straight lines below and above this pressure. The following table shows the experiments tried and the results obtained:

Temp. Absolute.	Size of Ionization Vessel.	Range / Abs. Temp.
90.0	5 cm.	0.0125
273.7	5 cm.	.0130
297.3	5 cm.	.0130
298.0	5 cm.	.0129
298.0	9 cm.	.0129
300.0	9 cm.	.0129
362.0	9 cm.	.0131

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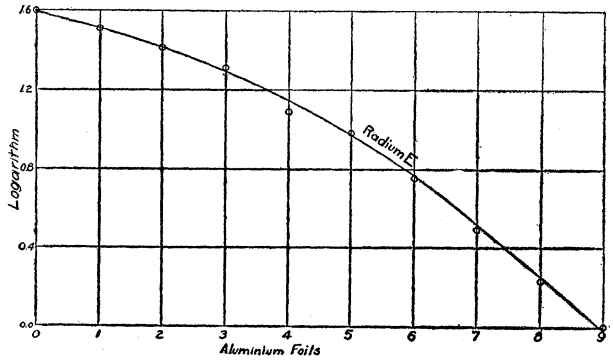
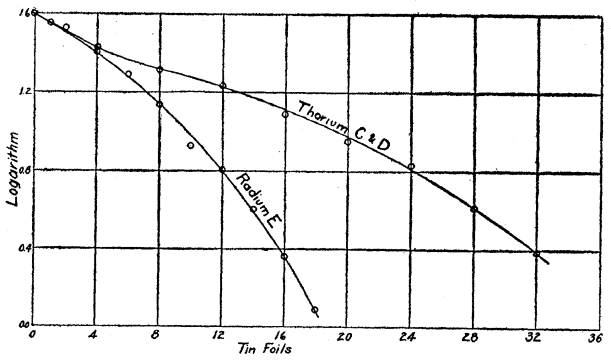
COUNTING THE TRANSMITTED AND REFLECTED β-PARTICLES.[1]

BY ALOIS F. KOVARIK AND LOUIS W. MCKEEHAN.

RECENTLY Dr. H. Geiger announced a simple method for counting α- and β-particles.[2] This method depends on the point discharge set up when a few ions are produced near a point at a potential close to that required for a continuous discharge.





[1] Abstract of a paper presented before the American Physical Society at Atlanta, December 31, 1913.

[2] Verh. d. Deut. Phys. Ges., XV., p. 534, 1913.

Measurements, by this method, on the number of β-particles transmitted and reflected by thin foils of aluminum and of tin were made, using for the source radium E and thorium active deposit. The results show that the number of β-particles transmitted decreases more rapidly than if the exponential law held as it does hold in measurements of absorption by the ionization method. In the reflection experiments, the ratio of the number of reflected β-particles to the number incident was found smaller than the ratio of the ionization of the reflected rays to the ionization of the incident rays, as found by Schmidt and one of us.[1] In both classes of experiments, the absorbing or reflecting material was close to the source of rays and at some distance from the counting chamber.

The figure shows that the logarithmic curves deviate from the straight lines to be expected from the exponential law. The increase of ionizing power with the decrease of velocity of the β-particles, due to passage through matter, doubtless explains the effects observed.

The comparatively small number of β-particles counted in these experiments (60,000) makes it undesirable at present to state the results quantitatively.

Discharges from the point due to γ-radiation were small in number under the conditions of the experiments, but were always measured and corrected for.

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ABSORPTION OF β-PARTICLES BY GASES.[2]

BY ALOIS F. KOVARIK.

THE preliminary work on the absorption of β-particles, namely from radium D and radium E, was reported at a previous meeting of this society. The principle of the method used in the investigation is to allow the particles to pass through a definite distance in the gas before entering a shallow ionization chamber (2 or 3 mm. deep). By increasing the pressure of the gas, the absorption becomes greater, but the ionization in the ionization chamber also becomes greater. If the pressure is within twenty atmospheres the ionization is proportional to the pressure. All measurements were made within this pressure. Consequently, the ionization reading is reduced to what it would be at one atmosphere. The mean path of the β-particles is found graphically. By changing the pressure the absorption curve is obtained. The values obtained for the coefficient of absorption for different distances of the active material from the ionization chamber were concordant when the metallic pressure apparatus was lined with thick paper, thus minimizing the reflected radiation effect. This also shows that the graphical method of finding the mean path of the β-particles is feasible. The measuring instrument was C. T.

[1] Schmidt, Ann. d. Phys., XXIII., 671, 1907; Kovarik, Phil. Mag., XX., 849, 1910.

[2] Abstract of a paper presented before the American Physical Society at Atlanta, December 31, 1913.