

PHOTOGRAPHY

Color Photographs at Six Miles Soon To Be Possible

Army Air Corps Photographic Experts Already Getting Good Color Reproduction From 15,000 Foot Altitudes

See Front Cover

THE EYES of the Army—aerial photographs — are seeing the enemy in this war with new color vision, it is revealed by an announcement of the Army Air Corps at Wright Field.

No longer can enemy territory hide behind camouflage to which the ordinary black and white photographic print is blind. Brilliant color photographs have been obtained by the Air Corps from altitudes of 12,000 to 15,000 feet and it is expected by photographic experts that within the next few months color photographs can be made from airplanes flying five or six miles above the earth.

The color film that gives such beautiful and lifelike results in your amateur movie or still camera will not do at all for color work at such long range, Wright Field laboratory technicians discovered. Haze, which Army photographers have learned to "see through" with infrared-sensitive film for black and white photographs, becomes a new bugaboo to the color photographer. Colors at such a distance register as muddy and unbalanced.

The problem is being solved with the use of a three-lens camera with matched lenses and various combinations of films and filters which vary from day to day with weather conditions.

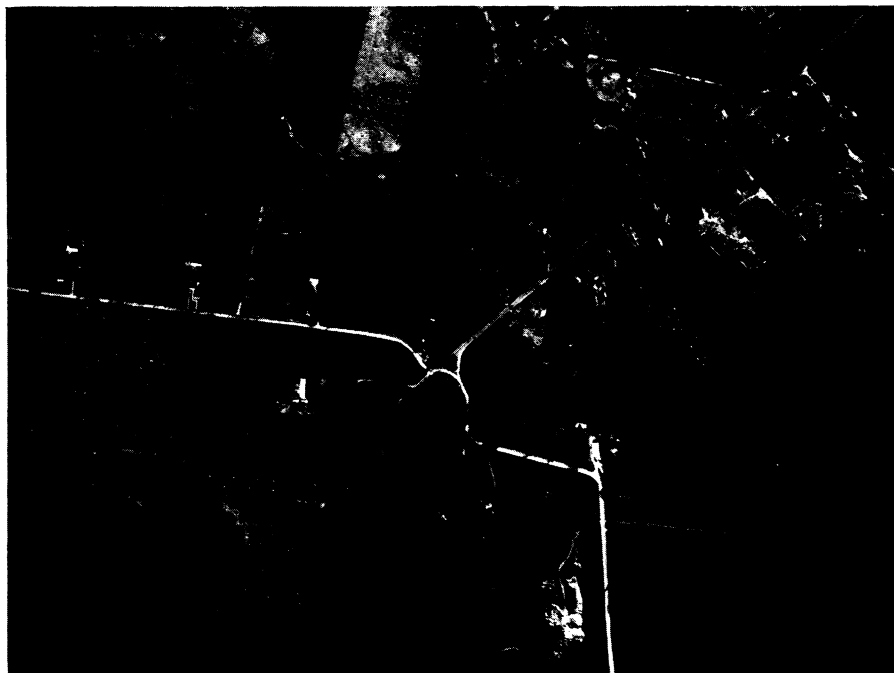
Great strips of film 50 feet long and dyed in tested brilliant colors are stretched out on the flying field at Wright Field to aid in the photographic experiments. Next comes a sort of trial-and-error method of attack on the problem. Various film and filter combinations are tried until the colors are reproduced correctly at the desired altitudes.

Color photography is even possible at night with the aid of brilliant flash bombs of colored light—color of light and film being carefully balanced as the result of test and experiment. These flashes are so bright that they can be seen for 200 miles. Photoelectric shutter trippers insure that the picture is taken at the peak intensity of the flash. Mean-

while the night-photography plane is hidden from the enemy by darkness and high altitude.

Another new weapon of the Army Air Forces is a photo-mapping camera developed at Wright Field which makes possible new feats in fast searching out of enemy territory.

With this new camera, now going into mass production, Wright Field camera technicians recently map-photographed an area of 1,600 square miles from an altitude of 25,000 feet and were back on the ground within three hours, 35 minutes. Tiny details are clear and sharp. Five photographs, covering strips of land 50 miles long were made. Each photograph on a strip was overlapped 60% on the preceding one and each strip overlapped the preceding one 30%.



FROM SIX MILES UP

A Wright Field aerial photographer pointed his 40-inch telephoto camera out of a bomber and produced a negative from which this section was enlarged. Notice how clear the details show up at this immense distance.

Ten years ago, a similar achievement would have taken long days of flying at a 15,000-foot altitude.

Good infrared photographs can now be made at 1/50 of a second. The picture on the front cover was made at 20,000 feet.

Science News Letter, April 18, 1942

PUBLIC HEALTH

Polio Spread by Humans, Study of Epidemic Suggests

EVIDENCE that infantile paralysis may be spread from neighborhood to neighborhood and from person to person by human travel is presented by Dr. Albert E. Casey of the Louisiana State University School of Medicine (*Science*, April 3).

Dr. Casey observed an epidemic of polio in Walker County, Ala., a mountainous mining region, with 65,000 inhabitants. The epidemic began in the last week in June, reached a peak early in August, and was virtually ended by the last week in September, 1941.

Of 101 cases interviewed, not one had been isolated during the month preceding the illness, and visits were made freely among neighbors and relatives.

Eighty per cent of the infantile paralysis victims had probably been visited by a prior victim who at the time of the visit was about to become sick.

