Direct Photographic Impression of Cosmic Ray in Magnetic Field.

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Louis Leprince-Ringuet and his coworker(1) have studied the very penetrating component of cosmic ray, by using the famous large electromagnet at Bellevue of the Paris Academy of Sciences, whose magnetic field is 13,000 oersteds and have found that the maximum displacement of the center of the track from the straight line joining its ends never reached 0.6 mm for a length of about 40 cm, the corresponding energy being $12 \times 10^9$ e-V.

By means of a Wilson chamber and an electromagnet, curving of cosmic radiation in magnetic field was investigated by several physicists. But it is the first time that direct photographic impression of curved tracks was successfully obtained by the present authors.(2)

The special sensitive plates were placed vertically between the poles of a Nagaoka electromagnet excited by a current of strength 15A, the

![Fig. 1. Curved path](image)

polar distance being 4.7 cm. A 6 cm block of lead was placed 10 cm above the poles. After about 1/2 month, they were developed and examined by a microscope of magnification 300. Then rays such as shown in Fig. 1 were seen. We measured these curved tracks generated by cosmic radiation and found that they correspond to energy of about 66,000 eV and less. The formula used was

\[ e-V = 5.11 \times 10^5 \sqrt{1 + \frac{(H \rho)^2}{2.91 \times 10^7}} - 1, \]

\( H \) denoting intensity of magnetic field and \( \rho \) radius of curvature.

In addition to the above-mentioned tracks, there were also seen straight ones, capable of penetrating the thick lead block.