

THE CEREAL GRAINS -- SOME OF THEIR SPECIAL CHARACTERISTICS

ROYAL LEE -- January, 1953

WHEAT Possibly the reason wheat has become so popular is because its protein is best for bread making; other cereals refusing to make a light loaf as their protein has not the proper texture to form gas bubbles. Moreover, wheat will not grow on soil low in phosphorus, so all wheat has a fairly high content of this essential mineral. (The calcium that must be combined with phosphorus to calcify bone may be obtained from hard water -- cattle cannot be profitably produced except on land underlaid with limestone to supply the hard water.)

This is a characteristic common to all cereals. They supply only one of the two important bone minerals. Unless the other mineral element is available from other sources, cereal foods fail to properly support bone growth. In general, the grasses and leaves of animal feeds help in supplying the calcium and other alkaline elements to complete the nutritional pattern. The ash of cereals, like the ash of the meat foods, is acid and must be balanced by the alkaline ash of leaf and root vegetables. Hogs and chickens are fed alfalfa leaf meal for the purpose of neutralizing the acid ash of the cereal feeds.

Milk is neutral, and cannot correct unbalances.

RICE More people live on rice than on wheat. The protein of rice has the highest biological value of all vegetable source proteins with the possible exception of potato protein. The Oriental rice-eating people are able to maintain a high standard of health on brown rice and a little meat or fish as a protein supplement. Heart disease, arthritis and high blood pressure are almost non-existent in China.

RYE Rye, as distinguished from wheat, will grow on any soil. If a farmer had a sand field that will not grow anything else, he plants it in rye. He will get a good crop if it rains, but the grain will be almost devoid of minerals and vitamins. If rye is grown on the same soil as wheat, it is a better food than the wheat. Animal tests have shown that rye develops muscle, while wheat promotes fat formation. This characteristic of rye is shown up in the feats of rye-eating athletes. Finnish competitors walk away at the Olympic Games with ten times their normal share of trophies where endurance is the test. In Reader's Digest of September, 1952, is the account of a 66 year old bicycle rider who won a 1000 mile race over 50 young contestants, in Sweden. His main item of diet seems to have been rye bread.

The Finns live on rye bread, fish and fruit. Alfred McCann, in his book (1926), 'The Science of Keeping Young', had a chapter on the Finns, calling them the 'super-man race', the only modern nation getting a rational diet.

BARLEY Barley, because of its adhering husk that must be 'pearled' off to make it acceptable in the culinary arts, has not had the recognition its merits demand. Barley water has been a household remedy for many years for the ills of the teething baby and for many other disorders. It seems to allay any irritation due to a lack of available calcium. This includes not only the troubles of the teething baby, but allergies in general, and low resistance to infection, gastritis, stomach ulcers and colitis, nervous states, even insomnia.

Beer is barley water, plus the barley carbohydrates, rendered soluble by the malt enzymes. These sugars offset the possible benefits of the barley extract, beer drinkers seemingly being almost as susceptible to polio as the soft drink user. Sugar in any form in excess causes the periodic between-meal release of free phosphate radical (from phosphagen turn-over) which destroys vital blood bicarbonate of calcium, our defender against viruses. Potassium bicarbonate and inositol are two factors that combat this calcium bicarbonate deficiency. It is probable that no virus could harm us unless we first prepared a welcome for it by permitting this temporary loss of blood calcium bicarbonate. (Calcium lactate or gluconate can form the bicarbonate after ingestion. Bone calcium, the phosphate, cannot.)

Our normal source of calcium bicarbonate is in hard water. The city of Des Moines, Iowa, had one of the lowest rates of incidence of polio. After the installation of water softening equipment at the city water works, the polio incidence went almost to the opposite extreme. Many physicians have discovered the shortcomings of softened water by noting that soft water drinkers have a reduced state of vitality.

OATS Oats should rank next to rye as a muscle builder -- look at the horse. Or the traditionally lean Scotchman. By the way, oats grown in the silt valleys of Scotland sell (in Scotland) for twice the price of English oats, we are informed, because of the superior flavor. No doubt again, the effect of good soil, as in the case of rye.

The protein content of oats is relatively high -- oatmeal usually running 15%. (The national average for wheat is 9%, the best Deaf Smith County wheat being 16 to 17%.)

