



OLD TIMERS of the Navy had to be tough to exist on the limited variety of food issued at sea in the years gone by.

NAVY CHOW: PAST, PRESENT

The recent announcement of another Navy-wide bean soup contest brings up the fascinating subject of Navy chow, generally speaking, and how it got that way. Back in the old days, "plum duff" and "bully beef" were not merely terms but were items served on the mess table. Here's a brief historical account on Navy food up to the present, and the facts come straight from the horse's mouth, or perhaps we should say from the Navy experts in BuSandA.

THE FIRST LAW establishing a ration for the men of the Federal Navy is found in the Act of 27 Mar 1794, which authorized the President to procure six ships to protect the commerce of the United States against raids by the Algerian Corsairs.

This bill also established the ration, specifying not only the amounts of food allowed, but the different days of the week on which it could be served.

On Sunday the total issue to each man for an entire day consisted of one pound of hard bread, one and one-half pounds of salt beef, and one-half pound of rice. Throughout the week there was little variation. Salt pork alternated with salt beef, and beans or peas on days that rice was not used. Potatoes and turnips were allowed on Tuesdays if and when they could

be procured. Wednesday was a meatless day and the ration consisted of one pound of hard bread, two ounces of cheese, and one-half pound of rice. On Fridays they were allowed salt fish in place of meat.

This was the complete legal daily allowance of provisions, with the important exception of the spirits allowance of a half-pint distilled or one quart of beer per day. The cost of this ration, including the spirits, was roughly 28 cents per day.

With the limited variety of food and the indifferent facilities they had for preparation, the old-timer sailor cooks were very skillful in making different kinds of dishes. They turned out the well-known "plum duff" made up of flour, molasses and raisins. A great treat of the day was "cracker hash," usually served on Saturdays and made from broken-up hard tack, any vegetables obtainable, and seasoned with salt pork or beef.

The Congress, in 1794, did not intend to establish a permanent Navy; their concern was to put down the Algerian piracies, and then to discontinue the Navy.

In 1801 the Navy was reduced to the "peace establishment" and at the same time a new ration was established. By this act the allowance of meat and bread was reduced substantially. Friday became a "banian day" or day of short ra-

tions, so called from a group of Hindus who do not eat meat. These reduced rations did not meet with favor among the sailors but it was not until 1818 that a new ration was authorized.

In 1842 the crude idea of a fixed allowance for each day of the week was discarded, and instead a more flexible allowance of specified items and permitted substitutes was authorized. The spirit ration was taken away from commissioned officers and midshipmen, but it continued for the crew. It was, however, prohibited as an issue-in-kind to warrant officers and men who had not attained their twenty-first birthday.

The Navy ration of 1861 shows no allowance for spirits. The agitation against the rum ration had become so strong that on 1 Sep 1862 it was entirely discontinued and instead of the spirit ration, the men's pay was raised all of five cents a day. This prompted the old Navy refrain. "They raised our pay five cents a day and took away our grog forever."

Sea duty in those days meant wooden bunks, steering by the stars, months at sea, and rotten decayed food. The Navy was a career for strong men only, for none but the strong could stand the food which they were forced to eat.

To prepare and eat its chow, the crew was divided into "berth deck"

messes (that is, groups of 20 men organized by duties or quarters), a custom carried over from the British Navy. Each of these messes elected their own cook, and often culinary talent had little to do with the outcome of the elections. The cook was also the dishwasher and after the meal he dunked the dirty dishes in a bucket of cold, greasy water and left them to dry on the open deck.

The Civil War brought many changes in the laws relating to the Navy, but from then until 1906 the ration remained virtually unchanged.

Between the Spanish-American War and World War I, there was a demand for a "steaming watch" ration for enlisted men of the engineer and dynamo force who stood night watches. This demand was met by providing a special ration for the night watches. Food began to improve greatly.

& FUTURE

World War I precipitated many changes in the ration and between then and World War II, there was a greater demand for more vegetables, milk and fruit and surprisingly enough, less meat. These demands were met originally in 1933.

