

NUTRITION

Eating But Still Starving

Every other baby born in Central Africa, although food is plentiful, dies before age five from the protein deficiency disease, kwashiorkor, which afflicts 100 million children.

By RUBY YOSHIOKA

➤ A HAPPY LITTLE baby rests quietly in his mother's lap, healthy and content. But his chances of survival during the next four years are only one out of two, at least in Central Africa.

About 50% of the children from weaning to school age (under five years of age) die in Central Africa.

The cause of this appalling death rate—protein malnutrition. In a land where food is plentiful and there are no empty stomachs, the people are still starving because they lack the proper kind of food.

One-third of these children die of severe protein malnutrition and the remaining two-thirds die of infectious diseases, such as measles, which are not ordinarily fatal, but cause death because the victims are undernourished.

Protein Malnutrition Widespread

Protein malnutrition is not confined to Central Africa. It is widespread in Egypt, India, South America and other developing countries. It is estimated that about 100 million children throughout the world suffer from protein deficiency. The mortality rate in children under five in these countries is 20 to more than 50 times higher than in the United States and Western Europe.

Babies in these less developed countries when born are on the average the same weight as those born in the United States, and they develop at approximately the same rate during the first six months or so of life when they are being fed on their mothers' milk.

However, when they are weaned, their diet suddenly changes from a protein-rich diet to a starchy gruel. Proteins, essential to proper growth and development, are denied these children when their rapidly growing bodies most need tissue-building foods.

Many of the children soon develop spindly legs, swollen stomachs from edema and slow down in growth, characteristic symptoms of kwashiorkor, as the protein deficiency disease is called. Other symptoms include changes in the pigmentation of the hair and skin, and mental apathy.

In Central Africa, where kwashiorkor is an accepted condition of life, the staple diet is cassava, or manioc, a starchy root with a protein content of only one-half to one percent. Thus, the children receive almost none of the essential foods necessary for bone and tissue growth. These children are not hungry, since there is plenty of cassava to go around. It is their bodies that are hungry for the proper foods.

Not only does protein malnutrition retard physical growth, but it also retards mental

development. Tests have shown there is a direct correlation between low scores in mental tests and the amount of deficiency in weight below the average.

Where the children are fed mainly on wheat gruel, as in Central America, the situation is somewhat better since the protein content of wheat is about 10% to 12%. However, the amount of protein is still insufficient for growing children and many die from kwashiorkor.

In Guatemala, where extensive studies have been conducted, kwashiorkor is still a major cause of death in children. Improved nutrition alone could eliminate nearly 40% of the deaths caused by protein undernourishment, as well as a substantial number of the deaths due to infectious disease combined with kwashiorkor.

In these areas where the death rate is so extremely high in the one-to-four age group, the highest mortality is in the first year of life, primarily due to protein deficiency. Those who survive the first year of life will usually acquire a diarrheal disease, prevalent in these countries, because of unsanitary conditions, not only once, but several times by the time they reach age four. In addition, almost all the children have measles before school age. If the child

should suffer from measles when he also has a diarrheal disease, his difficulties are compounded by the fact that he is on a reduced liquid diet.

However, even under these extreme circumstances, some children manage to survive. With the lack of proper foods and the many diseases suffered, the child of course cannot grow normally. Even though he attains adulthood, his physical development is greatly retarded.

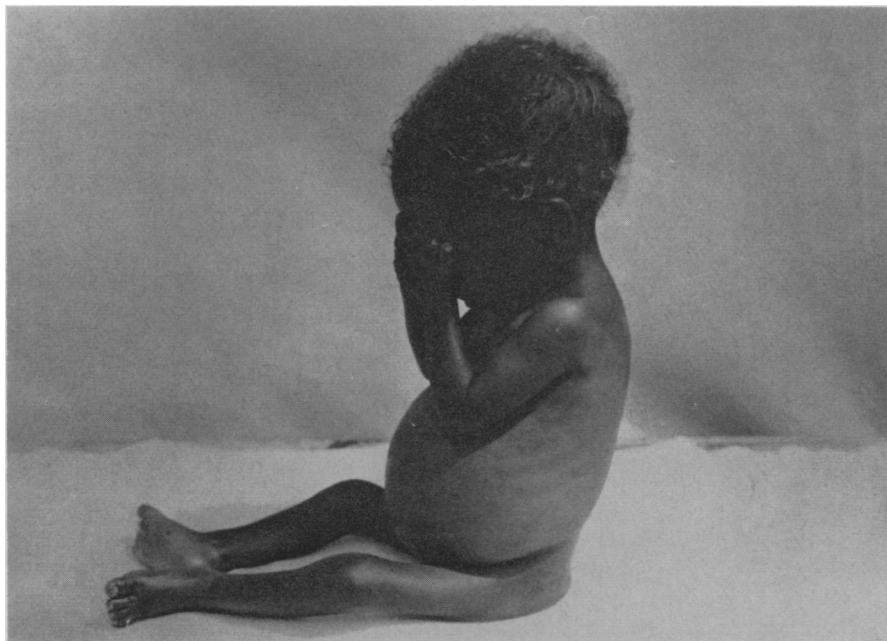
In Mexico, where the diet also is primarily starches, children six years old are on the average ten inches shorter than U.S. children of the same age.

Protein deficiency in these countries is caused not only by ignorance but also by high cost and unavailability of protein sources. The people need to be educated, but the food must be provided at a cost within their means and made readily available.

It is not sufficient to teach them the nutritional value of certain foods or to tell them to eat more eggs and meat and to drink more milk. In many of these communities, such foods are altogether unavailable or much too expensive, within the economic reach of only the well-to-do.

Incaparina Developed

The question is how to provide these people with the proper proteins from readily accessible and inexpensive foods. A great contribution toward this end was made by



Food and Agriculture Organization

PROTEIN MALNUTRITION—This child shows characteristic symptoms of spindly legs and swollen stomach of kwashiorkor, a protein deficiency disease. Common in areas where children do not get enough proteins, this condition can be cured by a high protein diet, such as skim milk.

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 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.