The best oatmeal to buy is steel-cut meal at a health food store. The packaged cereals are all treated with bug poisons, the flavor alone shows their inferiority.

The general practice of fumigating grains to kill bugs is very unfortunate. It is almost impossible to get unfumigated grains today unless you buy direct from the

grower and store it yourself. These fumigating gases are poison, and are adsorbed in the grain. (Look up the technique of Chromatographic Adsorption in analysis if you think there is any doubt of the possibility of this contamination.) (Starch is one of the best of all chemicals to pick up these poison gases.)

Rolled oats is a poor cereal. Its previous moistening and cooking destroys much of its vitamin value, and damages the protein. If you buy rolled oats in a feed store where they sell animal feeds, you will get a better grade. The grocery store kind could not be used as animal feed -- chickens will die if fed precooked grains. Feed stores get a different grade in 100 pound bags, will sell you 5 pound lots at much less than the usual grocery price. You will find its flavor outstanding.

CORN Corn has a poor reputation as food for the human family, is low in protein, and the protein is low in tryptophane, the precursor of niacin, and predisposes to pellagra, like white rice causes beri-beri. However, the use of refined corn seems to be the main cause, as all commercial corn meal today has had the germ removed. But where corn is grown on good soil, and is ground in the kitchen as it is prepared (Mexican style), the grain seems to compare favorably with any cereal. Hybrid corn, the only kind now commercially available in this country, is a refined abomination, refined by nature, as it will not reproduce, its ability to produce more per acre is a direct consequence of its lack of the power plant, the germ, in the seed. Vitamin B₁₂, an important component of natural corn, is totally missing in the hybrid variety. Its feed value is impaired, molasses being commonly used to supply the missing elements; without the molasses supplement, it is hard to get hogs or cattle to eat it. Popcorn, freshly ground, makes delicious corn cakes or muffins. Poor food is usually characterized by its lack of a normal flavor, in fact it is obvious that our sense of taste is our natural guide to the best food.

Makers of counterfeit foods know this. That is why an essence of cultured milk is used in oleo to make it taste like butter, just as you would have to perfume green-dyed shavings with essence of new mown hay to make it acceptable to a horse. To insult our sense of taste with counterfeit foods is as stupid as to let someone give us 'gold bricks' or counterfeit money. We are told that Corn Flakes must be artificially colored and flavored, that otherwise they are as white and tasteless

as tissue paper -- and as nutritional. Really, they are worse. They add to an already overburdened state of refined carbohydrate excess. If paper, they would be indigestible, simply add useful bulk to the intestinal content. People today are buying as Methyl-Cellulose, a paper by-product, just for that purpose.

STARCH Where recipes call for starch, use tapioca flour, arrowroot, or home-ground whole corn flour. Tapioca has been found much superior to rice (used as a 25% blend with 75% rice) in feeding tests on human subjects in that nitrogen retention and calcium and phosphorus assimilation was improved. (A 50% increase in calcium and phosphorus assimilation.) (Reported in Am. Jol. Clinical Nutrition, vol. 2, No. 6, p. 446.)

Arrowroot was once widely used in baby formulas as a superior carbohydrate, experience having shown it agreed with babies better than any other starch or sugar. We now find the reason -- it is the only starch product with a calcium ash. Arrowroot only thrives on tidal flats, where the sea minerals are available. Its known health building properties may be due to trace minerals from the sea, as well as from the calcium it gets from the sea water.

Used in ice cream formulas in place of corn starch, arrowroot imparts a vanilla-like flavor, a smooth texture. Arrowroot, as it comes to you, is not a refined product, it is simply the dried and powdered root.

There is much evidence to show that polio and other infectious diseases can only invade our bodies after we become depleted in calcium and trace minerals (manganese, cobalt, copper and iodine). The only successful defense against undulant fever has been the use of these minerals, both for the cow as well as the human. We might call it the automatic punishment for us to have permitted the soil depletion which is now becoming acute.

Pliny the Elder in his Encyclopedia of Roman times (published 77 A.D.) commented that the first six hundred years of the Roman Empire was marked by the fact that there were no doctors in the country, and none needed. (From 'The Wheel of Health' by G. T. Wrench, M.D., an absorbing book on food and health, \$2.00 post-paid, Lee Foundation for Nutritional Research - Milwaukee 1, Wisconsin.)

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