

AGRICULTURE

# Seeds Are Sown by Planes

This program gives promise of more meat through creation of larger grazing areas and more lumber by protecting forest sites against erosion.

By RON ROSS

► AIR RAIDS over the western United States are helping solve two of the nation's toughest problems: food and housing.

The bombs carried on these peaceful forays are seeds. Bombing seeds on vast areas of the West is an attempt to link the modern air age with the sowing of seeds, one of man's most ancient occupations.

Seeding from the air is standard procedure in some special jobs such as sowing California rice fields. Other large-scale applications of aviation to the farm include dusting crops with new chemical enemies of plant pests. Promising new uses of planes in agriculture are being explored.

Experiments now under way with aerial seeding give promise of fighting both hunger and the shortage of housing.

## Increase Meat Production

More meat will be produced on vast grazing areas because of grass seed showered from the air.

More lumber for future homes may come from trees to spring from seeds dropped from planes.

Fighting forest fires from the air is now a common practice. Rangers drop by parachute into a blazing area just as paratroopers descend upon an enemy. The added aerial touch now is the use of airplanes to restore the precious ground cover after a disastrous forest fire.

After the last embers of a blaze have died out and ashes and charred stumps are all that remain of a once valuable forest, the danger is not over. A rain may wash away the unprotected topsoil and keep the site from ever again being a useful forest. The only defense against erosion of the irreplaceable soil is a quick seeding job. This gives the land a protective cover of plants until new trees can be planted and grow big enough to hold the soil, a matter of years.

Planes are now used to drop the seeds of forage plants over the forest ruins, preserving the land for future timber crops. Even if it were possible

to mobilize men and equipment at the frequently remote location of burned forests, a quick rain might wash off priceless soil before a cover could be planted on the ground. But aerial seeding, covering many acres per minute, is saving thousands of acres of future forests.

Trees in some of these forests may spring from seeds dropped by planes.

The ruins of the great forests in Maine which were destroyed in last fall's disastrous fire which wiped out cities, palatial summer homes and a famous cancer research center as well as forests are the testing ground for an experiment which may revolutionize the replanting of forests. In the midst of the timberland swept by the blaze was a large experimental area of the Forest Service of the U. S. Department of Agriculture. Planes rained white pine seed on 2,200 acres of this area in mid-February. If this seeding is successful, it can mean cheaper, faster tree planting on thousands of acres of land each year.

Forest Service scientists will move into the recently-seeded area in a few weeks to make the first survey of their "catch," the young trees which have come up since the aerial sowing in February. More definite results will not be available for as long as five years, until the stand of seedlings has had time to develop into a young forest.

Across the country from the charred forests of Maine, direct seeding of trees from the air has taken on a new twist in the Pacific Northwest. A helicopter, hovering low over the timber-growing hills of northwestern Oregon, rained seed of five different kinds of trees on areas to be reforested.

## Helicopter Experiment

The helicopter experiment was conducted by the Crown Zellerbach Corporation, a producer of pulp and paper, last December. In a few hours of flying time, 2,500 acres of land were seeded for trees from the "egg beater." Here, again, foresters will not know the success of the experiment for several years.

Seeding from the air is actually the oldest method of reforestation. In nature,

millions of seeds are scattered. Only a few become trees. If dropping seeds from planes is to be practical, it must be more efficient than Nature, because of the cost of seed.

One way to help use less seed is to fight the rodents such as ground squirrels which will eat the seeds. Poison bait dropped from planes before an area is to be seeded has been used. Another method under experiment is the use of rodent-repellents on the seeds.

