

FOOD TECHNOLOGY

Army Beats Bread Problem

➤ A PINCH of sodium bicarbonate, a spoonful of gluconic acid lactone and a bit of broth—mix well with flour and liquid and you have an answer to the bread problem: bread without yeast.

Yeast and the complicated process of fermentation, still pretty much an unknown, is recognized as a major stumbling block to producing large quantities of bread quickly and of uniform quality that would "keep." Now this stumbling block seems to have been removed with the development of a new instant mix.

So far the bread mix has been tried out on a pilot plant scale with 400- and 500-pound samples being tested, Dr. Samuel A. Matz said. Dr. Matz is chief of the cereal and general products branch of the U. S. Army's Quartermaster Food and Container Institute, Chicago. The mix almost matches average commercial bread, he said, and is "a good deal better" than the canned bread now being used for the armed forces.

The new instant bread mix will allow increased efficiency in supplying fresh bread to troops in the field, Dr. Matz told researchers at the meeting in Washington, D. C., of Research and Development Associates. The most efficient field bakery unit now uses 250 men to supply 100,000 soldiers. In contrast, three men using the instant mix could supply fresh bread quickly and efficiently to 2,000 men, a basic unit in the Army.

Today 50 specialized trailers are needed to carry the field equipment needed for conventional bread baking. Future units could consist of equipment mounted permanently on one vehicle as a small portable bakery, Dr. Matz said. Bread could be extruded in small, one and one-third ounce dough pieces, one at a time, he explained.

Sodium bicarbonate as the gas source, together with gluconic acid as the acid part of the leavening system, produced a bread with "good texture" and "satisfactory" in-

ternal appearance, Dr. Matz told the scientists. Bread flavor has to be added since the yeast is absent. Quartermaster researchers found the addition of a simple broth containing yeast, sugar and a buffering agent gave bread with better flavor than canned bread.

Dehydrated Foods

➤ PRE-COOKED, dehydrated meals, complete from soup to apple sauce, may be the answer to a soldier's prayer.

They may also answer some of the meal problems for cooking in submarines, airplanes, large institutions and even the home kitchen, said Dr. Virgil Wodicka, director of the Quartermaster Food and Container Institute's food division.

The quality of these precooked, dehydrated foods is probably the best of any dehydrated foods, he said, with the additional advantage of not requiring any cooking. Such foods can be kept for long periods of time without refrigeration and can be "cooked" quickly and simply with the addition of either hot or cold water.

With the change in tactical concepts of war, caused by atomic weapons, the armed forces face the problem of supplying food to widely scattered troops. Meals of dehydrated, cooked foods are the best answer to this problem, Dr. Wodicka explained.

Troops at the Combat Development Experiment Station, Fort Ord, Calif., will use the new rations for three weeks under simulated combat conditions. This first test of the new foods is scheduled for the end of May, Dr. Wodicka said.

He reported plans for using the foods to the Research and Development Associates, an organization made up of industry, institutions and Governmental representatives concerned with food technology.

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cles, Dr. Gross suggested. On the other hand, it is entirely possible that tumors themselves carry the potential to induce other types of cancerous growths.

➤ THERE ARE between 50 and 100 known viruses that cause cancer in animals.

Yet, it has been only within the past two years that viruses have been accepted by scientists as a cause of cancerous diseases such as leukemia, Dr. Joseph W. Beard of Duke University said.

There is a growing suspicion among researchers that one form of leukemia, or cancer of the blood, is contagious, Dr. Howard B. Andervont, National Cancer Institute, Bethesda, Md., said. The incidence of leukemia is constantly rising, he pointed out.

The theory that viruses cause cancer is not a very old one. It has been established that a virus causes tumor growths in rats, rabbits, hamsters, mice and chickens, Dr. Andervont said. Recently, researchers found the same virus would cause tumors when injected into mice, hamsters and rats.

If scientists can find a method by which human tumors can be as successfully injected into animals, researchers will have available an exciting new tool, animals with human tumors that can then be experimented upon and observed.

Dr. Andervont said successful injection of a tumor-producing virus into several different species of animal does not prove that viruses cause human cancer, but it would be surprising if humans were the exception.

Dr. Harry Rubin of the University of California, Berkeley, said that a simple accumulation of virus can cause a reaction in a cell that results in different types of cancers. Dr. Rubin's work recently established that a virus from a cancerous growth in an animal, when placed in a culture, is capable of not only continued growth, but also of forming a cancerous lesion in the cultured growth itself.

Spontaneous regression of a cancer is another problem facing the scientists. However, doctors studying this process now suspect that the body has some type of host resistance, an immunity as it were, toward tumors, Dr. Warren H. Cole of the University of Illinois said.

Initial studies on spontaneous regression by Dr. George Moore of Roswell Park Memorial Institute, Buffalo, have revealed that lymphocytes and plasma cells gather around tumors. These might be just the workers that cause spontaneous remission, Dr. Moore speculated.

The fact that a malignant growth can flare up at any time, even though live tumor cells had been circulating in the patient's body without causing malignancy, seems to point to the break down in the body's defense mechanism. This may be the explanation for metastasized tumors or cancerous growths that have spread from the main tumor via the circulatory system, the lymphatic system or by other means.

Results of these tumor and leukemia studies were reported to a group of science writers at an American Cancer Society seminar in Excelsior Springs, Mo.

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MEDICINE

Tumors Cause Tumors

➤ THERE IS EVIDENCE suggesting that one specific type of tumor can cause the growth of several different types of tumors.

Thus, specific tumors may be carrying a hidden potential that is triggered only under special circumstances to produce different growths, Dr. Ludwik Gross of the Veterans Administration Hospital, Bronx, N. Y., reported.

The hidden potential may be a virus or several viruses, he said.

Dr. Gross has been experimenting with leukemia, cancer of the blood, in mice. He found that when he exposed the mice to radiation, they developed leukemia.

Now he has been able to filter off from the cancerous cells a free substance that he suspects is a virus.

This free substance, when injected into

animals that have not been exposed to radiation, causes leukemia.

However, Dr. Gross found that if he removed the thymus, a gland located above the heart, the mice did not develop leukemia when they received the injection. Even when the mice received the injection before the thymus was removed, the leukemia disappeared when the gland was taken out.

Doctors today do not understand the exact role played by the thymus, but Dr. Gross suspects that in this particular case the gland acts as a shelter for the virus where it can multiply.

Some of the mice injected with the virus-like particles developed not leukemia, but tumors of the parotid glands or subcutaneous sarcomas. The leukemic filtrates may contain a mixture of cancer-causing parti-