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## HEALTH FOODS—A SUPPLIER'S VIEWPOINT

by

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Explains the "virtues" of a vegetarian diet and discusses its role in the future feeding of mankind.

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The subject of my talk this afternoon is "Health Foods — A Supplier's Viewpoint," and I wish to expand this title a little to include the concept of vegetarianism. This namely is Loma Linda Food Company's business.

In order to spell out more clearly what we mean with health foods, it may be helpful to study this in connection with past history.

For some thousands of years man has been led in the selection of his foods by the conditions of his environment and by guidelines which were often of a religious nature. There are a large number of examples in the Bible, teaching man what kind of foods are recommended and what kind of foods to refrain from. Many of you may know that two classes of animals are described, namely the clean and the unclean ones. The teachings of early Judaism showed to their followers the rules of food selection. The more easterly religions such as Hinduism, Brahmanism and Buddhism give their followers also rules to be followed with respect to food preferences and, indeed, tabu's.

Apart from religious motivations there have always been people who felt a great compassion towards animals, and who for humanitarian reasons, did not desire to kill an animal or to take part in consuming animal flesh. It is estimated that in the U.S. alone there are between 2½ to 3 million people who do not eat meat in any form. However, a large number of these people may be using milk and/or eggs and these are known as lacto or lacto-ovo-vegetarians.

Apart from the forementioned reasons why people are vegetarians, there are those who have actually experienced an improvement in their health when abstaining from a diet containing animal protein. Difficulties in this case arising from allergic conditions.

It is natural to investigate the question whether or not a diet is conducive to good health and well-being. A great many studies have been carried out in various parts of the world to this end. In Proceedings of the Sixth International Congress of Nutrition, edited by E. S. Livingstone, 1964, page 182, it is stated:

"From a nutritional point of view animal or vegetable proteins should not be differentiated. It is known today that the relative concentration of the amino acids, particularly of the essential ones, is the most important factor determining the biological value of a protein . . . by combining different proteins in appropriate ways, vegetable proteins cannot be distinguished nutritionally from those of animal origin. The amino acids and not the proteins should be considered as the nutritional units." Bressani, R. and Behar, M., Inst. of Nutrition of Central America and Panama.

Further, in Human Nutrition and Dietetics, 1959, page 732, the following is written:

"It is now known that suitable mixtures of vegetable proteins can replace satisfactorily the animal protein in the diet of the young child." Sir Stanley Davidson, A. P. Meiklejohn, and R. Passmore.

N. S. Scrimshaw, in his address to the Annual Meeting of the American Freedom from Hunger Foundation, Washington, D. C. , October 18, 1965, said:

"Fortunately, there is no fixed nutritional requirement for the relatively costly sources of protein--milk, meat, and eggs. Legumes and oilseed meals are acceptable alternatives, as is fish protein concentrate. One-third of a properly processed oilseed meal mixed with two-thirds of a cereal grain gives a mixture of a quality and concentration of protein adequate for all human needs, even of the infant and young child."

Williams, R. J., Member of the Natl. Food and Nutr. Board, has this to say in his book, Nutrition in a Nutshell, 1962, page 41:

"There are those who for religious or other reasons abstain from animal food. Vegetarians can be well nourished if they eat wisely and include leaves, seeds, roots, and fruits in their diet. For the majority of Americans, however, a mixed diversified diet made up of both plant and animal foods seems most appropriate."

I could further quote D. M. Hetsted, et al (Associate Professor of Nutrition, Harvard School of Public Health, Boston), J. Lab. Clin. Med. 31:261, 1946, as saying:

"Out of thousands of starved individuals, both children and adults, seen in Europe immediately after the recent war, clinical and laboratory evidence of protein deficiency was found only in those who had consumed grossly insufficient amounts of calories over relatively long periods of time (three months or longer). Ninety-five to 100 per cent of the dietary protein of these starved individuals was furnished by cereal grains and potatoes, and those showing signs of protein deficiency improved simply by consuming more of these foods. . . ." Further:

It is most unlikely that protein deficiency will develop in apparently healthy adults on a diet in which cereals and vegetables supply adequate calories."

Work by other authorities in the field of nutrition such as A. Sanchez, G. A. Scharffenberg, and U. D. Register, from the Nutrition Department of Loma Linda University, as reported in the American Journal of Clinical Nutrition, Vol. 13, Oct. 1963, confirms also that:

"A protein of good quality can be obtained from mixtures of plant foods in selected dietaries which have a higher P/S ratio."