In 1942, additional valuable sources of vitamins were added to the Navy ration. Vegetable and fruit

juices, fresh, concentrated and canned, also flour enriched with vitamin B1, niacin and iron and enriched yeast found their way into the daily mess.

Important also, during this period, was the development of combat rations, survival rations, and other special type rations designed to feed fighting men under extreme conditions. War became a long-range proposition, both in distance and time, and the Navy had to move to provide food enough to keep the sailor well-fed and at the same time eliminate frequent replenishment.

Since World War II, technological advances in areas affecting the Navy have been greater than in any previous period. Attainments in increased speed of ships, aircraft and submarines, coupled with greater endurance, demand an alertness in food products research to assure that these products will sustain personnel under the new operating conditions.

Today's galleys and sculleries are gleaming models of cleanliness. Automatic equipment of all kinds—potato mashers, meat slicers, ice cream mixers, deep fat fryers, large refrigerated areas—are all standard equipment. In the scullery, mechanical dishwashers, sterilizers, and sanitation equipment have replaced the old "dunk and dry" system.

Nowadays, the Navy Subsistence Office keeps abreast of all developments in food preparation, handling and processing as never before. New foods require that the commissarymen, as well as the ultimate consumer, be indoctrinated in the advantages of these products.

Many of these foods were designed to help solve the critical storage space problem aboard ships. Called "ration dense" by the Navy (see p. 19) these foods embrace concentrates, dehydrates, compressed, pre-cooked, and frozen foods. Bones, pits, peelings, and trimmings are not occupying premium space, thereby making room for additional provisions. The use of these foods increases the length of time the ship can operate without being reprovisioned yet they do not detract from the usual high standard of feeding as offered by the modern Navy.

To ensure the continued high standards of feeding, the Navy Subsistence Office provides the Navy Recipe Service (approximately 800 recipes which are revised periodically to keep them abreast of new food developments) with handbooks to assist commissary personnel; a monthly publication entitled the Navy Food Service; training programs in the form of Commissary Schools and on-the-job training supplied by the Field Food Service teams as they visit Navy messes.

FAR CRY from Navy of the past, mess in today's seas service is the best in quality, preparation and service.





TURKEY TIME — No matter how small the galley the food is of the best, thanks to modern gear and training. Here, cook mans compact galley on submarine.

The future presents unlimited challenge to the Navy Subsistence Office. Already industry and military technologists have tackled many of the new problems. Liquid meat products to be fed by tube; freeze-dehydrated sticks of food to be used in "lipstick" dispensers; specially designed food bars, substantially identical in nutritive value, but widely different in flavor—all of these items are contemplated developments and it is hoped that they will be suitable for use in all climates and under any conditions.

The Navy has always kept pace with the times and there is no reason to believe the future will find it otherwise.

Navy-Industry Research

Imagine a suburban rambler or split-level home with a kitchen six feet wide and nine feet long. Add one housewife to this smaller-than-average kitchen area who has just answered a phone call from her husband. He announces he's bringing home not the boss, but eighty friends for dinner! Result? Well, pandemonium at least.

Obviously this is a hypothetical case. No kitchen that small is equipped to turn out meals for so many men. No kitchen, that is, unless it is a submarine galley where specifically designed equipment enables Navy cooks to feed about 80 men their three square meals a day.

Designing space layouts for maximum efficiency is part of the job of the Naval Supply Research and Development Facility at Bayonne,

N. J. At this facility, which operates under the Bureau of Supplies and Accounts, scientists and practical technicians combine their talents to plan and improve commissary space layouts, and improve food equipment and preparation and techniques. The USNSR&DF staff is comprised of top-notch chemists, bacteriologists, engineers, dieticians, food technologists and industrial feeding specialists.

Industry cooperates with the Navy to build equipment and to develop better foods and recipes.

An example of Navy-industry cooperation is shown in the development of a new range for the submarine forces. The Commissary Research Division at Bayonne designed an improved model and then a business firm was requested to produce the range. After testing a model at the facility's laboratory, an experimental unit was installed aboard a submarine. The few "bugs" that showed up were ironed out and the range is now the pride and joy of many a submarine cook.

