AERONAUTICS

New Techniques Aid Sea Rescue Work

➤ RESCUE work at sea, with the use of flying boats, is aided by techniques developed by Comdr. Donald Bertram MacDiarmid of the U. S. Coast Guard. For his work, he was given the Octave Chanute Award in Los Angeles recently at the annual dinner of the Institute of the Aeronautical Sciences.

In order to extend the effectiveness of air rescue work at sea, Comdr. MacDiarmid made innumerable landings of a flying boat under very severe conditions. Some of these landings were made in seas as high as 18 feet and in winds up to 23 knots. He developed methods that permit flying boats to operate in seas too rough for small surface craft.

A three-camera system for low-altitude night photography brought Col. George W. Goddard of the Wright-Patterson Air Force Base, Dayton, Ohio, the Thurman H. Bane award of the Institute of the Aeronautical Sciences at the same meeting.

The three-camera system developed by him gives a vertical and two oblique pictures with moving film synchronization to compensate for ground image motion. Illumination comes from an ejected photoflash cartridge which, by bursting at 600 feet behind and 400 feet below the photographic plane, reduces the danger of the ship's illuminating itself as an enemy target.

In a test of the system while under development, made about a year ago over New York City, a series of cartridges, each developing 50,000,000 candlepower, were ejected at intervals from a B-17 flying over the city at approximately 1,800 feet. Despite ground haze and smog, the resulting pictures compared favorably with daylight photography.

Science News Letter, July 22, 1950

ENTOMOLOGY

Mexican Fly May Restore Hawaiian Grazing Land

➤ A TINY Mexican fly, measuring less than a quarter of an inch with wings spread, gives promise of restoring thousands of acres of Hawaiian cattle land to useful production.

The insect, known as the stem gall fly, was brought to Hawaii in 1945 by Noel L. H. Krauss, a Territorial Board of Agriculture entomologist, as a possible means of combatting pamakani, a shrub pest which chokes large cattle raising areas in the Islands.

Before introducing the fly to Hawaii, Mr. Krauss conducted extensive tests in Mexico, where this shrub pest also flourishes, to find out whether the gall fly and other parasites which attack the shrub might also attack beneficial plants. This was determined by depriving the insects of their pamakani diet. The gall fly was deemed safe.

Propagated in the Board's laboratories, the fly was released on the islands of Maui and Oahu.

It became quickly established, but at first seemed to do little good. Then suddenly, the pamakani began to turn brown and die. Examination showe the fly planted its eggs in the stem of the shrub, from which worms developed. In an effort to defend itself, the plant built a "gall" around the worm. Most growths stopped just beyond the gall. If growth did continue, it was found the upper stem was greatly weakened and rotted.

C. E. Pemberton, Hawaiian Sugar Planters' Association entomologist, described it as "the fastest piece of plant pest control" in the Territory's long fight against such pests.

Mr. Pemberton said that before the gall fly arrived the pamakani was so thick on one Maui ranch that "it was impossible to ride through it on horseback or for cattle to get through."

"Now, there is not one pamakani plant on the whole 65,000-acre ranch that has not been affected, as far as we can determine," he said. Large areas hitherto blocked are now passable.

Much of the area is now being seeded with grass for grazing.

"If the fly continues to decimate the pamakani as in the past year, many thousands of acres will be reclaimed," Mr. Pemberton said.

The fly has now succeeded by its own efforts in crossing to the island of Lanai and is going to work on the pamakani there.

Science News Letter, July 22, 1950

NUTRITION

Even Rats Starve on Diet Of India's Hungry Poor

➤ AMERICAN rats soon show signs of starvation when fed on the same rice diet that is the main food of South India's hungry poor.

Trying to develop practical ways for improving the diet deficiencies of India's poor, Mrs. Rajammal P. Devadas of that country, working at Ohio State University, fed white albino rats rice diets with various supplements added. She reported to the American Home Economics Association meeting in Boston the differences in the rats' growth, food consumption and liver vitamin A when fed the various diets.

