PHYSICS

# Tracking Rockets In Flight

**Radio waves from very high frequency station rebroadcast by radio set carried in the rocket help track stratosphere rockets throughout their flight.**

➤ STRATOSPHERE rockets can be tracked throughout their flight, no matter how far or how fast they go, by a method disclosed at the Army Ordnance Society's first postwar day at Aberdeen, Md.

Radio, not radar, is the means employed. As the rocket is launched a very high frequency station starts sending waves of 38.5 million per second frequency. These are picked up by a radio set carried in the rocket and rebroadcast at double frequency (70 million per second).

The returning waves are set "off beat" by the rocket's increasing distance from the starting point in what physicists know as the Doppler effect. By measuring this, observers can tell where their giant missile is to as close as six feet.

Ordnance officers also have a more direct way to keep track of rockets up to moderate distances. An optical device that has been nicknamed "Little Bright-Eyes" is able to fill one-third of a standard motion picture frame with the image of a V-2 rocket in flight at 30 miles.

Although guided missiles may carry "city-busting" atom bombs if war comes again, Army men still expect a lot of tough combat at lower levels—right down in the mud where all wars have always ended, however they may have started. To help the GI, Ordnance men are doing all they can to build up his fire power.

The individual rifle has now been turned into a potential machine gun. A Garand rifle was demonstrated that can switch its rate of fire from one at a time to full automatic, loosing a whole clip of 30 cartridges at one pull of the trigger.

The infantry man is also being given his own heavy artillery weapons of up to six-inch caliber that he can carry right up into the forward fighting areas. Light weight mortars of 155-millimeter caliber were fired during the demonstration as well as recoilless 105-millimeter cannon. Both are much more powerful than the World War II weapons which they replace. The new bazooka has a caliber of 3.5 inches as against the original model's 2.36 inches. A bazooka projectile of that size should be able to knock out any known tank.

*Science News Letter, October 12, 1946*

BOTANY

# 'Paraseeds' Fly Far

**Many plant species send offspring through air to seek their fortune. The milkweed seed, carried by the wind, typify this mode of dispersal.**

**See Front Cover**

➤ "PARASEEDS," well exemplified by those of the common milkweed, were prototypes of paratroopers long before man mastered the art of flight. Like paratroopers, they have a definite mission to perform—not the destruction of enemies but the dissemination and propagation of their own species of plant. And like paratroopers, they must preferably carry out their mission at a distance from the main body. Silk-borne seeds of milkweed are shown on the cover of this SCIENCE NEWS LETTER.

The plants that make use of parachutes of silky filaments to carry their seeds are astonishing in their variety and the wide diversity of their botanical kinships. Among the groups having airborne seeds of this particular type are milkweeds, dandelions and their cousins the thistles and lettuces, fireweeds, poplars, willows and the so-called air-plants of the tropics and subtropics, of which the Spanish moss of our own South is the most familiar example.

Like their human imitators, these parachute-borne seeds start from a high vantage-point. It may be only the six-inch scape of the dandelion, or it may be the three-foot stalk of milkweed or fireweed, or even the 80-foot crown of a cottonwood tree. Here, though, the parallel between plant and human fails; for paratroopers really want to stay as close together as possible when they land, and the whole objective of paraseeds is the widest possible dispersal.

The parallel becomes good again, however, in another respect: like paratroopers, paraseeds—at least in some species—rid themselves of their silken canopies when they have made their landings. Thus it happens that you often see milkweed down drifting along the wind with the seed no longer attached.

*Science News Letter, October 12, 1946*

PHOTOGRAPHY

## Super-Photo Finish Shows Whole Progress of Race

➤ PHOTO FINISHES are nothing new to race track fans—that method for settling disputed finishes of close races has been in use for quite a while. But now comes a super-photo finish technique, that will get pictures not only of the end of the race but of its whole progress from start to finish—motion pictures at that. It is intended not only to record those win-by-a-whisker finishes but to catch any fouls that may be committed, intentionally or otherwise, as the jockeys fight it out for favorable positions.

The method is the invention of Edward Nassour of Los Angeles who has received U. S. patent 2,408,528 on his idea. His plan calls for setting up electrically driven motion-picture cameras on overhanging bracketed stands, at intervals all the way around the track. In the center of the track an observer's tower is to be set up, with a pair of powerful binoculars on a pivoted mount. A projecting arm from the base of the pivot makes electrical contact with a circle of discs, as the operator swings the binoculars to follow the running horses, thus setting the cameras going in succession, as the horses approach them. The cameras are supposed to be started and stopped in overlapping succession, so as to leave no gaps in the record.

While the inventor describes his system as applied to horse-racing tracks only, it could obviously be used elsewhere if desired; for example, in track events, dog races, or any other action that involves speeding around a circular or elliptical course. Coaches could also use it in demonstrating to their men faults which they desire to correct.

*Science News Letter, October 12, 1946*