

## ASTRONOMY

# Golden Age of Astronomy

Dawn of this new period is indicated by five new developments in sky study, among which are the 200-inch telescope, radioastronomy and coronagraphs.

► A NEW golden age of astronomy is dawning, due to five new developments in sky study.

Dr. Harlow Shapley of Harvard College Observatory, Cambridge, Mass., lists the new astronomical tools as:

1. The 200-inch telescope on Palomar Mountain, which will reach eight times the volume of space now known.

2. Radioastronomy, exploration by radar and other high-frequency waves, which will capture new facts about the earth's atmosphere and regions near the earth.

3. Small but wide-angled photographic telescopes of the Schmidt type that cover large areas of sky.

4. Light-sensitive cells that record variations in light more accurately than is possible with the human eye and extend the "vision" of astronomers into the region of the invisible "heat-light" of faint stars, planets and sun.

5. Coronagraphs that let astronomers see the sun's outer atmosphere or corona every clear day by producing a man-made total eclipse of the sun.

The 200-inch telescope on Palomar Mountain, scheduled to go into operation early this summer, will penetrate twice as far into space as has been possible previously. Pinpointing its sights on distant bits of light, it will bring within our reach a sample of the universe eight times as great as that now available.

Radioastronomy is a new branch of astronomy only recently announced, Dr. Shapley stated. By use of high-frequency radio waves meteors are tracked in their flight across the heavens through clouds and even in full sunlight. The ever-changing ionized layers of our atmosphere—the earth's invisible radio roof—are also explored by radio waves of short wavelength.

The trick of bouncing radio waves off the moon has also given us a tool with which to explore space between here and the moon. Microwaves from the sun enable astronomers to explore the areas around sunspots for sources of electromagnetic waves. Cosmic static furnishes us with another method for identifying a region in the constellation of Sagittarius, the archer, as the center of the

Milky Way system of which the earth is a part.

The Schmidt camera, the Super-Schmidt for studying meteors, and the Baker-Schmidt, a two-mirror combination still in the blueprint stage, all cover large areas of the heavens. Schmidt-type cameras are especially good for survey work, particularly for studying the Milky Way, Dr. Shapley reported.

For accurately detecting the light of distant stars, photocells are stable, dependable and accurate. Application of the new lead sulfide cell to astronomy has extended the usable red end of the spectrum of the sun, planets and brighter stars.

New instrumentation for solar research points to a new epoch in analyzing the surface of the sun, Dr. Shapley said. The coronagraph enables us to study the sun's outer atmosphere without having to wait for those infrequent total solar eclipses. Monochromatic filters developed for the coronagraph isolate tiny sections of light from the sun's disk so that activity of hydrogen and calcium gases 93,000,000 miles away can be detected.

V-2 rockets, by furnishing us with a means of getting above the ozone that blocks out the sun's ultraviolet rays, can help discover some of the secrets of our nearest star—the sun.

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## AGRICULTURE

## Infra-Red Radiator Now Protects Fruit Orchards

► THE infra-red radiation that enabled soldiers to see enemies in the dark by use of the snooperscope is now ready to combat frost in fruit orchards. Oil-burning infra-red generators, developed by the Michigan State College, may find wide use.

The radiator used is one of its most interesting features. It has five horizontally placed reflectors that focus the rays at a distance of about 80 feet from the unit. Scattering of rays causes them to cover an area of more than an acre.

The combustion chamber is placed at the base of the stand on which the re-

flectors are held. Kerosene or fuel oil is used. The unit consists of small diaphragm-type pump, driven by a one-twentieth horsepower, six-volt, direct current motor. Fuel is in a nearby tank. The pump will supply the fuel for a steady flame for over 20 hours off one charge of a 120-ampere hour, six-volt auto-type storage battery.

The pump used is also a development of the college engineering department. The pump and burner may have other uses.

*Science News Letter, May 1, 1948*

## PHYSIOLOGY

## Thin Scalps Grow Bald Sooner than Thick Ones

► IT may be unjust to tell a middle-aged man who still has a bushy head of hair that he's a fathead; but Dr. M. Wharton Young of Howard University did say before the American Association of Anatomists, meeting in Madison, Wis., that thin scalps tend to grow bald sooner than thick ones, and that one aid to having a deep bed for your hair roots to grow in is to have a layer of fat under the skin. Main thing in keeping your hair is a rich supply of blood vessels, and these become scanty in thin scalps.

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**RAYS GUARD ORCHARDS** — Michigan State College scientists have installed the infra-red radiator in orchards for experiments with the new frost-fighting apparatus. The picture shows the most efficient type yet developed.