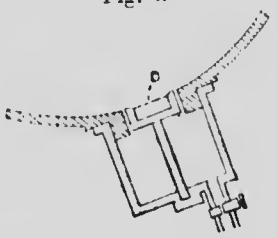
emanation had had ample time to decay, and so the number of ions made per c.c. per second was quite low.

To make certain of the source of the emanation the calcium carbide was tested for radioactivity in the following manner. A metal cap, fig. 3, was made which could be screwed on

Fig. 3.



in place of the drying-tube of the Wolff electrometer. A small brass cup, which was to contain the carbide, was supported on a rod screwed into the end of the cap. The figure shows the cap in place, the top of the cup being flush with the wall of the electrometer. The following measurements were made. The cup was put in place, and the electrometer filled with fresh, dry air. The number of ions made per c.c. per second, n, was then measured. The cup was removed, filled with powdered carbide, and the carbide was covered with aluminium foil ·0003 cm. thick. The cup was then replaced in the electrometer, and the number of ions made per c.c. per second again measured. The next day two more measurements of the ionization were made, the first with both brass cup and carbide in place, and the second with them both removed. The air in the electrometer was the same as that used on the first day, and had probably received slight traces of radium emanation from being in contact with the carbide. Hence the values of n obtained on the second day are considerably greater than those obtained on the first day. However, the difference between the two readings taken on either day, which is the important thing here, is almost the same for both days.

First day.	n.	Second day.	n.
Brass cup in place	8·7	Carbide and cup in place ...	12·2
Carbide and cup in place ...	10·6	Both removed	10·4
Difference	1·9	Difference	1·8