eat?" becomes in this light doubly important.

The essential substance of which all animal tissue is made, from the amoeba to the brain of man, is albumen. This albumen is found in the food of all animals. The white of egg is almost pure albumen; and in milk, the food of the young of all the mammalia, albumen is a large constituent. Experiments have been made to determine what foods will alone support life, determining that wheat gluten, which is almost pure albumen, supports life indefinitely longer than any other single element. Flesh, of which the lean is principally albumen, will support life indefinitely, as will milk, eggs, nuts, beans, wheat, corn, oats, dates, which contain a large percentage of albumen with other food elements. Milk has been called the perfect food because it contains, in addition to albumen, all the other elements necessary to build brain, muscle and bone; and the same is true of wheat and of some nuts and fruits. The milk of all the mammalia contains the same food elements, differing chiefly in the amount and kind of the albumen. Cow's milk is not a perfect infant's food because it contains a larger percentage of albumen than its natural food and of a somewhat different character. This important subject will be treated in a subsequent article.

Albumen is found in large percentage in all nuts, in beans, peas and entire wheat bread. Peanuts contain about 30 per cent. of albumen, with 50 per cent. fat not inferior to olive oil, and four per cent. mineral.

Recent experiments have shown that the percentage of albumen required for perfect nutrition is much less than was formerly supposed. The growing child requires probably three times as much as the mature man because it must build new tissue besides repairing waste. An insufficient supply of albumen for the child, if long continued, leads to serious results. A case was recently brought to our attention in which an infant had been fed for several weeks on fresh cream, because it was found that the stomach retained that while the entire milk was persistently rejected. At first there was an apparently satisfactory gain in flesh, but this gave place to extreme weakness and wasting. The cream was mixed with a part of the balance of the milk, gradually increasing

the amount of albumen and other necessary elements of nutrition, and normal conditions soon returned. And here it may be remarked that excess of fatty tissue is an indication of disease, not of health.

The necessary albumen can be obtained from flesh because it is a necessary constituent of the flesh of all animals, including fish. But flesh contains a small percentage of waste matter of the animal's system. It has been repeatedly shown that flesh foods may communicate disease, despite the inspection; and the human alimentary canal is not as well adapted to the digestion of flesh as is the organism of the carnivora, in which the stomach and liver are relatively much larger and the intestines much shorter than in man. The well-known tests of endurance recently made at Yale university proved that non-flesh eaters had much greater sustaining power. In all the great walking contests in Germany and America the winners have been abstainers from flesh meat.

The best sources of albumen, aside from meat, are nuts, beans, eggs and whole wheat or graham bread.

But the character of the albumen is important. Albumen coagulates at a temperature of 160 F., and is then assimilated with difficulty. It is for this reason, partly, that the egg is found to be more nutritious uncooked than cooked. And it is for this reason, chiefly, that such apparently wonderful results have been obtained from the use of raw cereal foods, despite the indigestibility of raw cereal starch.

Understanding, then, that the essential element of food is albumen, in its natural state, the question arises: What is its best and most economical source? Considering economic conditions, which exclude the pecan, walnut, and other expensive nuts, the answer is: The peanut, which furnishes an abundant supply of easily assimilable albumen together with fat, which vies in nutritive value with olive oil. This, with a small amount of graham bread, gives the ideal protein and fat ration. The state of Texas alone can furnish the staple food of our people. The rapidly increasing consumption of the peanut with the corresponding rise in price should induce the planting of a still larger crop the coming season. The incoming crop is the largest ever produced in this country.

Not less than 80 per cent. of the solid part of our food should be that which supports combustion, maintaining heat and muscular energy. This is taken as fat or oil, starch or sugar. A certain percentage of fat is necessary for the best nutrition. If it be true, as many careful students of diet believe, that nuts and fruits are the most natural food of man, this percentage of fat should be large. Animal fats, even milk fat when separated, are assimilated with difficulty and they, particularly lard, are open to other objections. The consumption of olive oil has increased rapidly during the past few years. It is not generally known that peanut fat, as in the uncooked nut or in peanut butter, in which fatty acid has not been developed by excessive dry roasting, is equal, if not superior, in nutritive qualities to olive oil, being assimilated with wonderful facility, as the extreme degree of its solubility in water would indicate.