In addition, a commercial deep fat fryer has been adapted for submarine use. A specially developed coffee urn is now being evaluated which might well have commercial applications. These are only a few instances of mutual cooperation between industry and the Navy's Commissary Research Division.

Cooperating with the Bureau of Ships, the Research Division conducts extensive studies on best arrangements for cooking equipment

in the galleys of new ships which are to be built.

No detail is too small to be considered. Take the case of food disposal after the sailor finishes his meal. With new equipment in the mess hall the man can empty his scraps into a garbage grind and rinse his tray in one operation. This eliminates unsightly garbage cans from the vicinity of the dining area and makes subsequent dish-washing much easier.

The Supply Research and Development Facility is intensively studying the ration dense foods now being developed by industry and by the Army's Quartermaster Food and Container Institute. These foods are similar to the "convenience" foods so familiar to housewives. By using dehydration and compression, by eliminating bones, excess fat and trimmings, pits and peelings, more food can be stored in less space.

To meet the challenge of providing a more-than-adequate food load, the Bayonne scientists came up with foodstuffs designed to give greater endurance without need for re-provisioning. The Navy Subsistence Office in Washington, D.C., (which is the Mess Manager for the Navy) with the assistance of the National Security Industrial Association Food Service Committee, has evolved special recipes for the ration dense foods. These recipes have been tested under actual operating conditions on a number of ships in the Atlantic and the Pacific.

USS *Nautilus* used new ration dense foods on her recent cruise under the polar ice. The crew reactions to the new foods were recorded, and carefully studied. Turkey roll, pre-fried bacon, diced potatoes, six-way boneless beef and grapefruit juice found favor with both the cooks and the eaters.

Not all foods and equipment developed for Navy use will have commercial application. But the by-products of improved foods and equipment can help industry adapt or produce similar items for the general market.

Exotic fuels that will power missiles and rockets are no more vital to our nation's defense than the food that "powers" Navy men and keeps them healthy and strong.

Today, as in years past, top physical condition is encouraged through the practice of sound, nutritional principles developed by Navy commissary research and experience.

Taste-Test of Things to Come—You Like?

Although the actions of the electronic, supersonic, nucleonic Navy are getting a lot of attention—and rightly so—nowadays, the interest in Navy food proves once more that navies—like armies—still travel on their stomachs.

Ship and station food contests and competitions for the best bean soup recipe aren't the only indications of the Navy's concern with the Navyman's stomach and what goes into it. Further evidence of that concern can be found in news of such events as the eighth annual "Holiday for Housewives" in San Diego, Calif., earlier this year and a demonstration of "ration dense" foods in Washington, D. C.

During the "Holiday for Housewives," 53 commissarymen, bakers and stewards from destroyers and destroyer tenders of the Pacific Fleet Cruiser-Destroyer Force, plus other Navy men from the San Diego area, attended a cooking school and variety show sponsored by a San Diego newspaper. In demonstrations where meals were cooked on stage, home economists gave the Navy men and local housewives all sorts of helpful hints on the culinary art, covering such subjects as nutrition, the appearance of food; the right seasonings, temperature and length of time to use in cooking different cuts of meat; and how to make salads and relish dishes more appetizing.

In another recent culinary event in Washington, civilians and high-ranking officers from all the military services sampled the latest in foods which get their name "ration dense" because they are especially developed to save storage space by eliminating bulk and waste.

These items are part of the modern trend toward so-called "convenience foods," such as frozen ready-to-eat meats, cake and muffin mixes, concentrated fruit juices, instant mashed potatoes, milk powders and the like, which not only save space, but also make it possible to provide nourishing and appetizing meals with a minimum of preparation. For the Navy, in this era of nuclear propulsion, ration dense foods are particularly important, since an atomic ship's ability to stay at sea for long periods of time would be worthless if her food supply ran out too quickly.

