

Nuts

By Herbert Shelton

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Nuts are seeds of certain trees. Unlike the seed of the peach and plum, they possess no edible capsule. The peach, once a bitter almond, has developed, under cultivation, a delicious edible capsule. The peach seed, has a taste like that of the almond. The capsules of the pecan, walnut, chestnut, cocoanut, almond, hazelnut, hickory nut, etc., are not edible. They are tough, fibrous materials containing tannic acid and other foul tasting substances that protect the seed from being eaten until it is matured. Botanically, nuts are classed as fruits, as they develop from pollinated flowers.

Paleontologists tell us that primitive man was a nut eater. All over the face of the earth man has used nuts as food from time immemorial. There are many kinds of nuts and these have all proven excellent sources of food, not alone for man, but for the lower primates and many other animals, including many birds. They are rich in food values, delightfully flavored and keep for extended periods so that man, as well as the squirrel, may store them for future use.

Many animals besides squirrels eat large quantities of nuts. Many of the birds make use of the nut as an article of food. Horses will consume great quantities of acorns. While they will eat fruit from the trees, they eat acorns off the ground after they have fallen. Hogs eat so many hickory nuts that in certain parts of the country they are called pig-nuts. Horses are also fond of pecans.

The nut tree, like the fruit tree, strikes its roots deep into the earth, where they take up the precious minerals, and sends its limbs high into the space above, where, from air and sun, they take in the carbon, that enable the majestic tree to produce its wonderfully nutritious seed.

It takes months of sunshine to perfect the nut and when it is completed it is a veritable store house of minerals and high-grade protein, emulsified oil and health-imparting vitamins. Packed in a nature-made, water-proof and air-tight shell, the nut-meat comes to us clean and wholesome. Hermetically sealed the nut does not become contaminated and spoiled as does meat, for example. Nuts are free from

waste products, are aseptic and do not readily decay, either in the body or outside of it. They are not infested with parasites (trachinae, tape-worm, etc.), as are meats.

Nuts, particularly the pecan, produce more food per acre than any other product and no one need eat animal products so long as these delightful foods are to be had. They are not to be considered as a "meat substitute." The meat is the "substitute," as Prof. Sherman, of Columbia University, says.

Kellogg says that "nuts are the choicest of all substances capable of sustaining life," and that in "nutritive value the nut far exceeds all other food substances." Also, "The nut is the choicest aggregation of the materials essential for the building of sound human tissues, done up in a hermetically sealed package, ready to be delivered by the gracious hand of Nature to those who are fortunate enough to appreciate the value of this finest of earth's bounties."

Nuts are rich in minerals, particularly iron and lime. Pecans are rich in potassium, magnesium and phosphorus. Almonds, pecans, walnuts, chestnuts and hazelnuts contain an average percentage of iron of about two and a half times that of fruit, three times that of vegetables, greater than that of cereals and more than average meats. The almond is rich in iron and lime. One pound of almonds contains as much calcium as twenty-five pounds of beef, or eleven pounds of bread and potatoes. The almond is twice as rich in blood-building elements as meat and is very rich in bone building elements, in which meat is sadly lacking.

Most nuts are abundant in vitamins A and B. The researches of Cajori demonstrated the abundant presence of growth-promoting vitamins in pecans, English walnuts, chestnuts, almonds, pine nuts, filberts, and hickory nuts.

Most nuts are rich in oils. The fats (oils) of nuts are the most easily digested and assimilated of all forms of fat. Kellogg says: "The fat of nuts exists in a finely divided state and in the chewing of nuts a fine emulsion is produced so that the nuts enter the stomach in a form adapted for prompt digestion."

Nuts are fairly rich in starch and sugar, and are three to four times richer in vitally important salts than animal flesh, even richer than milk in these vital substances. Nut albumen is easily assimilated and does not form uric acid. Nuts are rich in fat, which, like that of milk, is in a state of emulsion - that is, ready-made, prepared, or pre-digested, as it were - for circulation through the lymphatic system. Measured in calories, most nuts rank high. One example must suffice. Measured in calories, two ounces of shelled pecans contain as much food as a pound of lean beef.

