NUTRITION

Army Soups Up Its Chow

Experimental progress points the way to new menus for Army chow. Atomeals are being designed to replace the old C and K rations.

By HOWARD SIMONS

➤ THE ARMY is souping up its food for atomic warfare. The results of this undertaking will mean a new military kitchen for the infantryman and a whole new world of cookery for the American housewife.

Some of what the Quartermaster Corps has already boiled down in its experimental pots and pans has helped to revolutionize both the food and packaging industries.

The immediate result of this assault on the traditional bellyache of the American soldier has been a proposed menu of "atomeals." It includes everything from dehydrofrozen soup to irradiated nuts.

Quartermaster Corps researchers, working with Col. William D. Jackson, chief of The Quartermaster General's Office of Research and Development, still believe strongly in the old adage, "an army travels on its stomach." But the army of the future, they say, will be an atomic army that moves quicker, lighter and with new problems.

The new concept, Col. Jackson says, is expected to reduce the number of cooks in the combat area, cut the amount of equipment needed all along the line, as well as the storage and transportation needs, and to give the battlefield soldier two hot meals of varied, tasty and wholeome food a day.

Gone will be the old "C" and "K" rations, tin cans and cleaning problems.

To replace them the Army has come up with dehydrated foods, irradiated meats and cardboard, plastic, throw-away utensils and containers.

For most of the combat meals, the Army has shaped the atomeal so that only water is added; the contents heated and a hot meal served.

Typical Atomeal

Here, for example, is a typical experimental dinner menu for 25 men, contained in a corrugated cardboard box that weighs 34 pounds: lima bean soup, sweet potatoes, green beans, orange juice, apples, cheese, chicken, rolls, shortening, margarine, crackers, sugar flour, cinnamon, coffee, cream and salt.

The orange juice has been dehydrated, thereby saving 75% in volume and 85% in weight over the old canned orange juice. All that is needed is cold water and stirring.

The lima bean soup is dehydrated and saves 84% of both weight and volume. Packaged in a plastic bag, hot water is added to the bag and the soup stirred.

The green beans are dehydrated and can be stored at 100 degrees Fahrenheit for more than a year and one-half. They are prepared in the same way a soldier's wife cooks up frozen beans.

The cheddar cheese is dehydrated and can be used in combat to make sauces and au gratin toppings.

The chicken has been treated with atomic radiation. The chicken thighs can be stored at 72 degrees Fahrenheit for eight months without spoiling. They can be pan-fried or eaten cold.

This one menu by no means fully illustrates the radically new look of Army foods, however.

Up its culinary sleeve the Army has cooked a score of different combat box lunches. Some are entirely dehydrated. Others rely heavily on foods that have been irradiated with atomic energy to prolong their shelf life.

The new "ready-to-eat" combat meal for the individual soldier holed-up in his foxhole, for instance, needs only to have its packages opened and the contents devoured. Water can be used to reconstitute some of the dehydrated juices the Army wants to include in this one-man-meal.

Right now, Quartermaster researchers are cooking up irradiated orange slices, ham slices, and roast beef.

They are also experimenting with dehydrated potato salad and with a dehydrated rib-eye beef steak that needs only a good soaking in cold water for a half-hour to triple its weight.

Food for the Individual and Group

Basically, the Army superchefs are concentrating on two types of rations: the first for group feeding and the scond for the single soldier.

Investigating and developing new methods of both food preparation and preservation, as well as new methods of packaging, the Army scientists have brought such foods as vegetables, meats, cheese and fish to the point where they think these foods can soon be incorporated into the group feeding plan.

For the individual, on the other hand, the Army planners have designed 15 different menus that include meat and noodles, turkey a la king, chicken and rice and chili con carne. In each of these menus, all

ATOMIC CHOW—A tank crew eats a sample of the new style picnic lunch being developed by the Army Quartermaster Corps. The quick-serve five-man ration with throw-away utensils includes chili and beans, fruit, pasteurized bread, beverage, cookies and jam. The Army is also experimenting with chickens and steaks irradiated with atomic energy.

that is needed is the addition of hot water.

This new feeding system, Col. Jackson reports, will not limit combat feeding of perishables to Christmas, Thanksgiving and special holidays. Instead, it will almost make every day a holiday in the sense the soldier will be getting varied hot meals.

Advantages of the New System

The saving to the taxpayer, who annually foots the Army's $520,000,000 grocery bill, will be substantial. Space will be saved, the number of cooks reduced, and transportation and storage problems alleviated.

The meals are also designed for the mobility needed in a nuclear war, where troops might have to rely on air drops much more than they have in the past.

One of the biggest problems solved, Col. Jackson thinks, will be that of eliminating the boredom and monotony of Army eating—a traditional gripe of the American soldier.

In addition to worrying about the fellow in combat, the Quartermaster Corps researchers have been working to change the menus for the soldiers who have just come off the battle line for rest and rehabilitation. This is a big problem, Col. Jackson notes.