## Building Future Forests

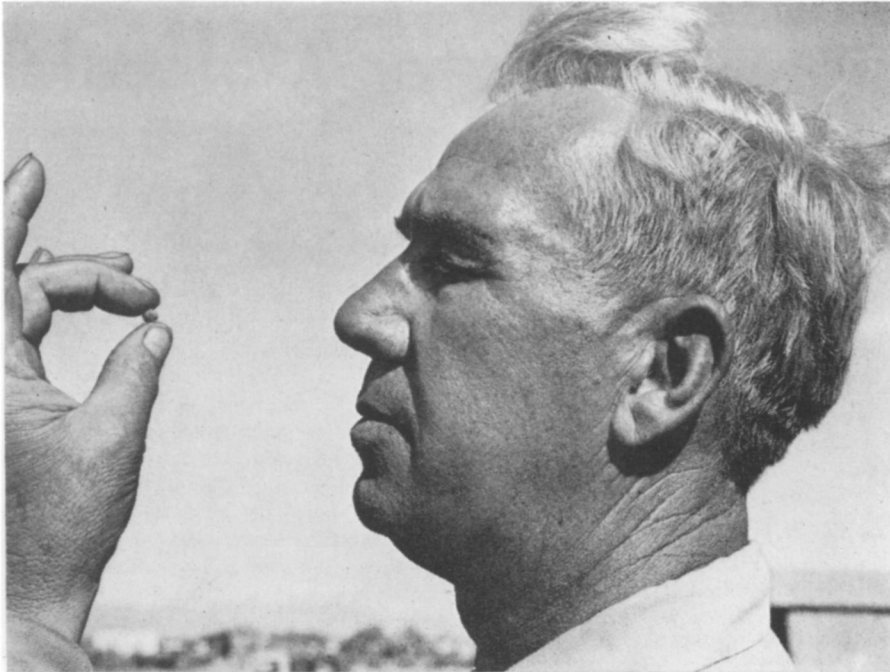
Forest Service scientists declare that planes will play an important role in building future forests. Dropping tree seed from planes is still experimental, but it offers a hope for regaining much of America's depleted forest resources faster and at less cost than any other method.

While planes soar over the forests, helping raise the lumber for tomorrow's homes, another air conquest is being made on dry, near-desert lands of the West. Hundreds of thousands of acres of land have been seeded with grass from the air.

There are millions of acres which might feed more cattle—and put more



**AERIAL SEEDING**—At a signal from the flagman, the pilot pulls the trigger which releases seeds. The seeds are pellets being dropped over grazing land in Arizona.



**DEVELOPED PELLETS MADE OF SOIL**—Dr. Lytle S. Adams of Tucson, Ariz., has improved this system of scattering grass seed from the air by using pellets containing seeds, fungicide, insect and rodent repellents, fertilizer and moisture.

meat in your butcher's shop—if grass could be seeded.

Scattering grass seed from the air is called "ordinary broadcasting." The seed is simply dropped. Some of it "catches on" and becomes grass. Much of it does not. Yet this simple method has proved "more than reasonably successful" on more than half a million acres of potential grazing land in experiments directed by Department of Interior scientists.

A method of getting more even seeding with fewer seeds has been developed by a retired dental surgeon in Arizona, Dr. Lytle S. Adams. He uses pellets made of soil. Inside the pellet are seeds,

fungicide, insect and rodent repellents, fertilizer and moisture.

The Department of Interior has spent \$300,000 in the past three years experimenting with Dr. Adams' pellets for aerial seeding. Approximately 146,000 acres have been sown.

Making the pellets and dropping them so that grass will grow have proven difficult problems. First seedings on Indian lands in Arizona were followed by a severe drought. Selection of the proper soil to use in the pellets has been a problem. In some cases seeds began to sprout before they were dropped from the plane.

But the stake in this and other attempts to seed range lands of the West quickly and cheaply is great. Millions of acres of now-idle land might produce millions of pounds of beef for a hungry world. This land must be seeded quickly at the right time and more cheaply than it can be done on the ground.

Air raids which brought death and destruction in the war are now bringing life in seeds for lumber and food.

*Science News Letter, May 8, 1948*

With a new camera recently patented, snapshots can be taken either in black-and-white or in color simply by turning a knob.

## ENGINEERING-AERONAUTICS

## Periscopic Sextant Aids Finding Plane's Position

► PERISCOPES on airliners, similar to those used on submarines, make it possible for navigators to determine their positions by sextant readings on celestial bodies without the customary viewing bubble projecting above the surface of the plane.

The so-called periscopic sextant, already installed on the Clipper Paul Jones, now flying between New York and Calcutta, has proved satisfactory in a dozen trips across the Atlantic, Pan American World Airways revealed.

The periscopic sextant combines in one delicate instrument the periscope and the bubble sextant. Attached to the ceiling of the flight compartment, it permits the navigator to scan the heavens without the necessity of climbing into an astrodome or viewing bubble. His view of the stars is obtained through a small tube which pokes up a few inches through the metal skin of the plane, and which is so arranged that it can be rotated to give a complete picture.

Another advantage of the periscopic sextant is the lessening of drag on the plane by the elimination of the projecting astrodome. The instrument was developed by the Kollsman Instrument Co., Elmhurst, N. Y., originally for Pan American's version of the Boeing Stratocruisers, which are now on order.

*Science News Letter, May 8, 1948*

The unique part of the Mathematics Magazine among mathematical publications is to make expository articles on modern research available to readers who are not specializing in these fields.

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