Her study showed that rice diet is mainly lacking in vitamin A, riboflavin and as yet unidentified factors present in egg yolk. Rats fed the basic rice diet grew poorly, consumed small amounts of food and developed hunched postures and roughened coats.

Science News Letter, July 22, 1950

IN SCIEN

ENTOMOLOGY

Fly's Wings Beat 212 Strokes Per Second

➤ A FAST fellow on the take-off is the housefly. Just how fast a fly can move when startled has been uncovered by a ballistics expert using a high-speed camera.

At the Army Chemical Center in Edgewood, Md., an unsuspecting fly landed on a target plate used in ballistics tests. Thereupon, Carl M. Herget reports in the journal SCIENCE (July 14), he fired a shot. The plate was jerked from under the fly's feet, leaving the fly out in mid-air. A camera capable of taking 2,400 pictures per second told the rest.

The fly fell about an eighth of an inch. Then, only 21 thousandths of a second after the bullet struck, its wings went into action. The target plate rebounded, turning the fly upside down, and strong air currents buffeted the tiny aviator. But through it all, the fly's wings continued beating at some 212 strokes per second.

Science News Letter, July 22, 1950

GENERAL SCIENCE

Scheduled "Wrecks" For Greater Safety

➤ "SCHEDULED" collisions by automobile stunt drivers are helping science to understand "unscheduled" collisions on the highway.

Herman P. Roth, physiologist of the University of California at Los Angeles' Institute of Transportation and Traffic Engineering is working with the Joie Chitwood "Daredevils" in the research.

From their experiments may come information that may be used by automobile manufacturers in providing greater safety features in passenger cars of the future.

High speed motion picture cameras and other instruments are used to record forces involved in collisions between speeding automobiles.

While the Chitwood stunt drivers are thrilling the crowds by deliberately crashing cars head-on and diving them into other vehicles, the U.C.L.A. scientists are gathering valuable information on how much of an impact a human body might be subjected to in such a collision.

"Highway collisions do not happen conveniently so that researchers can have competent observers with instruments on hand to record pertinent data," Mr. Roth points out. "This is why the study of crashes by stunt men is valuable. Their performances are the only head-on collisions scheduled in advance."

Science News Letter, July 22, 1950

CE FIELDS

BOTANY-MEDICINE

Cancer in Plants May Be Key to Human Cancer

➤ CANCER in plants may some day give science the key to human cancer. For fundamental work on diseased growth, plants can be studied in large numbers while growing in rigidly controlled chemical gardens.

Plant cancers seem to be started by physical or chemical factors which act as trigger mechanisms. After the trigger is pulled, what happens depends upon the gun and the way the gun is loaded, the International Botanical Congress heard in a paper written by Drs. A. J. Riker and A. C. Hildebrandt, plant pathologists at the University of Wisconsin.

Some 100,000 separate pieces of plant tissue were studied by the two scientists. They found that the basic substances which give plants their nutrition from the soil can both speed up and slow down diseased growth, depending upon the amounts of various nutrients present.

"For normal growth, a number of factors seem to operate in a suitable balance," Drs. Riker and Hildebrandt reported. "For diseased growth, these factors may be out of balance in one way or another."

When the trigger of cancer is pulled, in more vivid terms, the gun may have a high-powered load, a normal charge, or the powder may be wet.

Object of the Wisconsin studies, supported by the American Cancer Society, the Donner Foundation and the Wisconsin Alumni Research Foundation, is to find a way in which the powder keg of human cancer may perhaps be given a good wetting down.

Science News Letter, July 22, 1950

INVENTION

Better Coat, Paint Saved In Hot-Spray Process

➤ PAINT near the temperature of steam is applied by spray in a new "hot spray" process for which the necessary heating equipment has now been developed. Varnish and lacquer can be applied by the same method.

In the process, heat replaces a large part of the solvents now used in paint. This means that a higher percentage of solid material and pigment is applied, and surfaces are better covered with the lasting materials. Drying time is also decreased due largely to the decreased quantities of solvents used.