There are serious objections to cereal starch as the major element of food, which it now is in the dietary of the American people. The potato, especially if baked, is much to be preferred to fine white bread. Rice is far superior to the ordinary cereals as a source of carbon, as the example of the Japanese would indicate.

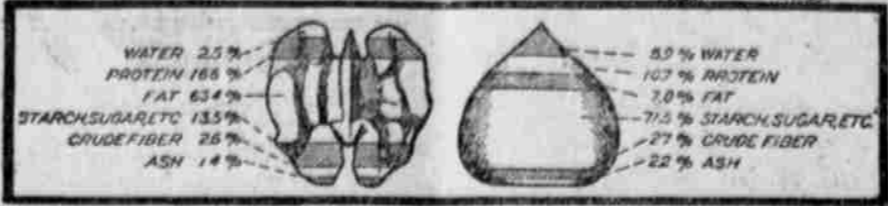
Sugars are the most easily assimilated of foods (including honey), and fruit sugar should be substituted for a large part of our cereal food, cane sugar being inferior. And the best sources of fruit sugar are the ripe banana (almost unknown in this country) figs, dates and prunes.

Fruits are better eaten separately from other foods. Nuts and meat digest in the stomach, chiefly, requiring about three hours there; fruits digest in about one hour, in the intestine chiefly. There is as much objection to mixing them as there is to eating and drinking at the same moment.

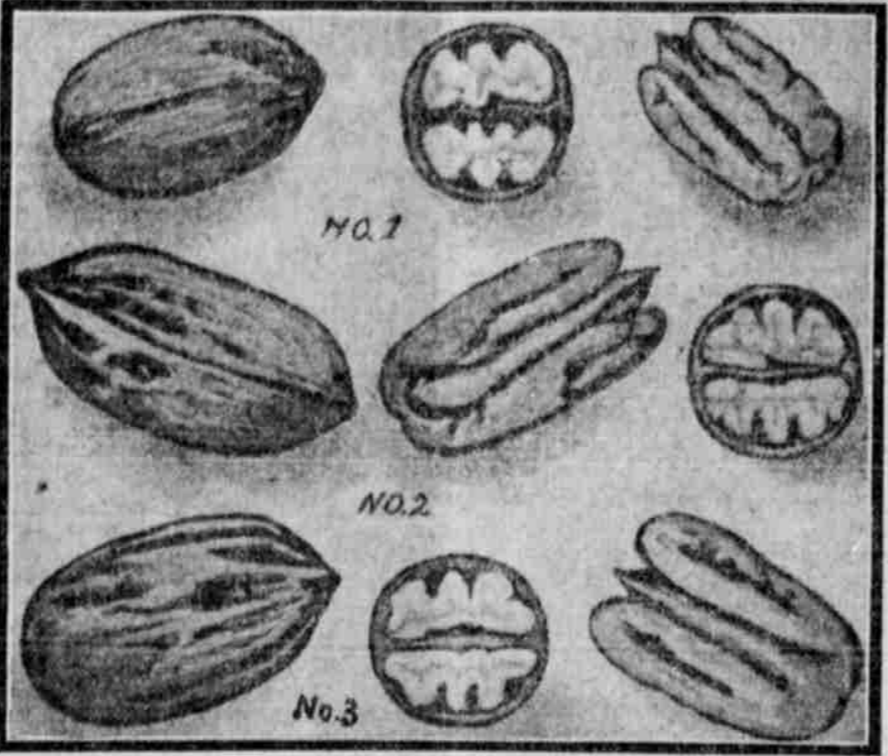
Now without here considering further the requirements of an ideal diet, does it not seem evident that we have already a knowledge of facts that would enable us to make a wonderful gain in good feeling and efficiency by improving the nutritive supply and saving a large part of the vital energy daily wasted in digesting and eliminating improper and unnecessary food, if not for the average person who is slow to realize the benefit to be obtained, at least for the athlete who can quickly demonstrate a gain in efficiency by right diet, for the invalid who needs to conserve his vitality and for the aged whose stock is low (but who has, alas, lost to a great degree the power of adaptation)? Hundreds of invalids who have gradually changed their diet have found new life. Many who have had only the desire for greater efficiency and immunity from disease have made the change. A well-known merchant of Aurora, Ill., for example, who has for nearly a year followed an exclusive diet of juicy fruits in the morning, peanuts with a slice of Graham bread at noon and pines only in the evening, drinking only water between meals, declares that nothing could tempt him to go back to the old way. He says, and his clerks corroborate the statement, that he is worth three times as much in his business; he can write a better advertisement, a better letter; his mind is clear, his conception brilliant, his judgment prompt, his execution sharp, decisive. He rises two hours earlier than formerly and enjoys his work as never before.

