

## ASTRONOMY

# Cunningham Comet May Be Bright for Christmas Night

THE NEW Cunningham comet will probably be easily visible to the naked eye in time to decorate the sky on Christmas eve, Leland E. Cunningham, who discovered it on a photograph made at the Harvard College Observatory, told Science Service.

He has made a preliminary computation of its movement, based on three observations made Aug. 25, Sept. 5, and Sept. 9. This indicates that it will be nearest the sun on January 19, 1941. Then it will be less than three-fifths as far from the sun as we are, or about 36,000,000 miles.

Because of the bright moonlight, the Harvard astronomers were unable to make additional observations immediately, since it was still quite faint, around the 13th magnitude. By the end of September, Mr. Cunningham expected to be able to make additional photographs. From these a more accurate orbit can be calculated. Then it will be known more definitely whether or not the comet will reach naked eye visibility.

He revealed that it lay undiscovered on several photographic plates while many prominent astronomers, members of the American Astronomical Society who had been meeting at Wellesley College, were visiting the Harvard observing station at Oak Ridge, on Sept. 14. The discovery plate was taken there on Sept. 5 with a star camera of the Ross type, equipped with an 8-inch lens. Because of the meeting, he did not get around to examining the plate until Sunday afternoon, Sept. 15, when he found the comet recorded. He also found it on the other two plates made Aug. 25 and Sept. 9. On the latter, it appeared not as a mere hazy blob of light, but showed a definite nucleus and a small tail. This indicated that it was approaching.

The new heavenly visitor is in the constellation Cygnus, the swan, which is directly overhead in the evening and is sometimes called the northern cross. Deneb is the bright star at the top of the cross—to the northeast. The comet has been moving westerly, north of Deneb, but Mr. Cunningham's figures indicate that it is turning toward the south.

The last comet visible to the naked eye was Hassel's, seen in April, 1939. Though of the third magnitude, quite bright, it was hard to find, because it was so close to the sun. The previous year was a very poor one for comets, but 1937 brought Finsler's comet, which was not conspicuous, but could be seen without a telescope during July. The summer of 1936 brought Peltier's comet, the discovery of an Ohio amateur, which also achieved naked eye visibility.

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## CHEMISTRY

## Blending of Natural Rubber Improves Its Qualities

BY BLENDING a synthetic rubber, made from petroleum, with the natural product, a material is obtained which is improved in tensile strength and other important properties, S. Longman, of the Advance Solvents and Chemical Corporation, told the American Chemical Society in Detroit.

Natural rubber does not age well, he said, because it is very susceptible to oxidation by air, especially at high tem-

peratures. The synthetic rubber, known as Vistanex Polybutene, cannot be oxidized, or even vulcanized, and remains permanently plastic. Thus, the mixing process, technical details of which were presented, gives a product combining their properties.

Herman R. Thies, assistant manager of research and new products development of the Goodyear Tire and Rubber Company, told the rubber division how another rubber mixture could be used for making things all the way from golf ball covers to the coating of decorative silk and football and polo helmets.

Rubber, he said, may be changed from an elastic, extensible product to a stiff, horny, tough resin, called Pliolite. This can be mixed with rubber, and, when the mixture is vulcanized, the resin vulcanizes very little. The result has a very high impact resistance, is hard to cut and offers many applications.

One, he said, is in the field of thin insulation for electrical wiring. Only 40% as thick as the usual rubber covering, it has better insulating properties. This means a reduction both in size and weight of wire. Existing conduits may be made to carry more wires, and one man can carry at least twice the length of wire that was formerly a load. This would be important in warfare, in establishing communication lines in the field.

Another synthetic rubber, Perbunan, originally made in Germany, where it has largely replaced natural rubber, is now made in this country. This can be vulcanized, and handled the same as natural rubber in factory methods, reported C. A. Klebsattel, of the Advance Solvents and Chemical Corporation. Because of this, any rubber factory can easily change from one to the other.

In his paper, Mr. Klebsattel gave details as to the necessary ways in which Perbunan must be modified to secure the desired properties. As with rubber from trees, the addition of carbon black produces great changes, only they are much greater with Perbunan.

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