

## MARINE BIOLOGY

# Charcoal to Hit Red Tide

► DUSTING THE western coastal waters of Florida with charcoal by airplane has been suggested as the newest and most inexpensive method of eliminating the red tide.

Mrs. Jacqueline Hynes of the University of Florida described tests using charcoal to check this highly baffling, destructive fish-killer to the American Institute of Biological Sciences meeting in Gainesville, Fla.

Red tide causes an irritating odor, pops up without warning, confuses scientists and makes it unpleasant for persons who want to relax. The red tide has nothing to do with Communism. Its name is derived from the coloration of the water caused by thousands of microscopic one-celled organisms that are part plant and part animal.

They cluster together in massive red-tinged "blooms." The organism is known scientifically as *Gymnodinium brevis*.

Just why this organism, which is quite harmless as an individual, suddenly runs wild and forms colonies of highly poisonous blooms still has scientists puzzled.

Theories presented to the biologists suggest that this desire to mass and attack is possibly caused by excessive deposits of phosphate wastes drained into the area waters, by heavy rainfalls or by the organism's sexual cycle. One scientist even suggested the moon phase has a significant role in answering this puzzle.

One of the main concerns is how to eliminate the red tide that annually deprives resort and fishing industries of thousands of dollars and prevents persons from using the beaches in competition with thousands of dying or dead fish.

Mrs. Hynes described tests carried out in the laboratory with activated charcoal and its effects on other forms of marine life. Such creatures must have a certain amount of hormones and vitamins for their life processes. The charcoal, by absorption, deprives the organisms of them, thereby causing their death.

Up to the present, it has been impossible to attempt similar experiments with the red tide bodies, because the organisms could not be raised in a laboratory culture. However, Mrs. Hynes received encouragement after her talk from Dr. W. B. Wilson of the U. S. Fish and Wildlife Station at Galveston, Texas, who described methods by which he has been able to keep the red tide creatures alive in the laboratory.

The scientists estimate that it will take three tons of activated charcoal per square mile to a depth of about three feet to dust an infested area. The dust should penetrate to a depth of a little over 43 feet. The red tide ranges from a little north of St. Petersburg to just south of Fort Myers, a distance of approximately 125 miles.

The cost of such an operation would be approximately \$150 to \$810 per square mile, depending on the grade of charcoal used.

At present, copper sulfate is being used effectively, but the cost per square mile is approximately \$1,050.

The coastal shores of California, Africa and Chile are also affected.

Plans are now being made to apply the charcoal dusting suggestion directly to Dr. Wilson's cultures in Galveston, where it is hoped that charcoal will either starve *Gymnodinium brevis* to death, or at least, absorb its poisonous elements.

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ification to learn whether they are adequate to remove radioactive contaminants was reported from the same laboratory by Dr. F. M. Huddleston. His results indicated removal of such substances to levels lower than are required by the U.S. Atomic Energy Commission and the U.S. Public Health Service, at a cost of about 1.43 cents per gallon of water processed.

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## PUBLIC HEALTH

## Predict Leprosy for Recent War Veterans

► SOME U. S. veterans of World War II and of the Korean fighting will develop leprosy in the next 30 years or so. What appears to be the first service-connected case, in a World War II veteran, has already turned up.

Both the case and the prediction are reported by Dr. Norman E. Levan of Bakersfield, Calif., in the *Journal of the American Medical Association* (Sept. 11).

Dr. Levan's patient is a white man, born in Kansas in 1907, who developed the first symptom of leprosy, or Hansen's disease, while in military service in the Philippines in July, 1945.

Nothing in his or his family's history gave any sign that he could have contracted the disease outside of his military service. During the war, he was stationed on New Guinea, Leyte and Luzon. On Luzon, he was quartered in a native house.

Treatment with sulfoxone, or Diasone, has apparently arrested the progress of the disease, although treatment must be continued for about nine months more.

By arrangement with the local and state health department, he is allowed to remain at home under "modified isolation" while being treated.

Previously, 11 cases of leprosy in World War II veterans have been reported, but none of these seemed to have been the result of service exposure. Except for two cases that developed in tattoos, Dr. Levan could find no reports of service-connected leprosy infection in American veterans of World War II, although the British have reported a number of such cases.

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## BIOCHEMISTRY

## Enzyme and Protein Formed Together

► FORMATION OF enzymes from yeasts and bacteria must be accompanied by formation of ribonucleic acid, Dr. S. Spiegelman of the University of Illinois told the American Chemical Society meeting in New York.

Both products are formed new, from simple amino acids, without complex intermediate steps, his studies show. Several amino acids join simultaneously to form the enzyme molecule.

Science News Letter, September 25, 1954

## CHEMISTRY

# Wash Atomic Wastes

► FISSION PRODUCTS buried in the soil stick to clay particles washed by rain water, but give up their radioactive contaminants to hard water percolating through the earth where they are buried.

Researches on possible sources of danger connected with various methods of waste disposal from atomic energy installations were reported to the American Chemical Society meeting in New York.

Waste waters containing smaller amounts of radioactive salts are easier to decontaminate by flowing them through earth.

Eleven samples of soil from around the Savannah River atomic energy project were analyzed and tested for their ability to absorb waste water with radioactive contaminants. The study was made by scientists of the Mound Laboratory of the Monsanto Chemical Co. in preparation for planning waste disposal methods for the project.

Dr. F. C. Mead Jr. reported to the society the work on fixing properties of the soil that he conducted with Drs. T. C. Tesdahl, C. S. Lowe, and E. L. Murphy at the Monsanto laboratory at Miamisburg, Ohio.

Ability of the soils to remove fission products was found by these scientists not to depend on the amount of clay present.

Special chemical processes designed to precipitate and remove radioactive material from waste water were also described by Dr. Mead. Ferrous sulfide, ferrous hydroxide and calcium phosphate have been found useful in removing a variety of substances occurring in the fission products, he found.

"Extremely high volume reductions are realized by filtering, with volume reductions of ten to one expected by settling," Dr. Mead stated.

Study of ordinary methods of water pur-