# The NUTS POPULAR SEASON

DEMAND FOR THE DAINTY MEATS INCREASES WITH WINTER SEASON



PERCENTAGE COMPOSITION OF AN OILY NUT (WALNUT) AND A STARCHY NUT (CHESTNUT)



NO. 1 WOLFORD, NO. 2 PRESIDENT, NO. 3 SOVEREIGN.

The constantly increasing consumption of nuts throughout the United States augurs well for a better appreciation of their food value. The time when nuts were considered merely as a luxury, or as something to be eaten out of hand at odd times, is rapidly passing away. In earlier days the native hickories, butternuts, walnuts, chestnuts, pecans, and many other nuts found in the United States were to be had in country regions for the gathering and were of no commercial importance. On the other hand, the English walnuts (to give them their most common name), almonds, coconuts, etc., brought from other countries, were relatively expensive luxuries.

Some nuts, like the native hazelnut and beechnut, still have practically no commercial value and, though palatable, are almost never offered for sale, doubtless because they are so small and difficult to gather in quantity. The chinquapin, a small nut allied to the chestnut, finds a limited sale in southern cities, but is doubtless seldom if ever seen in other markets. In general, however, conditions have changed and our principal native nuts are now staple market commodities and bring good prices. At the same time, owing to changes in market conditions, and to the growing of foreign nuts in quantity in this country, the price of the imported nuts has dropped so that they are well within the reach of the majority.

From available statistics it appears that in 1905 the total quantity of almonds, coconuts, Brazil nuts, filberts, peanuts, walnuts and other nuts, shelled and unshelled, imported into the United States was, in round numbers, \$6,238,000 pounds, with a value of \$6,138,000. In 1905 the total almond crop in California reached 4,200,000 pounds and the walnut crop 12,800,000 pounds. The richest yield of peanuts was reported from the southern states, chiefly Virginia, Georgia and Tennessee, and amounted to 225,000,000 pounds.

The total quantity of home-grown nuts, including both native and introduced varieties, must far exceed the quantities imported, but in the nature of the case no estimates of the total quantities gathered and eaten are procurable. When we consider the constantly increasing demand for nuts and the large quantity which we import from other countries, the possibilities of the industry for the American nut grower are obvious. As the use of nuts has increased, many persons have turned their attention to the growing of native and foreign nuts on a commercial scale. This work has been forwarded by the department of agriculture, through the bureau of plant industry, and by the California, Florida, Michigan and other agricultural experiment stations. With nuts, as with other crops, it has been found that, by selection and breeding, improved varieties are obtainable of larger size, better flavor, thinner shells, or other desirable characteristics.

The increased demand for nuts is due in the main to two causes, namely, a better appreciation of their appetizing qualities and the numerous ways in which they form a palatable addition to the diet of the average family, and, secondly, to their use by the vegetarians and persons of similar belief—a group small in proportion to the total population, but still fairly large numerically—who use nuts, and more particularly the peanut, as a substitute for meat and other nitrogenous and fatty foods.

Even a cursory examination of the journals devoted to cookery and other branches of home economics and of the various books which are published on the subject will show the fairly general use of nuts for making soups, for stuffing poultry, for nut butters, nut salads, cakes, salted nuts, and

other dishes, and indeed several volumes devoted exclusively to nut cookery have been published.