Everything that can be had from flesh foods can be gotten in better condition and

more usable form from other sources, and especially from nuts. Nuts are not only cleaner than meat, they come in hermetically sealed shells that prevent contamination.

Nut proteins are of the highest order, most nut proteins being complete. Kellogg maintains that nut proteins are the best of all sources upon which the body may draw for its supplies of tissue building substances and that the proteins of nuts are superior to those of ordinary vegetables or meat. "Nuts furnish perfect proteins." Nut proteins are superior to those of cereals and are claimed to be more complete than those of eggs. Indeed, Kellogg says: "The special method of research adopted by Dr. Hoobler of the Detroit Women's Hospital and Infant's Home, provides a most delicate biological test for the nutriment value of food. The test shows the nut to be superior to meat, milk or eggs or all these foods together in producing the highest degree of nutritive efficiency. Nut protein is the best of all sources upon which the body may draw for its supplies of tissue-building material."

Carque says: "Investigations made at Yale University have proven that all nuts furnish a relatively high amount of basic amino acids, and that the nut proteins are of high biological value, fully adequate to maintain life and growth and for the elaboration of mother's milk. Professor Cajori found in his experiments, conducted at the Sheffield laboratory, that the protein and fat of nuts were generally absorbed to a large extent."

Studies of the proteins of nuts by Osborn and Harris, Van Slyke, Johns and Cajori demonstrated that the proteins of nuts are at least equal to those of meat. This was shown to be true of the almond, black and English walnuts, butternut, pecan, filbert, Brazil nut, pine nut, chestnut, hickory nut and cocoanut. Observations have shown that, in general, the proteins of oily seeds are complete proteins. Johns, Finks and Paul found that the- globulin of the coconut is an adequate growth-factor in rats and that coconuts are almost completely sufficient as the sole source of protein in human beings. Brazil nuts have also been shown to be rich in superior protein. Not all are agreed about hickory nuts, many maintaining that these possess a low-grade protein. The others named are rich in high-grade proteins, promoting growth, development, reproduction, lactation, and the rearing of the young, not alone in animals, but also in man.

Nuts are acid-ash foods, as are all proteins, but they are not so much so as are animal proteins. The comparative degrees of acidity of the proteins run; walnuts- 8; oysters-1.3, veal -18.5, eggs- 12, chicken- 11.2, beef- 9.8, etc. Nuts contain less acid minerals than meat.

A brief consideration of a few of the nuts best known in this country will help us to appreciate their great value and, perhaps, cause us to encourage the production of more nuts. It would be difficult to overestimate the tremendous gain that would accrue to the people of our country if the millions of acres now devoted to grain-

raising were devoted to nut and fruit culture. Let us look at the nuts in alphabetical order:

Acorn: A farinaceous nut produced by the oak tree. It was used to a great extent by the ancient Greeks and by the early inhabitants of the British Isles. It is still used extensively as food in certain parts of Turkey. When the white man first visited California he found 800,000 Indians thriving on a diet in which acorns were staple. They had thrived for hundreds of years on the acorn diet.

Almond: This is one of the finest of nuts, being higher in its phosphorus content than any other product of the vegetable kingdom. It also possesses considerable calcium. It is low in potassium. Contrary to popular teaching, the almond is not a base-forming food. It is definitely acid-forming, as are practically all nuts, Its skin should be removed before eating the almond as it contains a strong astringent. Avoid the sulphur-treated almonds sold in the market. An average analysis presents: water, 6.0; protein- 24.00; fats- 54.33; carbohydrates (no starch)- 10; cellulose- 3; organic salts- 3.3.

Brazil nut: It is one of the most important of the nuts. It is high in fat and rich in calcium and magnesium. Like the almond, its skin should be removed before eating it. An average analysis reveals: Water- 4.8; protein- 17.2; fat- 86; carbohydrates (mostly sugar)- 5.7; cellulose or fibre- 3; organic salts- 3.3.

Cashew: Technically, this is not a nut, but the seed of the cashew apple. Unlike other seeds of fruit, it grows on the outside of the apple, at its lower end. It cannot be eaten in its natural raw state and the "raw" cashews sold in the market have been treated with heat to dissipate the cardol and anacardic acids in them which acids burn the mouth and throat. The skins have also been removed.

