

the Institute of Nutrition of Central America and Panama (INCAP) which, after ten years of studying various mixtures of vegetable proteins that could be substituted for the animal proteins lacking in these countries, developed a high-protein food known as Incaparina.

Incaparina was extensively tested in 1959 in Guatemala and proved to be an effective means of combating protein deficiency, even being successful in curing many who suffered from kwashiorkor.

Incaparina consists of a combination of finely ground corn, sorghum, cottonseed flour, vitamins and minerals. It has a protein content of 25% or more. Incaparina is prepared easily in the home as a hot drink and can be mixed with other foods, such as soups, puddings and cookies.

More than 15 tons of this high protein food is being distributed in Guatemala each month, but mass distribution is just beginning in several other countries.

However, even Incaparina will not solve the problem for all underdeveloped countries.

Protein Evaluation

The Committee on Protein Malnutrition under the Food and Nutrition Board of the National Academy of Sciences-National Research Council is concerned with the evaluation of protein foods.

Since cattle cannot be raised in many of the areas suffering from protein deficiency, the problem is to find vegetables high in proteins. Legumes, such as soybeans and peas, and such oil seeds as cottonseed are among sources relatively rich in proteins. The need of each area varies according to their agricultural situation. Oil seed cakes are used as a protein supplement in some countries and wheat gruel in others.

Powdered milk is too expensive for the needy people of most of these countries. In Peru and Argentina a mixture similar to Incaparina is made to supply the protein need, while in India a low-cost vegetable mixture with peanut flour has been concocted. Other countries use soybeans as the main protein supplement food. A combination of one-third oil seed press cake and two-thirds cereal grain gives a good protein where these materials are available.

In order for the protein supplement food to be of greatest value to those suffering from protein deficiency, nutritionists are stressing the protein evaluation of foods. Little is known about the nutrient composition of many of the foods produced and consumed in the developing countries.

Proteins are made up of amino acids. Some 22 different amino acids are needed for the proper growth of tissues, for tissue repair and for other requirements. Of these, eight are called "essential," since these amino acids cannot be synthesized in adequate amounts by the body and must be supplied by the diet to maintain proper growth and development.

Vegetable proteins all have a deficiency of one or more of the eight essential amino acids. By knowing the amount and type of amino acids in each of the foods available in the countries being helped, the proper protein may be provided to supplement the lack. If a plant source suitable for growth

is found in the area, a balanced protein diet can be furnished from food materials that each of the areas can supply for itself.

Of the vegetable proteins, soybeans have the greatest amount of essential amino acids. By adding a little animal protein, such as fish flour, to the vegetable, a complete protein can be supplied.

Research on the staple foods in the various underdeveloped countries and the needs of these countries is underway by nutritionists. However, supplying the means for raising the desired crops is not sufficient to overcome the problem of dietary deficiency. Resistance of the people to change, reluctance to eat unfamiliar foods, cultural differences, religious taboos and ingrained food habits are obstacles that confront workers in this field.

One of the reasons for the success of Incaparina, aside from its inexpensiveness, is that it is built around cornmeal and tastes like corn, which is familiar and acceptable in most countries.

Thus, before cassava, the staple food of Central Africa can be condemned, a good acceptable substitute that will suit the taste of these people and serve the same purpose as this food must be provided. For instance, cassava stores well in the ground and can be kept as a safeguard against famine.

Problems Involved

Many problems are involved in aiding the less fortunate countries. Science and technology are not enough. Climatic conditions, terrain and resources too must be taken into consideration. In Central Africa, for example, cattle for meat supplies cannot be raised, nor is fish readily available. Large areas of flat land with suitable climate must be available to raise wheat and other cereal products.

The people must be taught how to use the crops that are raised and must have the desire to improve their situation and continue raising crops once established.

The World Health Organization, United Nations Food and Agriculture Organization, and Food for Peace all have active programs for aiding the underdeveloped countries and helping provide better nutrition.

The FAO/UNICEF has started an educational program to train young Africans in the principles of nutrition.

The Interdepartmental Committee on Nutrition for National Defense of the National Institutes of Health (ICNND) has worked with specialists in 22 countries and has developed practical recommendations for aid to the developing countries. The organization stresses the importance of making U.S. citizens aware of the seriousness of the problem of malnutrition.

From June 4-18, the first World Food Congress is being held in Washington, D. C. by the FAO. More than 1,000 persons from all over the world are gathering to hear about latest developments and the problems of malnutrition in the developing countries.

These problems cannot be solved overnight, but they must be conquered, not only to raise the general health of these people, but because sick people weaken a country's economy. They produce less and require more care.

• Science News Letter, 83:346 June 1, 1963



SCIENCE STAMP—This winning design for a postage stamp honoring the sciences was submitted by Antonio Frasconi, South Norwalk, Conn., an internationally known wood engraver, in a competition initiated by the National Gallery of Art. The stamp will be issued in the fall in connection with the 100th anniversary of the National Academy of Sciences.

NUTRITION

Homemakers Confident Of Canned Food Safety

► THE AMERICAN HOMEMAKER serves canned foods with complete confidence in their safety to babies, husbands and the aged.

This trust in the safety of canned goods has resulted primarily from years of research by the National Canners Association Laboratories, Washington, D. C., now in their 50th year.

When the laboratories were established in 1913, the public had not generally accepted commercially canned foods, Dr. George P. Larrick, Commissioner of Food and Drugs, U.S. Food and Drug Administration, said. But now the long record of safety of canned food supply in the United States is "a tribute to the work of these scientists."

In line with the needs of the present age, one of the canners' major research projects is to keep food safe from pesticides. As a result of their research, in 1960 pesticide residue clauses were included in contracts with growers. Farmers supplying food for canning are required to report pesticide treatment.

Radiation contamination is also investigated in foods for canning.

Canners themselves "must control the safety of the raw products," Dr. Roy G. Lucks, vice-president of the N.C.A. Laboratories and president of the California Packing Corporation, stated.

The "most unfortunate incident" involving botulism in canned tuna "touched off a tremendous investigation to get all of the facts, about the output of the one packer involved and to determine just how this happened so that there can be real assurance that it will not happen again," Dr. Larrick said.

Representatives of the N.C.A. Laboratories have worked closely with the FDA in this investigation from the moment suspicion was cast upon the canned tuna.

• Science News Letter, 83:347 June 1, 1963