

vasion, have been sent to neighbor republics for planting, Benjamin Y. Morrison, principal horticulturist in charge of plant exploration and introduction at the U. S. Bureau of Plant Industry, announced recently.

The picture on the cover of this SCIENCE NEWS LETTER, taken by Fremont Davis, Science Service staff photographer, shows some of the cinchona seedlings growing on a greenhouse bench at the Department of Agriculture research station at Glendale, Md.

Dr. Arthur Fischer, now a colonel in the U. S. Army, is the man responsible for this quinine pioneering, having worked for years with cinchona in the Philippines. After invasion, Col. Fischer flew back to the islands to bring out the high-quality seeds that had been accumulated there. These were delivered with great care and secrecy to the U. S. Department of Agriculture.

Together with a second shipment that arrived later, these seeds will assure up to 2,500,000 cinchona plants.

Seeds sown in the great greenhouses

of the Bureau of Plant Industry were ready within six months to be flown to various countries in Latin America where they should grow well.

"These shipments represented something special," Mr. Morrison said, "in that the plants had been raised for airplane travel. The seeds had been sown on screened sphagnum moss and then transplanted into moss for growing on to shipment size, which is about an eight-inch height."

The moss not only has a very light weight for shipping, but does not allow growth of any of the common organisms that cause "damping off," the worst enemy of seedbeds.

Plants are now growing in Puerto Rico, El Salvador, Nicaragua, Ecuador and Peru. More hundreds of thousands are being readied.

"At the present time," Mr. Morrison reported, "while we promote the former routines, we are pushing ahead on various adjustments that need to be made because certain supplies are no longer available."

*Science News Letter, December 18, 1943*

## Do You Know?

The tail of a *comet* always points away from the sun, due to radiation pressure.

Bituminous *coal* is the source of about one-half the mechanical energy produced in the United States.

First knowledge of cosmic rays came through the discovery that atmospheric air can conduct electricity.

Fresh *fish* may be recognized by its firm and elastic flesh, scales that cling to the skin in most species, reddish gills free from disagreeable odor, and eyes bright and full.

More than four times as much 100-octane aviation *gasoline* is produced now as 18 months ago; with new equipment soon ready for use nearly twice today's production will be possible.

Ancient Romans obtained *copper* from Cyprus Island, now a British stronghold in the eastern Mediterranean, called it "aes cyprium," from which the names of both Cyprus and copper are derived.

Japan is reported to be making *cloth* for military uniforms from Manila hemp; the hemp is cut into very short pieces, treated with caustic soda, mixed with paper pulp, and twisted into a thread.

A new type of aircraft *propeller* has a core of metal with a covering of hard rubber into which bubbles of gas have been blown; over this hard rubber sponge is a shell of rubber and neoprene, polished and lacquered.

The *leech*, used in enormous numbers a century ago as bloodsuckers in medical practice, withdrew about a half ounce of blood which it stored in its many crops or stomachs, and on which it could live for a year.

The deeper note of the *buzz* of the male mosquito (*Culex pipiens*) is due to the rapidity of the wing-strokes, while the shriller buzz of the female is due to the vibration of the tense membranes at the openings of some of the breathing tubes.

### SAFETY

## Safety in the Army

➤ SAFETY for soldiers and safety for shop workers on Army equipment were discussed by Maj. Ralph W. Applegate stationed at the War Department, Washington, D. C., at a recent meeting.

"Safety is the fundamental component of all training activities," he said, speaking of the training of soldiers. "The number of safety devices employed by the Army runs into millions."

"It is, of course, evident that the primary function in combat safety is to acquaint our troops with the handling of guns, planes, tanks and other equipment in order that they may insure their own safety from attack and from accidents. Safety in the construction of these weapons is also vital."

"One of the largest jobs during the training period," Major Applegate continued, "is to condition the soldier mentally for his own safety during combat."

The soldier is taught how to handle himself in actual battle conditions by training in simulated battles accompanied by full battle sounds. He is taught how to protect himself from enemy attack in every practical way. He is taught the sounds of approaching planes, bombs and shells, and how to take cover

for his own safety. He is taught how to handle rifles and other equipment safely. He is acquainted with all types of booby traps and mines the enemy might use.

The number of safety measures incorporated into the construction of all types of projectors and ammunition is amazing, Major Applegate declared.

Shells are equipped with special safety devices so that the fuse will not be energized while the projectile is still in the barrel. Aerial bombs are provided both with an arming wire and an arming vane. The combination prevents a bomb from exploding until it has fallen a prescribed distance. Tank drivers find their way by the use of 180-degree revolving periscopes. Tank heavy guns are equipped with recoil guards to prevent injury to the crew by recoil action.

The Army, appreciating that industrial accidents slow up war production, has organized a safety program to apply to plants with Army contracts. Several hundred inspectors are already visiting war factories. Among them are trained safety engineers and others who have received accelerated training under these engineers.

*Science News Letter, December 18, 1943*