While the paralysis germ was found in the bodies of flies trapped in the neighborhood, Dr. Casey concludes from the spread of the cases that the flies were not guilty.

(There has been considerable evidence

reported that insects may be a factor in spreading infantile paralysis.)

Dr. Casey concluded that a child within three days before or three days after the first symptoms was the effective means of spreading the disease in the cases he observed.

How the disease was spread from one person to another was not learned.

Science News Letter, April 18, 1942

PHYSIOLOGY—PSYCHOLOGY

Island of Tissue In Brain Controls the Water Balance

Tiny Isolated Blob of Tissue Able To Maintain Life Even When 95% of Brain Is Missing, Scientist Finds

DISCOVERY of a life-saving island of tissue that will allow life to continue even when 95% of the brain is missing, is stirring scientists to expect important new medical discoveries leading to conquest of diseases now baffling medical skill.

Just a tiny isolated blob of tissue, located in the brain and consisting of pituitary gland and hypothalamus, has been found by Drs. Martin B. Macht and Philip Bard of the Johns Hopkins University Medical School, to be responsible for maintaining the water and sugar

balance in the body. Diabetes, and possibly epilepsy, are among the ills that may be found due partly to improper functioning of these structures.

New knowledge that may aid in treating war-damaged heads, and patients with brain tumors, was the first practical result of this discovery of the body's island defense.

Walking, climbing, swallowing, shivering and even responding to a whistle, which scientists have thought were controlled by various parts of the brain, can go on without the aid of those brain areas, Drs. Macht and Bard have found.

The reason a cat can right herself and land on her feet is not because of what we usually think of as her brain, but because of part of the "brain stem"—a much more primitive part of the nervous system at the base of the brain. She can turn over in response to a whistle even when she cannot "hear" it through the higher centers of the brain.

An almost completely brainless cat, with 95% of her brain missing, can walk although her gait is not all that might be desired in grace. She can climb and hop and claw, although she seems to do the latter aimlessly and without effectiveness. She can't bite.

She loses the ability to maintain a normal body temperature regardless of surrounding heat or cold. When she is cold, she shivers, but the shivering is fragmentary as compared with that of a normal cat. The shivering is not "useful" as physiologists have contended it might be—her loss of warmth is not stopped by it or even slowed.

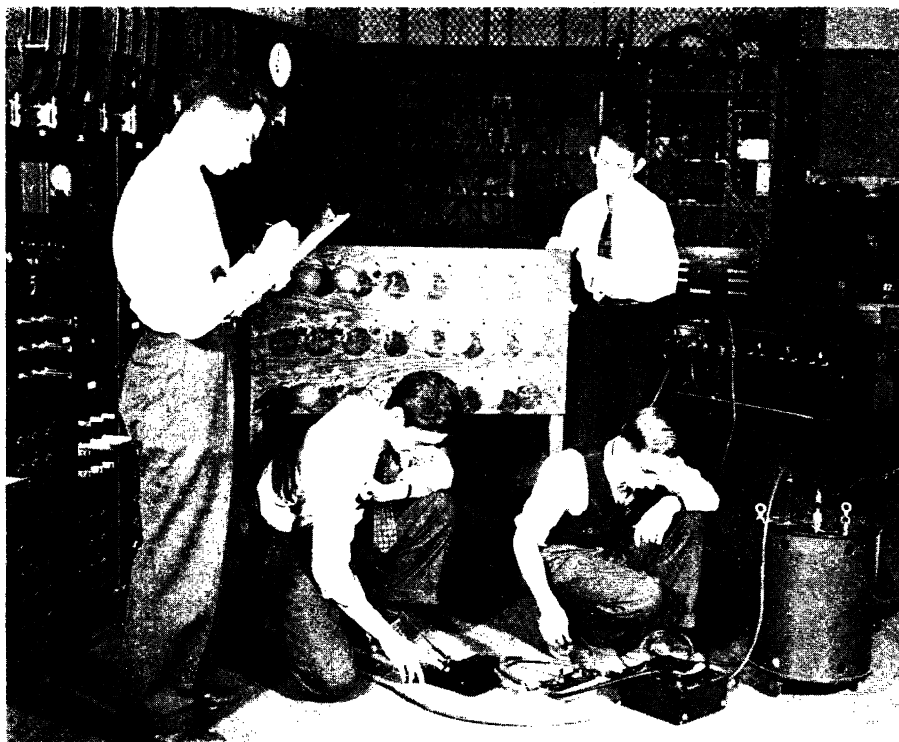
When choice bits of liver are put into her mouth, she will gulp them down almost without any chewing, but she licks her chops—a reflex which in this case presumably does not indicate enjoyment. She swallows water, too. But left to herself she would never eat and she does not reject food when her stomach is full.

Animals with just a few hundredths of an inch more of the brain stem left intact, do know when they have had enough. They can bite. They can walk more normally.

Importance of preserving even such tiny amounts of brain tissue is one of the implications of significance to brain surgeons.

Perhaps the most important thing to scientists in this research is the development of a technique by which the localization and analysis of certain nervous system functions can be accomplished.

Science News Letter, April 18, 1942



WAR TRAINING

At a Binghamton, N. Y., high school in a laboratory designed by the General Electric Company, students are learning technical electricity. This group is using portable capacitor and electrical indicating instruments to study effects of resistance, inductance and capacitance in a series circuit.