

## ASTRONOMY

# Faint Double Star Is Triple

Find seventh magnitude star in constellation of the Big Bear is really a triple star. As single light point, it can be spotted with binoculars.

► A FAINT STAR in the Big Bear, known for over a century to be double, has been found to be three stars by Dr. R. M. Petrie of the Dominion Astrophysical Observatory, Victoria, B. C.

Of the seventh magnitude, star H. D. 100018 can be spotted with a pair of binoculars. In these early spring evenings, it is high in the north above the bowl of the Big Dipper. If you use a powerful telescope, you can probably see two stars very close together, although in reality they are about 500 million miles apart.

The third, faint companion of this pair you can not see, even with the powerful telescope. Astronomers now know of its existence, but it has never been seen. The blinding light of its companions keeps us from spotting it.

Dr. Petrie found that there were three stars involved in this stellar team by fanning out the star's light into its rainbow colors. Sometimes the spectral lines are single, sometimes double and occasionally they appear triple.

The stars of the close pair are both believed to be somewhat brighter and hotter than our sun. When they are crossing our line of sight and their velocities are the same as that of the distant companion, all three spectra are superposed and single lines are produced. But when one star of the close pair is approaching us, the other receding from us with their maximum speed and the third is seen in the background, then astronomers see triple lines in the star's fanned-out light.

Discovery of the third member of this star team occurred when Dr. Petrie luckily was studying it just at the time the two close stars were favorably situated.

Some 25 years ago this star was discovered to have not single but double spectral lines by Drs. Walter S. Adams, Alfred H. Joy and R. F. Sanford of Mount Wilson Observatory. At the time of their study apparently the spectral lines of one star of the close pair were not separated from those of its distant companion. Thus several decades passed before Dr. Petrie photographed the star's fanned-out light at the very time when all three were visible and could be separated with a powerful spectrograph.

These stars are roughly 1,500 million miles away. In 1925 the two visible stars appeared as far apart as they will ever get as seen from the earth. They are now closer together and in 1968 will reach their minimum separation.

The brighter of the two stars which you would see with a telescope is the double one, composed of one star about as bright as its distant companion and another only about half as luminous. The close pair are some ten million miles apart and they revolve around each other in about a week, Dr. Petrie calculates. These two together circle around their distant companion every 84 years or so.

"Here at the Observatory, the star always appears as a single object upon the slit-head of the spectrograph," Dr. Petrie states, "so the light of all three stars is always recorded in the spectrogram. The simultaneous appearance of three sets of spectral lines, together with the determined elements of the visual orbit will, in time, allow us to derive accurate values of the masses and dimensions of the stars and the sizes of the orbits."

Science News Letter, May 19, 1951

Nobel prize-winner Dr. Irving Langmuir, chief proponent of rainmaking, has claimed that cloud-seeding in New Mexico produced rain east of the Mississippi.

The statement of the meteorological council was based on a report submitted by a committee consisting of Dr. Henry G. Houghton, professor of meteorology at Massachusetts Institute of Technology, chairman, Dr. Sverre Pettersen, director of scientific services of the Air Force's Air Weather Service, and Dr. Henry T. Harrison, Jr., chief weatherman of United Air Lines. Dr. Harrison was not present at the meeting having been detained by business in Denver.

Science News Letter, May 19, 1951

## GENERAL SCIENCE

## Science of Human Behavior Needed to Stop Dictators

► SCIENTIFIC KNOWLEDGE of human nature must be merged with a philosophic view of political and social ideals unless man is to succumb to skepticism or authoritarianism, Dr. Francis W. Gramlich, head of Dartmouth College philosophy department, told the American Psychiatric Association meeting in Cincinnati.

Liberty is not merely a word, Dr. Gramlich told the psychiatrists. It is a valid ideal based on developmental processes which lead to realistic thinking and self-control.

Democratic ideals, he asserted, are justified as legitimate expression of the human ideal of perfection.

Science News Letter, May 19, 1951

## BOTANY

## Dogwood Blight Over Eight States, Spreading North

► FLOWERING DOGWOOD may be doomed by disease, a blighting fungus that is slowly spreading northward. For the first time this year it has been found on the "blooms" of pink dogwood in Maryland. Previously the fungus had attacked only white dogwood in that state.

In many places, for the disease has now spread over eight states, the attack has been so severe that infected trees can be spotted driving along a street or roadway. Leaves are ragged and splotched, sometimes have turned a sickly gray color. The "blooms" are dotted with small brown spots.

Spot anthracnose disease is causing the dogwood's destruction, so far limited to areas south of Baltimore. Dr. Anna E. Jenkins of the Department of Agriculture and Dr. R. A. Jehle of the University of Maryland suggest that the disease may be spread by humans who cut the infected branches and carry them to new locations.

The blooms of dogwood are really not blossoms, but are sort of modified leaves, technically known as bracts.

Science News Letter, May 19, 1951

## METEOROLOGY

# Rainmakers' Showers Local

► RAINMAKING IS only a matter of few local showers at best, the Council of the American Meteorological Association, speaking for the nation's professional weathermen, said at a meeting in Washington, D. C.

In its first official statement on the controversial subject, the council unanimously declared that, "under certain conditions, weather modification, on a relatively small scale, such as the production of local showers, protection from frost and the local dissipation of fog is known to be possible."

However, the meteorologists' top body pointed out, weather conditions most favorable for even this small-scale rainmaking are very much the same as those favorable for natural rain or snow. Therefore, they said, no one can tell whether or not a single seeding experiment was successful. It might have rained anyway.

"There is very little evidence and no present scientific basis for the belief," the council continued, "that we now possess the ability to modify or control the weather and climate of a major portion of the country."