Many special nut foods, such as malted nuts, meat substitutes, etc., have been devised and extensively advertised by the manufacturers for general use in the diet and for the special needs of vegetarians and fruitarians. It is said that some of these American nut products contain soy beans, but apparently the peanut plays a very important part in their composition. In either case, since the peanut, like the soy bean, is a legume, these preparations might more properly be compared with the bean cheese and other soy-bean products, so much used in China, Japan and other eastern countries, than with such nuts as the walnut, almond or coconut.

The edible portion of nuts, with few exceptions, is very concentrated food, containing little water and much fat. In general, nuts are also rich in protein. Those ranking highest in this nutrient, the pignolia, a variety of pine nut imported from Spain, with 33.9 per cent., the peanut with 29.8 per cent., and the butternut with 27.9 per cent., protein, surpass most ordinary animal or vegetable foods in this respect. The almond, beechnut, and pistachio, with 21.4 per cent., 21.8 per cent., and 22.6 per cent., respectively, compare favorably with dried legumes. The Brazil nut contains 17.4 per cent. protein, the filbert 16.5 per cent., the walnut 18.2 per cent., the hickory nut 15.4 per cent., the pinenut 14.6 per cent., the pecan 12.1 per cent., and the dry chestnut but 10.7 per cent. The dry acorn, fresh chestnut and coconut, with 6.4, 6.4 and 6.6 per cent., respectively, are not as rich in protein as bread.

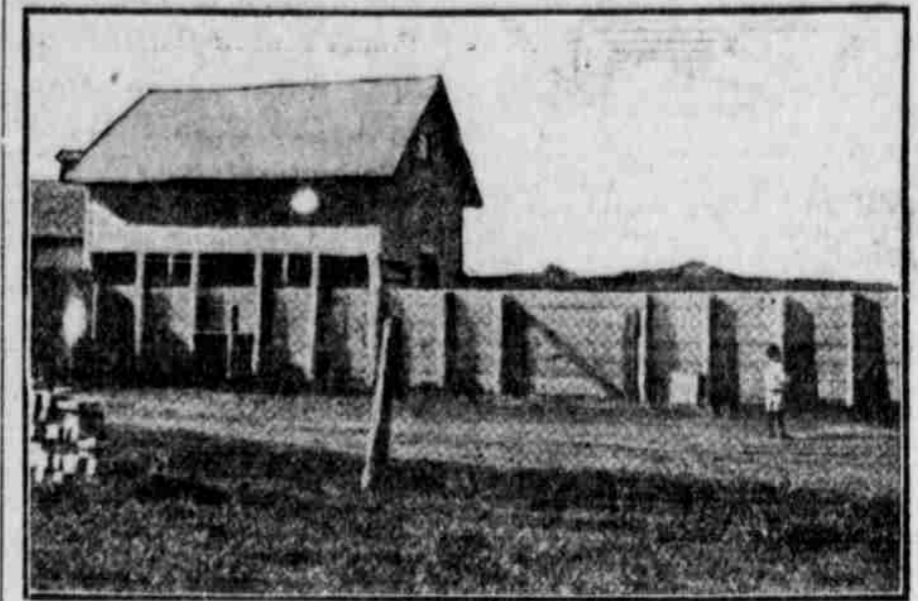
Of the nuts here included the richest in fat is the pecan, with an average of 70.7 per cent., but seven other varieties—the Brazil nut, butternut, candlenut, filbert, hickory nut, pinenut and walnut—contain upward of 60 per cent. The almond, coconut and pistachio yield between 50 and 60 per cent. of this nutrient. The beechnut, peanut, and pignolia contain about 50 per cent. In other words, in 13 of the varieties of nuts appearing in the foregoing table, half or more of the edible portion is fat or oil.

Only a few of the commonly used nuts yield any notable amounts of total carbohydrate matter, the dry chestnut, with 73 per cent., rating highest. Beechnuts, pinenuts and peanuts have about 18 per cent. The quantity of starch found is, with some exceptions, quite small, ranging from three per cent. in the beechnut to 27 per cent. in the chestnut.

