

BACTERIOLOGY

Russian Bacteriology Old

Because of outdated bacteriological methods, many organisms have been overlooked by the Russians in their research of ocean surface bacteria—By Faye Marley

➤ INFERIOR methods of Russian bacteriologists caused them to overlook teeming millions of organisms—potential food sources—in the sea.

A University of Rhode Island research vessel found large numbers of biochemically active organisms in ocean waters that had been overlooked by the Russians.

With the help of the Office of Naval Research, an old Army ship was pulled out of mothballs and equipped as the Research Vessel Trident, which last September made its maiden voyage from San Diego, Calif., via the Panama Canal to Rhode Island.

The ocean's surface film was studied for bacteria for the first time, Dr. John McN. Sieburth of the University of Rhode Island, the cruise leader, told the American Society for Microbiology meeting in Cleveland.

Dr. A. E. Kriss and his associates at the Institute of Microbiology in Moscow have done most of the bacteriological work in the open ocean during the past ten years, Dr. Sieburth said, but their work with bacteria was at room temperature instead of at the refrigerated temperature in which the bacteria normally live. Also they have ignored surface "interface," the place where air and water meet.

The Russians' greatest bacterial count at any depth, including the surface, was well below 30 per milliliter, whereas Dr. Sieburth's researchers found 2,400 per milliliter.

All living things in the sea depend directly or indirectly for their food on the organic matter produced by the phytoplankton floating in the water. These are photosynthetic microorganisms, sometimes too small even to be caught in the finest nets.

Drs. S. W. Jeffrey and M. B. Allen of the Kaiser Foundation Research Institute, Richmond, Calif., reported to the same meeting that it has now become possible to study planktonic microorganisms under controlled conditions.

These researchers are growing two small yellowish phytoplankters, or chrysoomonads, in pure culture in their laboratory. In contrast to the photosynthesis in green plants, very little has been known about the process by which food is produced in the sea. A high intensity of light is required for most effective synthesis of organic material. By breaking up cells of the chrysoomonads, the scientists obtained chloroplast fragments that still retain some of their ability to convert light energy into chemical energy.

This will make it possible to study the photosynthetic processes of the yellow-brown organisms in a similar way to those that have told so much about the photosynthesis of green plants in recent years.

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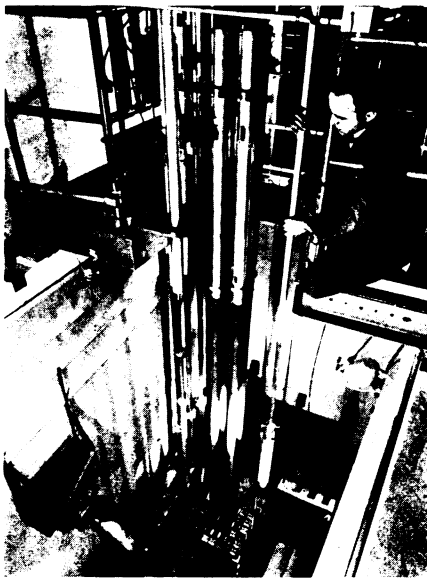
Food Poisoning Safety

➤ IF HOUSEWIVES keep foods at the proper low temperatures before and after cooking, their families should be safe from food poisoning. This is because scientists make continual war against microbes in their laboratories.

At the American Society for Microbiology meeting in Cleveland, scientists were told of progress in the battle against food microorganisms, which infect everything from soup to nuts. Representatives of the U.S. Public Health Service, industry and university laboratories reported on tests to identify the various microbes.

Even shelled pecans have to be watched carefully for organisms, Dr. James B. Hyndman of the Dallas, Texas, district of the Food and Drug Administration said. Heating will kill the microbes.

Poultry bruises can harbor bacteria, including the dread staphylococci, Dr. M. K. Hamdy of the University of Georgia, Athens, reported. Poultry feed and chicken drop-



Babcock & Wilcox

ONE-STEP POWER — A scientist demonstrates how nuclear heat is converted directly into electricity in one step. Heart of the method is the thermionic converter shown being placed into the nuclear test reactor at the Babcock & Wilcox Nuclear Development Center, Lynchburg, Va. The nuclear-thermionic power plant was jointly developed by the Babcock & Wilcox Company and the Radio Corporation of America.

pings were found to contain the same staphylococcus organism isolated from bruised tissues. Both *Escherichia coli* and *Staphylococcus aureus* can enter the bruised tissue through skin, air sac and intestinal wall.

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Why Detergents Pollute

➤ BACTERIA are finding some detergents too difficult for them to destroy.

Some strains of bacteria, tiny one-celled microbes, are a great boon to modern civilization. They can "eat" or decompose molecules of some detergents as they wash through city drains and flow out to pollute rivers and streams.

The food these special bacteria eat are hydrocarbon molecules, containing only hydrogen and carbon, Drs. Reino E. Kallio and Eva J. McKenna of the State University of Iowa reported. Petroleum and many petroleum products are made up of these molecules, as are some detergents, he told the American Society of Microbiology meeting in Cleveland, Ohio.

Hydrocarbon molecules that are unbranched, or straight, are easily broken down by several kinds of bacteria. But if the molecule has "branches," the bacteria have a harder time eating it. If there is too much branching, the bacteria cannot attack the molecule at all.

Alkylbenzene-sulfonate detergents are made from a mixture of hydrocarbons, many of which are highly branched. This makes it difficult for the bacteria to break down the molecule. This is one reason some detergents pollute rivers and streams.

Bacteria find some "straight" molecules difficult when a chemical group is attached anywhere on them except at the end.

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GENERAL SCIENCE

President Congratulates Science Fair Finalists

➤ IN A TELEGRAM to the 14th National Science Fair-International, held at Albuquerque, N. Mex., May 6-11, President John F. Kennedy congratulated the young finalists for their achievements with these words:

"Dr. Watson Davis, director, SCIENCE SERVICE, Western Skies Hotel, Albuquerque, N. Mex., May 7.

"Scientific progress is of vital importance to the growth of our economy, to the pre-eminence of our scientific achievement, and to the welfare of our peoples. This progress, however, will depend to large degree on the development of scientific and technical talent among able young men and women such as those participating in the National Science Fair-International. To all of you, to those with whom you competed, and to your teachers, I am delighted to extend congratulations, to commend you for your past achievement and to wish you every success in the future.

"With every good wish to the Science Clubs of America for a most productive Science Fair.

John F. Kennedy"

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