Chestnut: Though having all the appearance of a nut, its shell is thinner than that of most nuts, the chestnut, in composition, is more closely related to the starchy grains. Almost as many people the world over live on bread made from chestnut-flour as upon that made from any kind of grain. It is superior to cereal flour as a food. An average analysis of the chestnut shows the following: Water, 6; protein, 10; fats, 8; carbohydrates (mostly starch), 70; cellulose, 3; minerals, 2.4.

Coconut: This is a very popular nut which, unfortunately, is usually consumed in horribly incompatible mixtures. Both its meat and its milk are fine foods and in some tropical places it makes up almost the whole bill-of-fare. An average analysis of the coconut gives the following figures: water- 3.5; protein- 6.3; fat- 57.4; carbohydrate, sugar and fiber- 31.5; organic salts- 1.3. Its minerals are chiefly phosphorus and potassium with small amounts of iron, sodium and manganese. It should be eaten

with green vegetables or, like melons, taken alone.

Hickory-nut: Like the pecan, the hickory is strictly an American nut and many of us can recall the days we spent gathering them and eating them before the fire in the winter. The Indians stored these nuts in great abundance for winter use. Unfortunately, like the black walnut, it has a thick hard shell that prevents it from becoming popular with our effete people of today. An average analysis of the seventeen varieties of this nut that grow in America shows: water- 3.7; protein- 15.15; carbohydrates (almost all sugar)- 12; organic salts- 2. The protein of this nut is of a high order, but it is claimed to be inadequate as a sole source of protein.

Pecan: This is the king of nuts and is a native of America. It was first used by the Indians who planted it all over large sections of our country. Dr. C. E. Harter of the Defensive Diet League of America, says that "one can live a full life, amply nourished, upon an exclusive diet of pecans and fruits." Members of the League demonstrated this fact. He says: "The fatty elements of this nut are more easily assimilated by the human body than any other obtainable." Here is an average analysis; water- 3.5; protein- 13; fat- 70.8; carbohydrates (mostly sugar)- 8.5; cellulose (fiber)- 3.7; organic salts- 1.5. The pecan is lower than most nuts in protein, but contains an ample quantity; it is highest of all nuts in a delicious and easily digested oil.

The pecan is not only rich in food value but possesses great appeal to the sense of taste. The pecan is a low protein food. Its fat is the easiest to digest of the nut oils. Pecans are easily digested If well-chewed and properly combined they may be digested by all save the weakest digestions. Many chronically underweight persons pick up weight at once, when, in the pecan season, they consume pecans in great quantities. Pecans are not constipating, as is asserted in some quarters. On the contrary, due no doubt to the large quantity of oil they contain, they tend to be mildly laxative.

Pignolla or Pine nut: This is not really a member of the true nut family. There are many varieties of pignolias and they are highly esteemed. This nut possesses the highest percentage of protein of any natural food, a small portion of them supplying all the protein needs of the body. They are also rich in an easily digested oil. Well-chewed, as all nuts should be, they are easily digested. An average of a number of analyses shows the following composition: water- 6.4; protein- 33.9; fat- 49.4; carbohydrates (simple sugar)- 6.9; organic salts- 3.4. Its mineral content is made up largely of calcium, magnesium and iron.

Pistachio: These nuts are greenish in color and the greener they are the better nuts they are. Although high in protein, this nut has been found to be non-acid, inclining to be alkaline-forming when digested. Its oil is very easily digested. It contains no indigestible cellulose, but is all food. Broadly the pistachio contains: water- 4.2; protein, 22.5; fat- 54.5; carbohydrates (largely simple sugar)- 16; organic salts- 3.

