ing. When the column pokes through the layer, the fire may blaze up anew.

Atmospheric damping is caused by inversion, or an overhanging layer of warm air above a cooler one. The same phenomenon stagnates smog gases near the earth's surface.

One outgrowth of such research is a cloud-seeding technique to reduce lightning flashes by breaking up the clouds before they can release their stored-up charges. Last year lightning started 7,780 forest fires.

Scientists at the California Department of Natural Resources reported they prevented an estimated 90 lightning fires in their extensive seeding experiments. In each operation, they seeded an average of 2,500 square miles of clouds. Work on the method continues.

Such devices and techniques may help the ranger but will probably not replace him.

Shovel, Ax and Hose

Forestry experts say the best fire fighting device is a man with a shovel, an ax and a hose. Two such men stop 85% of the fires. Another five percent of forest fires need slightly larger crews.

The remaining 10% of the blazes do 90% of the damage. These are the ones that get out of control and sometimes burn for months. In the United States, forest fires flare up at the rate of approximately 500 a day.

One fire that has been burning for months in the Okefinokee Swamp of Georgia is still stubbornly smoldering and flaring up in the peat. When weather conditions are right, it spreads to nearby woodlands. The area is now in its fourth year of drought and experts believe the fire will burn on until the water level rises from a season of heavy rains.

"Mule Tail Fire"

There are several stories of how the fire started. The most widely accepted version has given it the name of "Mule Tail Fire" in Forest Service circles.

It seems a group of men were collecting cups of gum rosin from pine trees, pouring the thick sap into a large barrel on a cart drawn by a mule. It was cold that day and they also had a fire burning in a bucket on the wagon to warm their hands.

Accidentally, the mule swung his tail into the fire. The animal careened off, leaping and kicking. It smashed the cart. The fire from the bucket spread to the rosin, the dry grass and the trees. It went out of control.

The story might not be true, but it has taken hold among fire fighters and is still told.

Most fires have simpler, less picturesque causes. Last year, careless smokers started 23,330 of the 176,891 fires. Trash and brush heap fires caused 30,318. Campers in patrolled woodlands caused 4,785.

The total area destroyed by fire in 1954 was 8,832,963 acres.

Incendiary fires ranked as the top offender. This category includes not only the small number set by firebugs, but those caused by persons on their own property to improve the soil and remove a large variety of pests, such as ticks and snakes. Purposely-started fires caused 40,520 woodland blazes in 1954.

No Aid to Soil

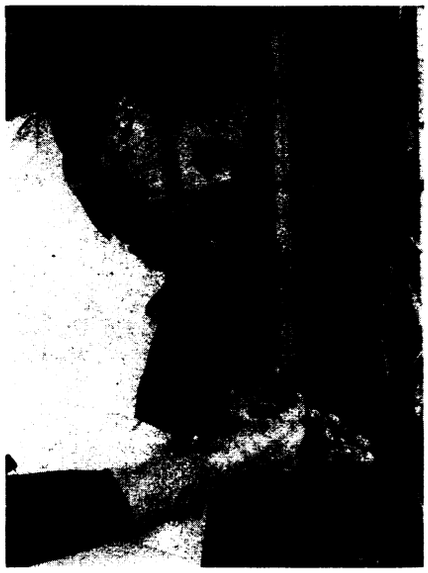
Forest experts point out that it is doubtful whether such burning helps the soil, and that the ticks and snakes return in a short time. At any rate, since incendiary fires are the top cause of woodland blazes, they do more harm than good, and foresters urge farmers to use the utmost care in controlling necessary fires.

Some people purposely start fires to create jobs for themselves.

The number of acres destroyed annually in fire has dropped over the past five years, even though more persons are using the nation's woodlands for recreation than ever before. Much credit for the decrease is given to drives, such as the Smokey Bear fire prevention campaign and the Keep Green programs, which continually remind persons to stamp out their cigarettes, quench their campfires and break matches before throwing them away.

The forest fire season is now upon us and people are warned to be careful in using our valuable woodlands. Ninety percent of the fires are man-caused.

Science News Letter, July 30, 1955



RADIOACTIVE FUNGUS — Ara Paul of Argonne National Laboratory injects the florets of radioactive rye plants with a culture of the fungus, **Claviceps purpurea.** *The rye was planted in a sealed greenhouse with radioactive carbon dioxide to make all its products radioactive. Spur-like projections will develop at the injection site.*

TECHNOLOGY

Portable Radiation Unit Invented for Field Use

➤ A PORTABLE radiation unit, for use in the field to induce mutations in plants, has been invented by three scientists from Brookhaven National Laboratory, Upton, N. Y.

Otto A. Kuhl, W. Ralph Singleton and Bernard Manowitz developed the small unit, which uses a cobalt source to expose plants to gamma rays. When not in use, the radioactive cobalt is housed in a one-ton steel and lead shield.

The unit can be produced for about $5,000, and can be used to cause genetic changes in plants. Some of these changes may be beneficial, creating the hybrid plants of tomorrow.

Science News Letter, July 30, 1955

BIOPHYSICS

Fungus Made Radioactive For Drug Research

➤ A RADIOACTIVE FORM of a fungus has been developed in "radioactive greenhouses" at the Argonne National Laboratory, Lemont, Ill.

The radioactive fungus ergot, and the drugs ergotamine and ergonovine to be extracted from it, will be used in medical and pharmaceutical research at the University of Connecticut.

Ergot drugs have been used in obstetrics for over a hundred years, and ergotamine is used in treatment of migraine headache. The radioactive forms permit scientists to look for new drugs from the fungus and, at the same time, to trace the action of the drugs on the body's nervous and muscular systems.

Working at the Argonne Laboratory, Ara Paul of the University of Connecticut, grew a variety of rye in sealed greenhouses containing radioactive carbon dioxide. This carbon dioxide was taken up into the rye plants, which in turn became radioactive.

As the plants were about to flower, the drug-producing parasitic fungus ergot, *Claviceps purpurea,* was placed on the rye heads.

The fungus spread quickly and grew on the rye. In one to two months dark-colored, spur-like projections emerged from the colonies. These projections, or sclerotia, are the drug-containing portion of the fungus, which now had become radioactive.

The research project is under the direction of Dr. Norbert J. Scully of the Argonne Laboratory and Dr. Arthur Schwarting of the School of Pharmacy, University of Connecticut.

Besides the ergot, radioactive tobacco, rubber, opium, digitalis, soybean, buckwheat and alfalfa have been developed using Argonne's radioactive greenhouses. The laboratory is operated for the U.S. Atomic Energy Commision by the University of Chicago.

Science News Letter, July 30, 1955