

GENERAL SCIENCE

How to Feed Millions

New food preservation methods that will minimize waste and spoilage will help feed the hungry millions in the less developed countries, Watson Davis reports.

► MILLIONS of people in the future will be fed in the less developed countries utilizing new food preservation methods being devised in various parts of the world.

Atomic irradiation, instant drying and instant aseptic canning are some of the new methods.

The U. N. Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas was told in Geneva that waste and spoilage due to improper preservation causes food loss amounting to a quarter or more of that produced. Waste is higher in tropical countries where food increase is most necessary to take care of exploding populations.

Electron beams from atomic accelerators and gamma rays from the powerful by-products of atomic reactors such as cobalt-60 and cesium-137 are used to reduce or completely destroy the microorganisms in food responsible for most spoilage. Like the development of atomic power itself, it may require 15 to 20 years for this promising method of preserving food by irradiation to reach general acceptance.

James E. Wickersham, president, international operations, Foremost Dairies, Inc., San Francisco, Calif., in reporting on behalf of the United States delegation on the new food preservation methods, observed that it took frozen foods, now utilized and accepted in advanced industrialized countries, 15 years to get started.

Mr. Wickersham expects irradiation to be used for the surface pasteurization of fresh foods in flexible packages; used for inhibiting sprouting of stored potatoes and onions; destruction of the direct insect infestation in stored grains, spices, dried fruits and vegetables; and the pasteurization of highly seasonal perishable foods.

He predicts that sterilization of foods by irradiation eventually will become more important than pasteurization and that irradiated sterilized foods will become items on the grocery shelf along with conventional canned goods.

Canada is planning to put into operation apparatus for food preservation by gamma radiation. Beginning with potatoes and onions, the estimate is that the processing costs will be about 15 cents per 100 pounds. R. F. Errington, manager, commercial products division, Atomic Energy of Canada Limited, Ottawa, detailed the experimental plans.

Various methods of drying and dehydration are also being developed. From Australia, A. R. Prater, division of food preservation, Commonwealth Scientific and Industrial Research Organization, Sydney, reported on the modern equivalent of sundried meats used from the earliest times. Dehydration and drying methods involve

use of heated air, drying under reduced pressure or vacuum by several methods.

The American developments in dehydration and freezing of foods include use of liquid nitrogen gas, by-product from oxygen manufacture, to freeze food almost instantaneously.

Another method uses partially dehydrated food which is then frozen. Still another method is to make a stiff foam by whipping air or an inert gas into concentrated food-stuffs. The result is a food concentrate particularly applicable to tea, coffee, fruit purees and extracts of beef and chicken.

Sweden is aseptically packing milk in a non-reusable paper container that can rest on the grocery shelf safely for four weeks without refrigeration. Hans Rausing, managing director of AB Tetra Pak, Lund, Sweden, predicted that this would revolutionize milk distribution, dairy location and increase the use of milk in areas that do not have effective refrigeration.

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Systems Competition

► IN THE STRUGGLE for men's minds and actions in the developing countries of the world, as revealed in the U. S. conference at Geneva, there are showcases of the two competing economic systems:

Puerto Rico for the United States, and the Central Asian Republics, so-called, for the USSR.

In both these areas, the first dominated by American democracy and the other by Russian communism, there has been significant economic and industrial development.

In the U.N. conference these two areas—one a part of the United States and the other a part of Soviet Russia—were paraded before the less developed nations of the world as examples of the two rival economic and political systems. The Russians were more aggressive in putting forth their claims. It is difficult to tell whether or not the soft-sell of the Americans was more persuasive.

The Puerto Rican story was told in a paper by Rafael Pico, president of the Government Development Bank for Puerto Rico. Per capita income in Puerto Rico was only \$121 in 1940 and reached \$686 in 1962. In real per capita terms, the growth rate has averaged around five percent per year over the last ten years, a rate of expansion that can be matched by few other developing areas.

The detailed claims for the Soviet Central Asian Republics were set forth by K. N. Plotnikov, corresponding member of the USSR Academy of Sciences, and an economist. His enthusiastic statistics do not in-

clude per capita income. The Soviet areas started from a lower level. The claim is that the progress made is unprecedented in world history, and that from backward economic situations they came to socialism, skipping capitalism.

The figures reported show everything amazingly on the up and up, a seven-hour working day, an increase in labor productivity of 1.7 times in the last two decades, and gross output of all industries increasing 21 to 66 times in 1961 as compared with the rather primitive level of 1913.

The Soviet claim is that their economy is completely free from exploitation and that the whole people are working for themselves, reaping the fruits of their labor.

In Puerto Rico, which has a commonwealth form of government, as a part of the United States, Mr. Pico contends that: "It is demonstrated that production and equitable distribution of wealth can be accomplished within the context of a free association of men."

The American belief is that economic development in a democracy can be employed successfully in other countries and that they need not resort to totalitarian experiments.

Many countries today are under severe pressures to reshape their economies in the form of more productive foreign models, forcing them to choose between democracy and communism.

The American contention, backed up by such experiences as in Puerto Rico, is that the democratic process will prevail, assuring liberty and social justice in other developing areas.

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Westinghouse

GALACTIC "NOISE" DETECTOR

—Engineers examine the solar paddles and antennas of a test model of the S-52 satellite structure built by Westinghouse for the National Aeronautics and Space Administration. A joint U.S.-United Kingdom project, the satellite will measure radio frequency signals generated by celestial sources.