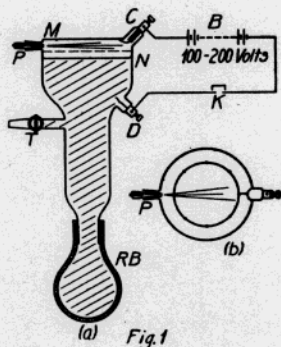


FURTHER IMPROVEMENTS IN THE FORMATION OF ALPHA-RAY TRACKS BY SIMPLE MEANS

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The simple alpha-ray track apparatus described and exhibited by Knipp and Sowers¹ at the Annual Meeting of the Academy held in May, 1924, has since been considerably improved and a brief note regarding it seems justified.

The apparatus in its present form is shown in Figure 1. It consists of a glass containing vessel blown into form from a pyrex breaker. The vessel in elevation is shown in (a), and (b) is a view from the top looking down. A battery syringe bulb, RB, is used for making the compressions and expansions. The vessel is filled to the point N through the tap T with distilled water, to which is added a trace of sulphuric acid. A tiny source of alpha rays is mounted in a protected cavity at the inner end of an aluminum plug, P. Two binding posts, C and D, make connection to the two electrostatic field plates, the upper plate being the moist glass surface, while the lower plate is the surface of the water. The electrostatic field is established between M and N. The electrical circuit required is also shown. The battery B may be



any source of direct current, as an ordinary B battery in radio. A lantern is needed for general illumination. Recently we are using a 75 watt, 110 volt, madza lamp for this purpose with good results.

¹Trans. Ill. State Academy of Science. Vol. XVII. 1924. p. 121.

To operate the apparatus the hand bulb, RB, is squeezed slowly and then released suddenly. This is repeated, increasing the compression, until the proper ratio is obtained, whereupon the tracks will appear freely, being very distinct and persisting for some moments. Oftentimes the tracks travel the full length of the chamber. Many of the phenomena that Wilson described may be studied. There seems to be no deterioration with time. The rays form just as freely after the apparatus has stood a month as when first set up; in fact, they seem to form more freely, coming from other parts of the vessel. This undoubtedly is due to the emanation from the radio-active material.

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