

## Comet Kohoutek and Penetrating Rays

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The orbit of the comet Kohoutek is probably parabolic, so the conjecture that some comets consist of antimatter may apply to it. Cosmic-ray observations are suggested to test this possibility, unlikely as it is.

Since the conjecture that some comets may consist of antimatter was proposed,<sup>1</sup> it has become quite certain that short-period comets (say the parent of the Perseid meteor stream) consist of ordinary matter, although the comet Schwassmann-Wachmann 2 does behave queerly. Marcel Schein's cosmic-ray balloon observations in 1946 have produced no evidence for antimatter in a cometary meteor shower.<sup>2</sup> The search at Union College in the 1950's for departures of cosmic rays from Poisson's law<sup>3</sup> has in the end failed to suggest the presence of antimatter in the meteoric dust in the upper atmosphere; so have the numerous data gathered for entirely different purposes by space vehicles.

The comet Kohoutek, however, is in a different class—its orbit is indistinguishable from a parabola.<sup>4</sup> Therefore, “even at the risk of engaging in what might perhaps be loosely described

as a wild-goose chase,”<sup>5</sup> it seems advisable, if equipment is available while this comet is near, to do cosmic-ray experiments on the ground (say studies of Auger showers), in the upper atmosphere, and in the Skylab—experiments designed to detect products of mutual annihilation of antimatter and koinomatter. Data on terrestrial magnetic storms should also be of interest.<sup>6</sup>

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<sup>1</sup>V. Rojansky, *Astrophys. J.* **91**, 257 (1940), and *Phys. Rev.* **58**, 1010 (1940).

<sup>2</sup>M. Schein, private correspondence.

<sup>3</sup>T. E. Baker, Jr., *et al.*, *Phys. Rev.* **96**, 828 (1954); W. M. Cegelski *et al.*, *ibid.*

<sup>4</sup>B. G. Marsten, *Sky and Telescope* **46**, 285 (1973).

<sup>5</sup>V. Rojansky, *Phys. Rev.* **71**, 552 (1947).

<sup>6</sup>H. B. Maris and E. O. Hulburt, *Phys. Rev.* **33**, 1046 (1929).