

AERONAUTICS

Lighting for Safe Flying

The Navy is experimenting with light to improve night vision for pilots and prevent illusions that cause crashes. Both outside and inside lighting being tested.

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► SAFER NIGHT flying may result from lighting experiments on three planes at the Navy's Aero Medical Equipment Laboratory in Philadelphia.

Inside and outside lighting of planes are under experiment to overcome some of the hazards of night flying. The outside plane lighting is designed to keep pilots from becoming confused by ground lights, stars and other planes. Inside the planes, experimental lighting is being tested to help the pilot retain his visual night adaptation.

Main job of the outside lighting is to warn pilots of another plane and indicate the direction the plane is flying. One student pilot cracked up when he mistook the dim headlights of a truck on the ground for another plane. Other pilots have been confused by stars.

A three-quarter stern view shown on the cover of this SCIENCE NEWS LETTER is of an experimentally lighted plane with illuminated lucite outlining the tail and wing tip, showing how the plane would appear to a pilot flying in close formation.

Experimental lighting tested at this laboratory has included the flashing lights used by commercial planes. Another outside lighting for planes in the experiments uses illuminated plastic bars

MEDICINE

Surface Infection Drug

► A "LITTLE brother" to penicillin, capable of replacing that drug against surface infections and with some advantages over it, has been developed and tested, though it is not yet ready for wide use in treatment and research.

The new antibiotic, a modified form of gramicidin, has been used successfully in the laboratory at the University of California Medical School to control bacteria which invade body surfaces.

Of greatest importance is the fact that gramicidin apparently does not cause sensitization, that is, severe systemic re-

actions after repeated use. This means gramicidin can be used repeatedly in surface infections without destroying its efficiency.

For this reason it will be complementary to penicillin, which does cause sensitization. Many doctors have criticized the use of penicillin in minor infections on the grounds that sensitization will prevent its later use in major ailments.

With gramicidin as a potent weapon against body surface infections, penicillin could be reserved for occasions when it may save a life.

One problem faced in the study is autokinetic illusion. This causes a person looking at a single, fixed point of light in the dark to think the light is moving. This illusion has caused plane crashes. A row of lights on a plane or a bar of illuminated plastic can overcome this illusion, the tests have found.

Rows of lights and direct lighting of sections of the plane will also give easily identified light which indicates the direction of flight. Other tests have shown the flashing lights of commercial planes to be effective for night flying.

Lighting experiments inside planes have used red and ultraviolet lighting for panel boards to overcome "night blindness." "Night blindness" is caused when a pilot, who has accustomed his eyes to the darkness outside, looks at a bright light inside the plane. He is unable to see as well immediately afterward when he looks out into the darkness again.

Three planes at this Navy laboratory have been equipped with experimental lighting installations for the lighting tests. The study is under the direction of Capt. John R. Poppen.

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Results with gramicidin were reported by Dr. Hamilton H. Anderson, professor of pharmacology in the University of California Medical School. The gramicidin derivative used was developed by the Western Regional Research Laboratory, U. S. Department of Agriculture, Albany, Calif., and tested by Drs. Sam C. Wong and Y. C. Chin, associates of Dr. Hamilton.

Gramicidin, in its original form, was too toxic for use, in that it destroyed red blood corpuscles. Another handicap was the difficulty of dissolving it in water.

Wetting agents were used in combination with gramicidin and subtilin, another antibiotic useful in killing body surface bacteria. These agents distribute the antibiotic uniformly over tissues and disperse the organisms which might tend to clump and be unavailable to the drug.

Dr. Anderson said that detailed pharmacologic studies are necessary before gramicidin and subtilin can be widely used in research and treatment. He also described experiments in which subtilin killed tuberculosis germs in the test tube.

Science News Letter, June 28, 1947

AGRICULTURE

Better Silage Made From Wilted Plants

► DID YOU EVER eat the old-fashioned salad known as wilted lettuce? To one who has never experienced it, the name sounds pretty awful; but the dish has its devotees.

A cow-barn analogue now seems to have been developed by two scientists of the U. S. Department of Agriculture, T. E. Woodward and J. B. Shepherd. They have found that if the grasses, legumes and other plants that are to go into the silo are first wilted until their moisture content stands between 58% and 68% and then cut very fine, the resulting silage will be more nutritious and better relished by the cows. If the weather is too damp for the wilting process when the silo is being filled, addition of from 5% to 15% of dry hay will turn the trick.

A big saving in both cash and labor is effected by the pre-wilting process. For many years it has been orthodox practice to add acid to the silage, either directly or by the addition of molasses or the like, which produced acid by fermentation. With the wilting method, this acidification has been found unnecessary.

Science News Letter, June 28, 1947