"We hope to change the types of cuisine," he says. "In this way, we hope to eliminate the criticism of the monotony of food that accompanies troops just back for a rest."

Complaints Removed

The Army admits current rations, when eaten over a long period of time, become quite tiresome. Tests conducted during and since World War II have shown this to be true. Canned meats, for example, when fed to troops for some time, elicit complaints of tastelessness from the soldiers, as well as jokes. Therefore, to bolster morale and correct the situation, the Army is planning "a completely different family of foods," to serve the men in rest camps.

They will try to simulate the "A" ration or Stateside menus much more than the "B" ration or canned goods, now used.

To achieve this goal, the Quartermaster scientists will rely on uncooked, dehydrated and irradiated foods that can be shipped and stored without refrigeration.

Although cooks will still be needed in the rest areas, it appears the era of "cooks and bottle-washers," at least in combat, is fast coming to an end.

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• RADIO

Saturday, May 18, 1957, 1:45-2:00 p.m., EDT

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Col. William D. Jackson, chief, office of research and development, Office of the Quartermaster General, U. S. Army, will discuss "Atom Meals."

METEOROLOGY

Computers Aid Prediction

➤ WEATHER TRENDS for years in advance will be forecast within the next ten years with sufficient accuracy to have "economic usefulness," a U. S. Weather Bureau expert predicted.

These long-range outlooks would show such weather patterns as a drought lasting several years, Jerome Namias, chief of the Bureau's extended forecast section, told a joint meeting in Washington of the American Meteorological Society and the American Geophysical Union.

Several groups, including one at the Weather Bureau, are working to find sound methods for extending the future time covered by valid weather forecasts, now limited to 30 days. Although there is no information now available to show seasonal and longer predictions work out to a higher degree of accuracy than by chance alone, Mr. Namias said he expected a "breakthrough within the next ten years."

The reason, he reported, is the "sheer ability" of electronic computers to handle tremendous mountains of data. Using giant "brains," meteorologists can test "thousands of ideas in the time they previously could have checked only one."

Mr. Namias said statistical long-range weather predictions based on past records would be totally explored within five years. These explorations would highlight the nature of the problem, which could then be solved within the following five years.

A more immediate step in automatic weather prediction was outlined by Dr. George P. Cressman director of the Joint Numerical Weather Prediction Unit, run by the Navy, Air Force and Weather Bureau.

By 1958, electronic computers will not only be making weather forecasts, he said, but a curve plotter attachment will become available for automatically drawing the resulting weather map for any number of stations around the country.

Whether this system will be put into use depends on administrative and legislative decisions.

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PHYSICS

Examine Russian Photos

➤ U. S. SCIENTISTS may soon be doing their experiments aimed at learning about the structure of atomic cores using photographic emulsions exposed in Russia.

They will, that is, if both Governments agree to such an international scientific exchange. Hope for this development was expressed informally by physicists attending the Seventh Annual Conference on High Energy Nuclear Physics at the University of Rochester, N. Y.

Two reasons for the American scientists' hopes are: 1. Russia is now operating the world's largest atomic particle accelerator, at an energy of 8.3 billion electron volts (Bev), more than two Bev higher than the biggest in the U. S., the University of California's bevatron at Berkeley; and 2. both the bevatron and the second largest U. S. machine, Brookhaven National Laboratory's cosmotron, have been out of operation for several weeks now due to mechanical difficulties. The backlog of emulsions accumulated when the two machines were running has been fairly well exhausted.

Since any large atom smasher in operation produces more emulsions than can be analyzed at one institution, both the Berkeley and Brookhaven groups send many of of those produced to physicists at other institutions around the country and abroad outside of the Iron Curtain.

Prof. Marian Danysz, Polish co-director of the Joint Institute for Nuclear Studies about 90 miles from Moscow, told SCIENCE SERVICE the Russians hope to have their big new machine, a proton synchrotron that the Russians call a synchrophasotron, operating at a level of nine Bev within "two or three months." They plan, he said, to do some experiments at that level before increasing the energy to ten Bev.

Both Prof. Danysz of the University of Warsaw and Prof. Vaclav V. Votruba, also a co-director of the Joint Institute, agreed that the reported Russian atom smasher of 50 billion electron volts is still in the "planning stage." (See SNL, April 27, p. 261).

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NUTRITION

Food Protein Increased By Adding Fish Flour

➤ ADDING a small amount of defatted fish flour to millet and grain sorghum results in as much as six-fold increase in the body weight of rats fed on this kind of diet, Dr. Barnett Sure, University of Arkansas, Fayetteville, reported to the American Institute of Nutrition meeting in Chicago.

The defatted fish flour is a mixture of carp, smelts and whitings and increases the protein efficiency of the foods as well as the body weight, he reported.

When five percent defatted fish flour was added to the proteins of grain sorghum, the animal's body weights increased by 644% and the protein efficiency ratio, which is the gain in weight per gram of protein intake, increased by 213.2%.

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