



SEARCHLIGHTS FOR DEFENSE

Their 800-million candlepower beams effective for a height of 5½ miles, these anti-aircraft searchlights are being turned out by the General Electric Co. at the rate of several a day for the U. S. Army. Glass of special toughness makes them immune to ordinary shock.

ASTRONOMY

Tail of Cunningham's Comet May Engulf Earth in January

But You Needn't Be Alarmed; Comet Tails Contain Little Material and Produce No Apparent Effects

CUNNINGHAM'S COMET, now coming into view in the western evening sky, may sweep the earth with its tail next month, Dr. Fletcher Watson, of the Harvard College Observatory, told members of the American Academy of Arts and Sciences meeting in Boston.

He explained it this way:

"On January 13 the comet will very nearly pass between the earth and the sun. Since the tail of a comet extends almost directly away from the sun, the tail of this comet will stream out in the general direction of the earth. Whether or not the earth will pass through the tail is still in dispute; first the comet must develop a tail nearly 60,000,000 miles long. Even then there is no reason for us to become excited for comet tails contain very little material and no effects of a possible collision can be apparent. In 1910 the earth passed through the tail of Halley's comet only a few million

miles from the comet and nothing came of it."

So far, he stated, the tail is much shorter, less than a million miles in length. However, the greatest changes and development of a tail will come as it approaches the sun. On January 16, he said, it will be closest the sun, at a distance of 34,000,000 miles, less than the distance of Mercury.

Harvard astronomers, Dr. Watson told his audience, are making a special effort to obtain a complete sequence of observations of the appearance of the comet, and the character of its light. At the present time the light and other radiations are mostly from molecules of carbon and nitrogen.

"In the middle of December," he stated, "when the tail may begin to take shape, sodium will probably appear and other radiation may be detected as the comet nears the sun."

Cunningham's comet has been steadily brightening since its discovery in September. It can now be seen with the aid of binoculars near the star Albireo, in the constellation of Cygnus. The brilliant moon now offers some interference with the view, but by Christmas eve the moon will be out of the way. Then the comet, it is expected, will be seen easily with the naked eye near the star Altair, in the constellation of Aquila, the eagle, which is observed in the western sky soon after sunset.

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RESOURCES

Chile Hopes to Boost Nitrate Sales to U. S.

SEEKING new customers for nitrates, in the warring world's trade upheavals, Chile is casting a hopeful eye toward the United States, says a report to the American Council of the Institute of Pacific Relations.

The United States is now rated about 75% self-sufficient in nitrates, valuable in fertilizer and in making war explosives, and for other industrial processes. With shipping and trade hampered by war, Chile sees a good chance of replacing Germany, the United Kingdom and the Netherlands as one major shopping source for the missing 25%.

Revival of Chilean sales of nitrate to the United States, which sagged noticeably during depression years, would materially help in Chile's economic problems, since the European war is blamed for loss of about half of Chile's foreign sales of nitrate. Japan looks mainly to Chile for her imports of this material, but even if the long-drawn-out Far Eastern war increases Japan's purchases as expected, the amount that Japan buys is comparatively small.

Dramatically different is the present situation from the World War era, when Chile enjoyed the strategic position of being the world's main dependence for nitrates for explosives. Production in 1916 leaped to almost 3,000,000 tons. Since then, synthetic means of producing nitrate commercially have been chiefly responsible for a downward slide for Chile's nitrate sales. In 1933, Chile was supplying only 4% of the world's nitrate, but the industry, reorganized, has in recent years been improving its competitive position.

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A Swedish chemist is said to have found a method of *plating china* with thin metal, thereby making it stronger.