The experiments were conducted in a room free from any artificial contamination from radioactive substances, and in carrying them out the cylinders were first carefully cleaned with glass paper and then thoroughly washed out with hydrochloric acid, water, ammonia, and ethyl alcohol and finally before making the measurements, air filtered through glass and cotton wool was blown through each of them for fifteen or twenty minutes. The results obtained with the different metals examined are contained in Table I.

Table I.

Number.	Material of cylinder Length 60 cm. Diameter 24 cm.	Thickness of sheet in mm.	Average No. of ions per cc. generated per second. = "q"	REMARKS.
1	Lead.	1.85	23	This sample was taken from a sheet of lead which had been used as a lining in a case installed in the University over twenty-eight years ago.
2	Lead.	2.25	160	Commercial English sheet lead obtained from the lead works at Toronto.
3	Lead.	1.45	37	Commercial English sheet lead selected from a different shipment from No. 2.
4	Lead.	1.85	78	This sample was obtained from a sheet rolled from an old pipe which had been used as a drain for 25 or 30 years, and was afterwards melted down.
5	Lead.	1.80	34	Rolled from a pig of lead recently received from the smelter at Trail, B.C., Canada.
6	Lead.	1.80	55	Rolled from English pig lead; Quirk and Bartons.
7	Lead.	1.80	61	Rolled from English pig lead. Cookson's.
8	Zinc.	1.62	15	Commercial sheet zinc.
9	Aluminium.	.41	15	Commercial sheet aluminium.

From this table it will be seen that the values of "q" for aluminum and zinc are somewhat less than those found by Eve for this constant with the same metals. They are, however, in good agreement with H. L. Cooke's corrected value "q"=13.6 given by Eve for air confined in a well cleaned brass vessel.

The values found for "q" in the experiments with lead cylinders, as will be seen from the table, range from 23 to 160 ions per cc. per