

## AERONAUTICS

# Oxygen Lack Prevented

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► ARMY AIR Forces planes are now equipped with two improved oxygen supply systems, the Air Technical Service Command reports. These systems make sure that flyers get the right amount of oxygen for safety. Oxygen is life in a bottle for pilots flying at altitudes above 10,000 feet. It prevents anoxia, a condition resulting from deficient oxygen supply to body tissues that may play tricks with flyers' judgment.

One system has a regulator controlled by atmospheric pressure which operates a valve that permits ordinary air to flow at sea level, where no additional oxygen is needed, into the oxygen mask that the pilot wears. As the altitude increases a bellows closes the air valve and opens the oxygen valve, controlling the proportion of air and oxygen until at 30,000 feet, when all air from the outside is shut off and the regulator supplies the flyer with 100% oxygen. Unlike the old manually controlled system, the new system does not waste oxygen, important because on long flights oxygen can become very precious.

New special oxygen containers are provided for flyers and crews who must move around in bombers and transport planes. Called the "walk-around bottle," the container of oxygen is attached to the mask, permitting complete freedom of movement. For flyers who must bail out in a parachute, there is a small bottle of oxygen which provides about five minutes of the precious gas, enough to allow the flyer to descend to the heavier atmosphere where he can breathe normally.

Mobile generating units for taking oxygen out of the air and putting it into bottles are now in operation on all fighting fronts.

So important is the use of oxygen and the maintenance of oxygen equipment, that each AAF Squadron has an officer whose duty it is to see that flying personnel guard their own lives by intelligent use of the oxygen equipment.

Anoxia is the most subtle of all the flyer's enemies. At first it creates an illusion of exhilaration and well being. In a short time vision becomes affected, causing instruments, maps, and other

planes to grow hazy. Other senses suffer too, the ears are affected and radio reception is fuzzy and indistinct.

At 10,000 feet the air pressure drops to 10.1 pounds per square inch, from sea level pressure of 14.7 pounds per square inch. That means there is less air in the space of a cubic foot at 10,000 feet than there is at sea level. The air thins out as you go higher.

No matter how rarefied the air may be at any altitude, it still has 21 parts of oxygen in it, but due to the low pressure, a pilot gets less of it in each lungful as the altitude increases. For this reason, oxygen in a bottle is vital to high altitude flight.

Science News Letter, October 7, 1944

## PHOTOGRAPHY

## New Camera Device For Aerial Photos

► TO IMPROVE the quality of aerial photos and to make it easier for photo reconnaissance experts to put together the hundreds of pictures that make up photo montages used by field commanders in planning military operations, a new device times the taking of photos to provide a uniform percentage of overlap in all photos. Known as the intervalometer, it is designed to click the shutter automatically in one or more aerial cameras at predetermined intervals with a range of from 1 to 120 seconds.

Developed by the Fairchild Camera and Instrument Corporation, the controls of the new device are installed on the instrument panel of the plane. The aerial photographer can operate by this remote control system cameras which may be back in the tail of the plane. As many as seven fully automatic aerial cameras are operated in synchronization by one controlling device.

In addition, there is an extra-picture switch button, permitting the aerial photographer to take an extra picture if he happens on an unusual subject that does not fall within the interval timing, without interrupting the predetermined scale. A thermostat-controlled electric heater keeps the equipment at uniform temperatures during high altitude flight.

The resulting overlap provides the same area coverage in any given strip of pictures. This results in a uniform percentage of overlap in all photos taken from an identical altitude but to different scales.

Science News Letter, October 7, 1944

*Esparto grass, Stipa tenacissima*, which covers millions of acres of rugged, almost sterile, land in Tunisia, Algiers and Morocco, is used to make hats, shoes, carpets and brooms, and as cattle feed, fuel and a base for paper.

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