If for no other reason than the lower costs involved to produce a satisfactory meal using plant proteins, this already could be a decisive factor in favor of vegetarianism. However, there are definite advantages over and above the cost issue which make the switch to plant proteins attractive and desirable. These advantages concern our very well-being, since it has been established that vegetarians by and large have lower blood cholesterol levels and less heart attacks than those who use animal flesh in larger quantities.

In J.A.M.A., June 3, 1961, page 806, there appeared as an editorial this statement:

"Thomas' comparison of Coronary disease in Negroes in St. Louis and in Uganda . . . indicates that a vegetarian diet can prevent . . . 97 per cent of our Coronary occlusions.

Barrow et al (Am. Intern. Med. 52:368, 1960) found a significantly lower serum cholesterol level in lacto-vegetarians than in meat eaters.

Other beneficial effects of non-flesh diets have been shown by such research workers as Hall, J. W.: "Vegetable Food and Drink in Gout and Nephritis." Berliner Klinische Wochen Schrift 40:868, 1903, and Peusguens, K.: "Technique and Indications for a Fleshless Diet" Med. Klinik 9:1002, 1913."

Last, but not least, I wish to mention the well-established fact of greater endurance of vegetarians under physical stress as compared with non-vegetarians. I. Fisher reported on The Effects of Diet on Endurance, New Haven, Conn.: Yale Univ. Publications, 1907.

In Nutrition Today, June 1968, Per-Olaf Ostrand, M.D., gave a report on experiments with athletes on various diets: If the diet consisted of fat and meat protein, the subjects under test rode bicycles for only 57 minutes; the athletes on a mixed diet rode their bicycles for 1 hour 54 minutes; but

those athletes who were on a high carbohydrate diet, with no meat, rode 2 hours 47 minutes.

From all of the accumulated data, it can be concluded that a vegetarian diet, supplemented perhaps with small quantities of milk and milk products, will provide excellent nourishment. However, a meal must not only be nourishing, but it must also be tasty and have eye appeal. There are many ways to accomplish those two latter requirements. The preparation of an attractive vegetarian meal should not present any greater difficulties than the preparation of a meal with meat. However, one has to keep in mind that attention be given to a balanced arrangement of the various plant proteins. It should be stated that one cannot become a vegetarian without a small amount of effort to understand the nutritional implications.

Various food companies in the U.S.A. are now engaged in the preparation of good quality meat analogs. Another important accomplishment has been the manufacture of soya milk. This latter product is a blessing to those infants and children who are allergic to cow's milk, whether the offending part in the milk is the lactose or certain protein fractions. The procedure for manufacturing soya milk involves the extraction with water of the full fat soya bean. The resulting extract is combined with various ingredients, such as vitamins, minerals, suitable carbohydrates, and vegetable oil. After vacuum evaporation it can be either spray dried or it can be filled in cans, to be sterilized.

Within the last 10 years a new technology has been introduced concerning the physico-chemical modification of certain plant proteins, especially soybean protein. Boyer and others produced for the first time in man's history plant proteins to be used as a food, and having the fibrous nature of animal proteins. The product so

obtained has the physical characteristics of meat, such as chewability, etc. When prepared with suitable natural or artificial flavors, binders, vitamins and minerals, real meat products can be closely simulated. Much more could be said concerning the usefulness of vegetarian nutrition.

In conclusion, one very important fact ought to be mentioned. It is universally known that widespread under-nourishment exists in various parts of this world. At the same time it is recognized that the greatest nutritional problem mankind has faced is a protein shortage. At the rate the population is increasing, this problem will become ever more acute. However, it is also known that the yield of plant protein, per acre of arable land, is much higher than the yield of animal protein.

In order to fill the existing protein shortage mankind will be forced to use to greater advantage more of the arable land for the production of plant proteins.

This then may very well be the indicated course of future action for mankind to take.

The Loma Linda Food Company appeals to those people desiring simulated animal protein products. We have a soya milk plant in Mt. Vernon. Soya milk has been a staple food of the Chinese and Japanese people for many years and now many babies are fed with soya milk here in the United States.

Our sales policy consists of having a sizable sales staff who visit supermarkets and offer stores a general line of protein foods, including chicken and beef imitations from spun soya lines.

The medical line involves soya milk and is sold in drug stores under doctors orders. Products are sold only on the basis of laboratory facts.

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