Flow characteristics of the heated paint are better than in cold paint spraying. What painters call sags, runs and peels are eliminated. The "hot spray" process means a reduction in the amount of paint required, and also in the amount of "thinner" and work needed. Lower pressure is required. This results in a saving because fewer particles of the paint are wasted by being blown away from the surface being covered.

Hot spraying equipment developed by Bede Products, Inc., sucks paint, varnish or lacquer from the original containers through the heating chambers and keeps the heated material in a constant circulation between the heater aand spray gun by means of a double hose. This cuts cooling losses in the gun connection and assures a high-temperature delivery.

Science News Letter, July 22, 1950

MEDICINE

Terramycin Stops Kidney Infections

➤ TERRAMYCIN, one of the newest antibiotics, is succeeding in the treatment of kidney and bladder infections where other antibiotics and sulfa drugs have failed.

In a seven-day course of treatment to a group of 24 patients at University Hospital in Ann Arbor, Mich., the new drug cured six and temporarily improved 14 others. Four cases showed no response, Drs. Reed M. Nesbit, John Adcock, William Baum and Cora Owens report.

All the patients had been previously treated with penicillin, sulfa drugs and other antibiotics. Although terramycin effected a cure in only 25% of the cases, the fault lies with the body tissue and not the drug, the doctors indicate. The tissue's ability to fight infection is impeded by chronic inflammation, they declared.

Science News Letter, July 22, 1950

PHYSICS

Large-Scale Development Nuclear Power Not Imminent

➤ LARGE-SCALE development of nuclear power is unlikely before ten years, the World Power Conference was told in London.

Sir John Cockcroft, director of Britain's Atomic Energy Research Establishment, outlined the problems to be solved in putting atoms to work for humanity. Many of these problems were stressed by Dr. Ward F. Davidson of Consolidated Edison Company of New York, who stated that the technical problems to be solved are proving more difficult than was expected.

Dr. L. Kowarski, scientific director of France's Atomic Energy Commission, reported on the progress of nuclear developments in that country. He said that the possibilities of further atomic progress in France on a widened basis would be largely dependent on the world situation two or three years hence.

Science News Letter, July 22, 1950

PHYSICS

Evidence for Duplex Neutron Discovered

➤ EVIDENCE for the existence of a duplex neutron, called the "dineutron," which is a momentary merging of two of the atomic particles that trigger the A-bomb, has been obtained at the Los Alamos Laboratory of the Atomic Energy Commission.

The existence of the dineutron appeared demonstrated during investigation of the bombardment of tritium by tritium, a reaction of great interest because it has been suggested as one of those involved in the so-called hydrogen bomb. Tritium is the radioactive triple weight variety of hydrogen, unknown in nature but made in atomic reactors.

Researches with tritium were reported by Dr. A. Hemmendinger of Los Alamos to a physics meeting held under the auspices of the Oak Ridge National Laboratory. A result of the tritium-tritium reaction was that two neutrons given off were coupled together as a composite particle for a short time.

Science News Letter, July 22, 1950

GENERAL SCIENCE

USSR-US Seed Relations Follow Golden Rule

➤ IF the United States deliberately tried to infect Russia with insects, weeds and plant diseases through Lend-Lease shipments during World War II, then it was trying to spread havoc on its own farms as well.

The same inspection was given seed shipments to Russia as was made on seed for our own use, officials of the Department of Agriculture revealed.

A Russian magazine charged recently that Lend-Lease food and seeds were infected artificially to sabotage Soviet crops.

Of course there were seeds of noxious weeds mixed with shipments of food seeds, U. S. experts said. It is humanly impossible—without going through millions of tons of tiny seeds one by one—to certify that a load of seed is 100% pure. But U.S. seed inspection does certify that a given shipment is perhaps 99% pure—and we did that for the Russians.

"Those fellows came in here with a list of plant diseases, weeds and insects which included everything under the sun," said one exasperated expert.

"We told them we wouldn't even consider the list," he said. "We further told them, however, that no seeds would be sent over which would not pass inspection for our own use."

"The Russians never said they would accept the seed on that basis," the official continued—"but they certainly accepted it as fast as we sent it."

Science News Letter, July 22, 1950