The flavor of nuts is very largely dependent upon the oils which they contain, though in some there are also specific flavoring bodies. The nut oils readily become rancid, the very disagreeable flavor of spoiled nuts being due to this property. Some nuts (for instance, the chestnut) have a starchy flavor as well as a "nutty" taste. The small native nut is much more highly flavored than the large Italian or the Japanese chestnut. The almond possesses the cyanic-acid flavor, which is characteristic of peach pits, plum pits, etc., and this might be expected when it is remembered that the almond is the dried pit of an inedible fruit somewhat resembling the peach in appearance and closely related to it botanically. Most almonds are mild flavored. The so-called bitter almonds are, however, very strong, the cyanic acid yielding glucosid being present in considerable quantity. In raw peanuts there is a decided flavor resembling that of the closely related beans and peas, and to some persons this is not unpalatable. In the roasted peanut, which most of us prefer to the raw, the flavor is largely dependent upon the browned oils and starches or other carbohydrates.

# GOOD PEN IN WHICH TO KEEP THE BULL

Arrangement Which Oblivates Necessity of Going Into the Stall of the Animal.



The Bull Pen.

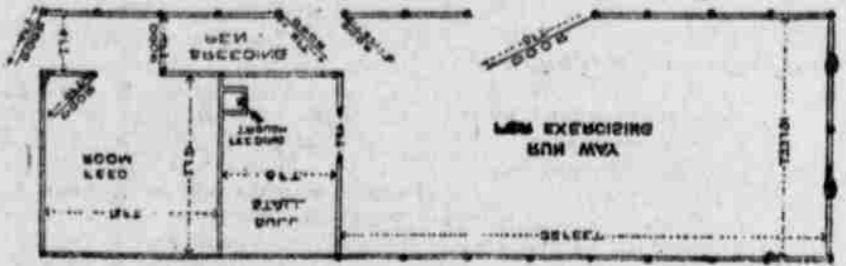
In the illustrations accompanying this article we show the elevation and yard plan of the building and the arrangement of the door which leads into the stall of the animal.

It does not take much explaining to indicate how the animal is handled and fed in such a place.

Everything is so arranged that it is

same manner. The door which leads when opened and this is done by a pulley and a rope. The pulley is attached to the peak of the barn above the doorway and the rope attached to the door extends to it and to the feed room where the door may be opened or closed.

The door between the breeding pen and runway is always kept closed, ex-



Ground Plan of the Bull Pen.

cept when it is opened to let the bull into this place.

The cow is led in before this is done and the man steps out before letting the bull enter. The hay is stored above the feed room and bull stall.

# The Quality of Stink Grass



The illustration herewith shown is of Stink Grass, scientifically known as *eragrostis multiflora*. It is sometimes called candy grass. It is a native of the old world, but has now become naturalized in many parts of the United States. The grass is coarse and weedy, and has such a disagreeable odor when fresh that animals do not relish it. On drying, the grass

loses this odor and the hay is more palatable. As it is an annual, it is easily killed out, if it is not wanted. The air-dried plant carries about 13 per cent. protein, and has a nitrogen content of about 2.15. This should make a valuable feed, but it is not largely used at the present time.

# MAGNITUDE OF DAIRY INDUSTRY

The clean-milk problem is a vital one, affecting the production and consumption of 9,000,000,000 gallons in the United States per year, being an annual supply of over 100 gallons for every man, woman and child in the country. This amount affords 1.1 quarts a day for every individual, which includes the milk used in making butter and cheese. The actual amount of whole milk consumed each day averages about .65 of a pint for every individual. The value of this product for a year at retail is the startling sum of \$2,500,000,000. This

is about one-fiftieth of the entire wealth of the nation, five times the wholesale value of last year's wheat crop, nearly twice the value of the corn crop, and over one-third of the entire value of farm products for 1907, which is estimated at \$7,400,000,000. The wholesale value of dairy products last year was estimated at \$800,000,000, which would allow a price of less than ten cents a gallon for milk at the dairy. An average retail price of seven cents a quart was assumed, which is probably a little below the average price.

The best ration for laying hens, according to experiments, is about one to four, or one part of protein to four parts of carbonaceous foods.