Walnuts: Under this head it is customary to include, along with the English walnut, which came originally from France and Italy, and the black walnut, which is a native American nut, the Butternut. Each of these three nuts are excellent and tasty foods. For taste, the author's preference is the black walnut, but it has a thick, hard shell that renders it difficult to get at. Unfortunately, most present day Americans know the black walnut only as a source of fine and beautiful wood out of which some of our most beautiful furniture is made. Compared with the black walnut, the English walnut is flat and stale. The following table of comparative analyses of these three nuts will tell you nothing of the flavors of each of them:

- Black English Butternut
- Water 2.5 2.5 4.5
- Protein 27.5 18.5 27.9
- Fats 56.3 64.5 61.2
- Carbohydrates 11.7 12.5 3.4
- Cellulose 1.7 1.4 none
- Minerals 1.9 1.7 3.0

In addition to the above listed nuts with which we are acquainted in this country, there are many other varieties of nuts. Some of these are very good nuts, others are not so good. The Castanopsis or California chestnut is considered a link between the oak and the chestnut. It is eaten chiefly by birds and squirrels. The Chufa, known also as the earth-chestnut, is not really a nut. It grows underground like the peanut and when slightly parched has a flavor resembling the nut. The Macadamia nut, resembles the Brazil nut, but has a superior flavor. The Pilinut or Javanese almond grown in the Philippines, East Indies and Asia, is seen in the U. S. only when brought here by immigrants. The Sapucala or Paradise nut, is little known in this country outside our seaboard cities. The Suari or tropical butternut is a native of British Guiana and is seldom seen in this country.

Peanuts are not nuts, but legumes. They are also known as ground-peas, ground-nut, goober, etc. In England they are called monkey nuts. The peanut grows underground, but does not grow on the roots of the pea vine. Ranked high in biological value because of its high protein content, its protein being of high quality, the peanut is a very much over rated food. Harter declares it to be the most dangerous of the bean family. It is high in protein; its mineral content is made up largely of phosphoric acid and it contains a high percentage of starch. The combination of these three substances makes it highly acid-forming and, when eaten with anything but green vegetables, very difficult to digest, if, indeed, it is digestible at all in other combinations. It is a great favorite of the candy-makers and this is certainly a vicious use of the peanut. The composition of the many varieties of the peanut depends upon soil, climate, etc. Its protein composition ranges from 25 to 35 percent, its fat content from 40 to 55 percent. The average of over two thousand analyses shows the following: water- 7.9; protein- 30; fat, 50- starch and cellulose taken together because inseparable by present methods, about 12; minerals- 2.9. I do not share Harter's view that eating peanuts is literally playing

with fire," but I know from experience how much trouble they can cause when not eaten correctly. Roasted peanuts are almost indigestible. Peanut butters are commonly roasted, salted and have hog lard added. At its best, raw peanut butter is oxidized to some extent and not equal to the peanut.

Nuts are commonly thought to be difficult of digestion. This thought seems to have its basis in the common habit of eating nuts as a last course in a several course dinner. The nuts are blamed for the discomfort that results from such eating. Biochemists assert that they have shown that nut proteins are not as digestible as flesh proteins. Even if this were true, it would not place flesh proteins above nut proteins. But this is not true. Their tests are not worth anything inasmuch as they were not properly earned out. The ability to digest nuts may be very low in one who is not accustomed to eating nuts; whereas, the same person, perhaps habitually eating flesh, will have marked ability to digest flesh. If he begins the daily use of nuts his ability to digest these foods will increase day by day until maximum ability is reached, after which it levels off and remains at this maximum level, providing, of course, that he continues to eat nuts. To ignore this fact in determining the digestibility of any food, is to make tests that are of no practical value.

Finely ground and emulsified nuts have proven to be the very best substitutes for milk, when the mother's milk fails and the child is sensitive to cow's milk. There are many children who are sensitive to cow's milk and to the prepared milk foods on the market. Many children have been killed by milk whose lives might have been saved by nuts. Nut-butters are not to be recommended for this purpose. These are cooked, contain considerable "free" fatty acids, are usually salted, and often have other denatured oils added to them. Only the raw or unfired nuts are to be used.

Being concentrated foods, nuts must be eaten moderately and require to be thoroughly masticated. Combined with green vegetables, eaten as a regular part of the meal, and not at the end of a hearty meal, as is the usual practice, and thoroughly and slowly chewed, they are not difficult to digest and may be eaten by everyone. Their delightful flavours make them palatable to all save the most depraved 'appetites.