CHEMISTRY

"Stink Bomb" for Sharks

The repellent forms an inky black cloud when it is dissolved in water, causing sharks to turn tail and swim away from downed flyers.

➤ A NEW "stink bomb" for sharks chases them away from Army Air Force flyers downed in shark-infested waters. The new chemical weapon is obnoxious to the olfactory sense of sharks, keeping them away from flyers who use it. Dissolved in water, the repellent forms an inky black cloud that is almost odorless to humans, but to sharks it smells like decaying sharks' bodies, causing them to turn tail and swim off.

This effective deterrent to the toothed terrors of the deep is the product of several months' research which has resulted in the combining of a substance extracted from sharks' bodies and formed into a chemical salt, with a black dye that is so effective that it serves as a deterrent by itself. The dyes and chemical salt are pressed into a black cake, and packaged in a water-proof envelope which is attached to life vests. Downed flyers release the repellent into the water by ripping open the envelope tab.

Shark attacks on humans are rare, since man is not a shark's natural prey. The sight and smell of blood, however, doubles the danger to wounded flyers ditched in tropical waters. Comparatively rare though they are, shark attacks on humans are fatal in 80% of the cases.

Developed primarily by the Air Technical Service Command to remove an incidental terror of war from the minds of American flyers, the history of the new repellent is a good illustration of the cooperation between the military, scientists, and industrial researchers. The ATSC engaged as consultant Dr. W. D. Burden, of the American Musum of Natural History, who had worked on a similar project at the Woods Hole (Mass.) Oceanographic Institute under the Office of Scientific Research and Development. In the search for an effective repellent many substances were tried, with little success, until a study of fisherman's lore revealed that sharks do not venture into waters polluted by decaying bodies of their own kind.

Later the Calco Chemical Company, in cooperation with the Naval Research Laboratory of the Bureau of Ships, developed the black dye.

In open sea tests off the coast of South America and Florida, fish were thrown overboard from shrimp boats to attract sharks. The sharks struck in large numbers until the repellent was released into the sea. Then they dispersed and refused to venture back even after the repellent had become greatly diluted.

Convinced of the value of the shark chaser, the Army Air Forces is producing large quantities of shark-repellent packets.

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AERONAUTICS

Iowa Farmer Develops Catapult Pick-Up System

➤ TOWNS WITH a small population may benefit after the war from a catapult pickup device developed by a Midwestern farmer, Louis P. Wulf of Lost Nation, Iowa, that permits planes to swoop down, pick up air mail and express and continue on their flight without a stop (*American Aviation,* Jan. 1).

The device consists of a 40-foot tower on which is installed a cannon-like catapult. In operation, the parcel of mail or express to be picked up is placed in the cylinder of the cannon, and the device loaded with a cartridge which resembles a blank shotgun shell. At the top of the tower is a device that detonates the explosive charge when the trailing cable from the bottom of the plane passes through a slot, guided there by wires extending from two uprights on the approach side of the tower.

The explosion shoots the air-mail parcel at a speed synchronized with the ground speed of the aircraft. One or more cartridges may be used, depending on the weight of the package. The parcel hooks onto the trailing cable of the plane, which is raised to the aircraft by means of a small windlass operated through a door in the bottom of the fuselage.

An application has been made to the Civil Aeronautics Board by a company organized by Mr. Wulf for the operation of two pickup routes from Moline, Ill., across Iowa, to Omaha, Nebr., with pickup installations, costing about $250 each, established at 70 towns on the routes. Plans made now involve the use of single-engine planes flying at a speed of about 110 miles an hour.

Handlers at each station will be equipped with short-wave walkie-talkie radios to contact ships several miles away and advise the plane of the weight of the parcel to be picked up. These handlers will also transport mail and express to the catapult and return with incoming parcels for delivery in the community.

While daylight operations are planned at the outset the report states that experimental night flights will be tried out, using neon lights to identify the towers from the air. The advantage of night operation lies in the fact that about 85% of the daily air mail is posted at the close of the day's business.

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MEDICINE

Penicillin Pills May Replace Injection Method

➤ PATIENTS taking penicillin in future may swallow the drug in a pill, or rather a gelatin capsule, instead of getting it by hypodermic injection, it appears from studies reported by Dr. Raymond H. Libby, of the American Cyanamid Company's research laboratories (*Science,* Feb. 16).

It has not heretofore been possible to give the mold chemical by mouth because its activity is so rapidly destroyed by the acid in the stomach. Dr. Libby reports he has overcome this difficulty.

Sodium or calcium salts of penicillin are suspended in cottonseed oil and then put into gelatin capsules. The gelatin capsule protects the penicillin from the stomach acid. The penicillin then becomes available through absorption into the blood from the small intestine.

Tests with animals and patients showed that the capsule method of giving penicillin is effective in keeping adequate concentrations of the drug in the blood for action against invading disease germs.

More penicillin apparently must be used but this, Dr. Libby suggests, will probably be offset by several factors. One is the greater ease, for both doctor and patient, of giving the drug by mouth instead of by injection. Another is that less highly refined penicillin should be satisfactory. This would simplify production procedures.

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