



## ASTRONOMY

## Second Neujmin Comet Proves To Be Old One

A SECOND COMET announced by the Soviet astronomer, Neujmin, a little more than a month after his independent discovery of the du Toit-Neujmin comet (See *SNL*, Sept. 20), proves to be an old one, the Schwassmann-Wachmann (1), 1925II, which was picked up on Harvard plates in South Africa in August. The identification was made by Mr. L. E. Cunningham of Harvard College Observatory.

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if there were oxygen above Mars, the effect would be enhanced in the spectrum of light from that planet.

As nearly as we can tell, however, the lines are exactly the same. It is estimated that if Mars had an atmosphere with one-thousandth the amount of oxygen that we have, some difference could be detected.

Now that Mars is close once more, these and other matters are again being studied. After the planet draws away from its visit, we may know a little bit more about some of its secrets.

### Celestial Time Table for October

**Friday, Oct. 3,** Mercury farthest east of sun, sets about  $\frac{3}{4}$  hour after sunset; 2:00 a.m. Mars nearest earth, distance 38,130,000 miles. **Sunday, Oct. 5,** 3:32 a.m., Full moon; 5:34 p.m., Moon passes Mars. **Wednesday, Oct. 8,** 10:53 p.m., Moon passes Saturn. **Thursday, Oct. 9,** 1:00 a.m., Moon farthest; distance 252,100 miles. **Friday, Oct. 10,** 3:00 a.m., Jupiter stationary, then starts apparent westward movement among stars; 8:00 a.m., Mars opposite to sun; 11:09 p.m., Moon passes Jupiter. **Monday, Oct. 13,** 7:52 a.m., Moon in last quarter. **Monday, Oct. 20,** 9:20 a.m., New moon. **Tuesday, Oct. 21,** 9:00 a.m., Moon nearest, distance 222,900 miles. **Wednesday, Oct. 22,** Early morning, Meteors seen of shower which seems to radiate from constellation of Orion. **Thursday, Oct. 23,** 12:13 p.m., Moon passes Venus. **Monday, Oct. 27,** 12:04 a.m., Moon in first quarter.

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## RADIO

**Thursday, October 2, 3:45 p.m., EST**

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. William H. Martin, director of the New Jersey Agricultural Experiment Station, will describe vitamin research studies with pigs.

Listen in each Thursday.

**Monday, October 6, 9:30 p.m., EST**

Science Clubs of America program over WRUL, Boston, on 6.03 and 11.73 megacycles.

First in a series of regular periods over this short wave station to serve science clubs, particularly in high schools, throughout the Americas. Dr. Harlow Shapley, Chairman of Science Service executive committee, director of Harvard College Observatory, will speak. Have your science group listen in at this time.

## PHYSICS

# Squeaks of Dry Ice Pick Out Precious Stones from Fakes

## Carbon Dioxide, Changing From Solid to Gas Causes Heat Conducting Substances To Vibrate; Glass Will Not

DIAMONDS and pearls can be distinguished from the counterfeits by touching them with a piece of dry ice. The real article emits a squeak or rattle; imitations do not. Quartz can be distinguished from common glass, and in general semi-conductors of heat from non-conductors.

These and other useful applications of the squeak caused by solid carbon dioxide or dry ice were pointed out by Miss Mary D. Waller of the London School of Medicine for Women in the British journal *Nature*. (Aug. 16.)

The mechanism of the squeak, she explains, is this: Solid carbon dioxide when heated passes directly from the solid to the gaseous state, skipping the liquid state. This property, shared by a number of other substances, like iodine, sulphur, carbon, is called sublimation. When a pointed piece of the dry ice is presented to a conductor of heat such as a metal plate, heat is conducted by the plate to the ice and turns some of the latter to gas. A powerful stream of gas issues from the point, as from a nozzle, and pushes away part of the plate immediately in front of it. As soon as this happens, the passage of heat to the dry ice stops, the gas stream stops, and the plate by virtue of its elasticity returns to contact. The whole thing is repeated over and over from 1000 to 4000 times a second. The plate is thus set into vi-

bration emitting high pitched notes from two to four octaves above middle C.

If a piece of glass or other non-conductor of heat is touched with the dry ice, no sound is emitted.

By careful manipulation, the usual squeak can be converted into a very pure musical note. This can be accomplished by lightly touching a high-pitched tuning fork with a well-pointed piece of the dry ice. Much depends on the skill of the operator in sensing the onset of the vibrations and then maintaining just the proper touch to sustain them. Similarly, metal plates may be made to vibrate and emit their overtones, thus producing the well-known Chladni figures. These are beautifully regular geometric figures, some of which have been used for decorative designs. Want of uniformity or flaws in plates may be discovered by distortions in the normal figures.

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In the frequently bombed port of Hamburg, German *camouflage* experts tried to confuse British fliers by covering a lake near the railroad with dummy buildings on floating rafts.

Describing one of America's most popular *wild ducks*, a government biologist says: "When hunted persistently, the mallard becomes extremely wary and develops nocturnal habits."