

materials were subject to deterioration; cork, for instance, needs replacement every three years.

The Campbell Machine Division of Campbell Industries, San Diego, which manufactures and repairs large boats for the commercial fishing industry, was looking for a better way to insulate tuna storage wells. Learning of the Rockwell technique, Campbell contracted for a test installation on one boat, then bought its own equipment and adopted the spray-foam procedure for their boats.

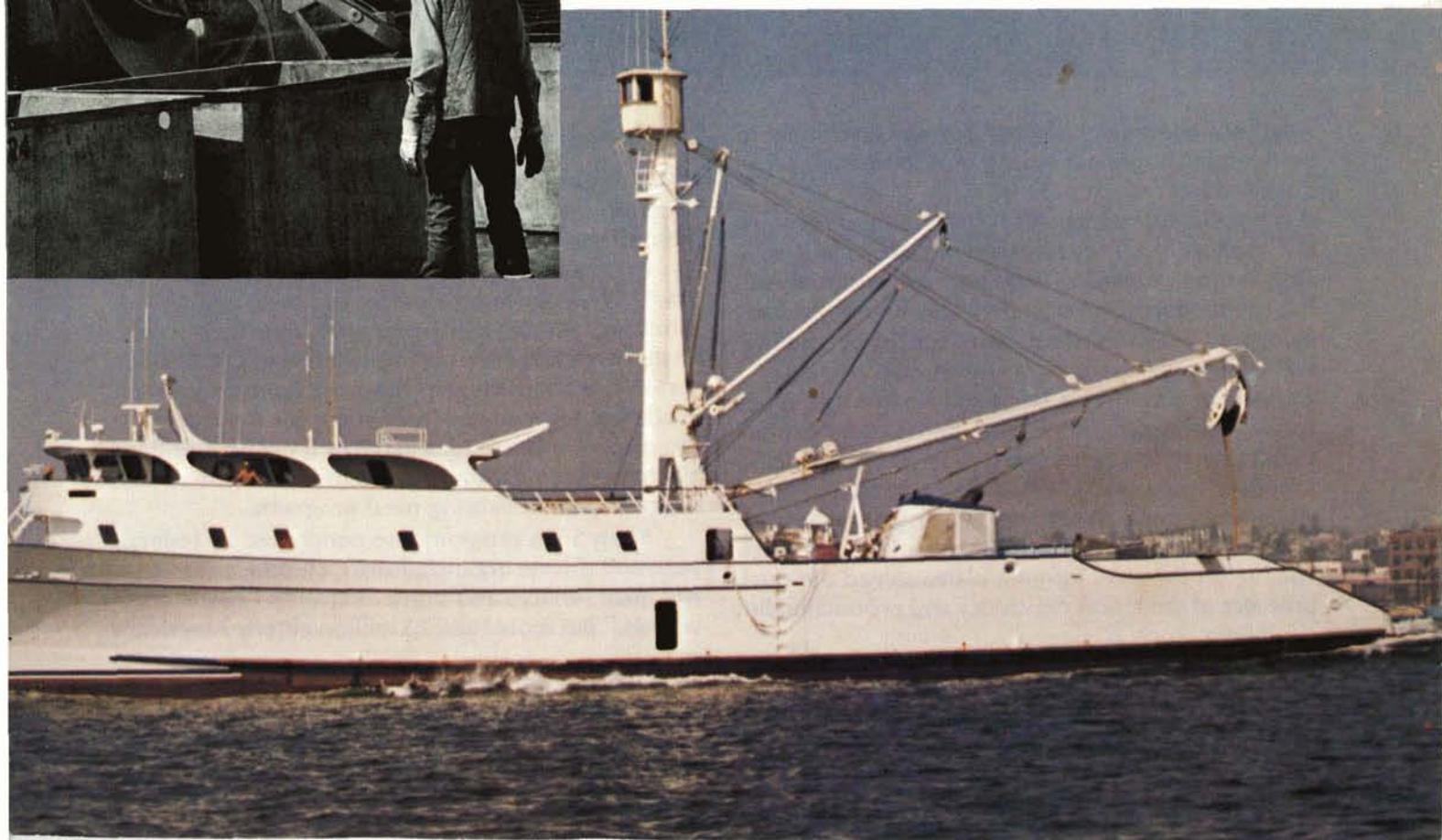
The foam hardens after application. It not only is a superior insulator, it also is considerably lighter and easier to apply. Fishing industry spokesmen say that foam insulation is far more reliable, efficient and economical than prior techniques. More than 40 foam-insulated tuna boats, ranging in cost from \$1 million to \$4 million, have been built and sold. Principal customers are Ralston Purina's Van Camp Seafood Division and Star-Kist Inc.

Bonded Lubricants

Another spinoff to the food processing industry involves a dry lubricant developed by General Magnaplate Corp. of Linden, N.J. Used in such spacecraft as Apollo, Skylab and Viking, the lubricant is a coating bonded to metal surfaces providing permanent lubrication and corrosion resistance. The coating

113

Yellowfin tuna, being unloaded from a tuna boat, arrive at the cannery after transport in a foam-insulated hold. Fishermen say that sprayed-on foam, originally developed to insulate rocket fuel tanks, is superior to other insulation. More than 40 foam-insulated tuna boats—like Lucky Strike—have been built and sold.



114

Bonded lubricants developed for the lunar drill and other space applications help to increase production efficiency in food processing plants. Application of one type of space-developed dry lubricant solved a breakdown problem with this meat packaging machine and broke a production bottleneck. In another application, the bonded lubricant improved sanitation and extended the service life of this rotary ice cream packaging machine.



lengthens equipment life and permits machinery to be operated at greater speed, thus increasing productivity and reducing costs.

Bonded lubricants are used in scores of commercial applications. They have proved particularly valuable to food processing firms because, while increasing production efficiency, they also help meet the stringent USDA sanitation codes for food-handling equipment. For example, a cookie manufacturer plagued by production interruptions because sticky batter was clogging the cookie molds had the brass molds coated to solve the problem. Similarly, a pasta producer faced USDA action on a sanitation code violation because dough was clinging to an automatic ravioli-forming machine; use of the anti-stick coating on the steel forming plates solved the dual problem of sanitation deficiency and production line downtime.

Meals for the Elderly

NASA is drawing upon its food-preparation expertise to assist in solving a problem affecting a large segment of the American population.

In preparation for manned space flight programs, NASA became experienced in providing astronauts simple, easily-prepared, nutritious meals. That experience now is being transferred to the public sector in a cooperative project managed by Johnson Space Center. Called Meal System for the Elderly, the project seeks to fill a gap by supplying nutritionally balanced meal packages to those who are unable to participate in existing meal programs.

Many such programs are conducted by federal, state and private organizations, including congregate hot meal services and home-delivered "meals on wheels." But more than 3.5 million elderly Americans