PHOTOGRAPHY

Aerial Photos at Night

Army Air Force photoreconnaissance pilots are now able to make low-altitude pictures of enemy installations at night without using flash bombs.

➤ IMAGINE the amount of light that would be forthcoming from 4,000,000 forty-watt bulbs of the type used around your home, and you'll have some idea of the amount of light used by Army Air Force photoreconnaissance pilots to make low-altitude pictures of enemy installations at night without the use of parachute flares or flash bombs.

Secret of the system for taking aerial photos at night is a quartz helix flash tube in which stored electrical energy from the airplane's 24-volt DC electrical system is discharged through the rare gas xenon. Krypton, argon and neon gases may also be used, but xenon gives the whitest light, most desirable for photography.

Flying at 5,000 feet, the new equipment, developed at the Massachusetts Institute of Technology by Dr. Harold Edgerton in cooperation with the Air Technical Service Command, takes 200 pictures in less than seven minutes, on a roll of film 150 feet long.

The unit consists of a K-29 aerial camera, flash assembly, and a control box. The camera shutter is synchronized with the flash assembly, so that each picture is snapped at the instant the xenon flash bulb reaches its greatest sun-like brilliance. In operation the process is similar to that of taking regular flash pictures, except that the single bulb lasts for several hundred flashes and does not have to be replaced after every picture is taken.

The xenon bulb fits in a large reflector, 30 inches in diameter and 24 inches deep, made of spun aluminum, treated to produce a mirror-like finish.

The camera unit weighs 460 pounds and is suspended from a bomb-rack, so that it can be quickly dropped in case of emergency. It is waterproofed to permit use in the humid tropics. It will also perform efficiently in desert areas or arctic regions.

The remote control box can be set anywhere in the plane, so that the pilot, bombardier, or any crew member can snap the pictures, at the rate of one every few seconds.

Science News Letter, February 24, 1945

GEOLOGY

More Tungsten

➤ TUNGSTEN worth over $300,000 has been taken since its discovery in 1942 from the first commercially workable source of tungsten found in the southeastern states, Gilbert H. Espenshade of the Geological Survey, U. S. Department of the Interior, told members of the Geological Society of Washington.

Although tungsten-bearing minerals are known to occur in a number of places in the eastern United States, and a few of these deposits in New England and the Maritime Provinces of Canada have been economically important in the past, most of the new discoveries stimulated by the war need for increased domestic supplies of tungsten have been in our western states, Mr. Espenshade stated.

The economically important deposits were discovered in eastern North Carolina and Virginia by two brothers, Joseph and Richard Hamme, in Vance County, N. C., and Mecklenberg County, Va., about three and a half miles northwest of the village of Townsville, N. C.

The region has been examined and mapped by geologists of the Geological Survey in conjunction with the Bureau of Mines of the U. S. Department of the Interior. The deposits were found to occur as a series of veins in a belt about eight miles long and a mile wide.

Most of the tungsten-bearing quartz veins lie in granite, within 1,500 feet east of the point where the discovery was made. A series of short veins, each several hundred feet long, occur in a narrow zone of granite. West of this are larger veins, ranging in thickness from a foot to 30 feet and having a maximum length of 1,500 feet.

"The richest veins are in a zone about two and a half miles long in the central part of the district," reported Mr. Espenshade. "Drilling and underground mining to depths of nearly 200 feet below the surface have shown that there is practically no change in the character of the veins or the content of the ores. It seems reasonable to expect the veins to continue to greater depths."

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New *tracer shotshells,* used only in training airplane gunners, have within them a small metal capsule containing a tracer composition which, burning in flight, is visible in daylight.

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