Many ration dense foods are being developed at the Quartermaster Food and Container Institute in Chicago, Ill., where the Army, as single manager for subsistence, works with the other services to determine specifications for desired items and tests foods commercially available. The Navy then tests and standardizes these foods at its Supply Research and Development Facility in Bayonne, N. J., to find products that will meet its own particular needs.

One of the first concerns of the experts at Bayonne is to find ration dense items that appeal to the Navyman's palate. So, to make sure the new products are properly prepared, the facility at Bayonne and the Navy Subsistence Office in Washington work together to find appetizing recipes. And, a panel—composed of sailors and civilians from the facility—taste-tests the products thoroughly. By filling in questionnaires as to the flavor, aroma, texture and

general appearance of an item, the panel members help the food technologists to judge how the product will go over with the Fleet.

About 20 ration dense foods, ranging from A (Apples, dehydrated) to V (Vinegar, dry, synthetic) are now being used by Fleet units. Among these products are beef, boned chicken, eggs, dehydrated onions and peppers and potatoes. There will be an even greater variety of ration dense foods when some of the newer ones enter the supply system. For example, some of the more than 25 new products now in various stages of development or testing include grapefruit and orange juices, bacon, turkey, pork chops, ham, cheeses, compressed flour, milk, peas, beans, potatoes, cabbage, shrimp, fruit cocktail and peaches.

Some of these items are now being used experimentally, along with the usual provisions, aboard nuclear submarines and the destroyer USS *Uhlmann* (DD 687) in the Pacific.

WHAT'S THIS? Unimike can pressure cook, boil, deep-fat-fry, refrigerate, dispense drinks, and peel vegetables—but it's still in experimental stage.





HERE'S HOW — J. O. Ferrell, CS2, of USS *Dixie* (AD 14) gets some pointers on cooking a roast during a school session held in San Diego for cooks.



LATEST IN RATIONS — Ration dense food designed to save space on ships was displayed in Washington. Below: Galley men work with new ideas and rations.



In *uss Nautilus*, SS(N) 571, during a 43-day cruise, crew members filled out questionnaires every day, telling what they thought of the ration dense foods, and in a number of cases the new items drew excellent ratings from both cooks and crew. Some of the opinions were quite frank. One cook, commenting on the canned beef with gravy he served one day, wrote: "This is very tasty but not too appetizing look-

ing, as the meat crumbles and doesn't stay in chunks. The crew complained about it but ate every crumb."

uss Skate SS(N) 578, used ration dense foods to conserve space and increase her endurance and combat potential during her record-breaking underwater Atlantic crossings. Both she and *Uhlmann* are carrying the newest innovation in frozen meats—six-way boneless beef, which is pre-cut, trimmed and pre-packaged for the method of cooking that will be used. The cuts include oven roasts, grill steaks, pot roasts, Swiss or cube steaks and diced and ground beef. Besides saving space the six-way beef can be prepared in less time than other frozen meats and it helps cut down on excessive garbage, which can be quite a problem in a submarine.

The compressed flour now in experimental use illustrates the space savings that can be achieved with ration dense foods. With it seven extra pounds of flour can be carried in a five-gallon can. Other examples are dehydrated potato granules and precooked boneless turkey roll. With the ration dense potatoes a six-pound can will take the place of a 50-pound sack of ordinary spuds, taking up only one-eighth of the space formerly required. With the turkey roll, a nine-pound package replaces a 22-pound bird and cuts storage space requirements about 50 per cent for that item.

The use of ration dense foods is not limited to shipboard messes. During Operation Deep Freeze, where climatic conditions are a critical factor, ration dense foods capable of withstanding extreme cold are being used by members of the Antarctic expedition. And, scientists, working far from supply bases, take along lightweight ration dense products which enable a man to get 5000 to 5500 calories a day from a nutritional and tasty three-pound ration.

Most ration dense foods are dehydrated, and may be either precooked or uncooked. Through new techniques, such as high vacuum and freeze-dehydration processes the modern-day dehydrates have come a long way from the much-maligned powdered eggs of World War II.

So what will the Navy think of next? We don't know, but we'll be willing to bet it will taste good.