

TABLE III.

Voltage on Polonium.	Current through coils.	Magnetic Field.	Deflection per min.	Current $\times 10^5$ e.s.u.
zero	zero	zero	- 10 mm.	- 29.5
2 volts	"	"	- 6	- 17.0
4	"	"	11	30
8	"	"	19	56
14	"	"	21	62
20	"	"	21	62
40	"	"	21.7	64
60	"	"	20.5	60
80	"	"	21.2	62.6
80	.8 amps	240 gauss	19.5	57.6
80	1.0 "	410 "	17.8	53
80	1.7 "	690 "	16.5	49
80	2.5 "	905 "	14.8	44
80	3.5 "	1,140 "	14.5	43
80	4.4 "	1,275 "	15	44
80	5.0 "	1,330 "	15	44
80	5.7 "	1,390 "	15	44

This result made it evident that the electronic stream from the zinc plate was determined to a considerable extent by the amount of air occluded in its surface. For it is clear that under the continuous evacuation for two days there must have been a gradual diminution in the amount of air occluded in the metal and as everything else in the experiment remained the same this diminution must have been the cause of the decrease in the stream of delta radiation.

Experiment IV. In this experiment a freshly cleaned plate of zinc was attached to the rod H at X and the apparatus was left full of air at atmospheric pressure for 6 days. It was then exhausted as highly as possible with the Gaede pump and the coconut charcoal surrounded with liquid air.

Readings were first taken with positive potentials applied to P up to 80 volts and then keeping the potential of P at 80 volts positive readings were taken with increasing magnetic fields up to 1,245 gauss. These readings are given in Table IV and the curve representing them is shown in Fig. 5.