therefore 14·22 would be the total number generated per c.c. per second by the combined radiations. In the same manner it can be shown, by taking Eve's value of 53·7 per cent. as representing the amount of secondary radiation excited in a zinc radiating surface compared with that obtained with a lead one, that 17·88 is the number of ions which should be generated by the penetrating radiation from the earth, and by the secondary rays excited by these in each cubic centimetre of air enclosed in the zinc cylinder No. 8.

TABLE VI.

Column 1. Cylinder No.	Column 2. Metal.	Column 3. Percentage of penetrating rays absorbed. Per cent.	Column 4. Total No. of ions generated per c.c. per second (observed).	Column 5. Total No. of ions generated per c.c. per sec. by penetrating rays from earth and excited secondary rays. (Calculated on basis of no active impurity in No. 1.)	Column 6. Difference in "q" representing active impurities in substance of cylinder.
1	Lead	15·36	23	23	
2	„	16·29	160	22·77	137·23
3	„	9·36	37	24·63	12·37
4	„	11·2	78	24·15	53·85
5	„	12·92	34	23·67	10·33
6	„	10·12	55	24·42	30·58
7	„	13·23	61	23·58	37·42
8	Zinc	4·62	15	17·88	
9	Aluminium	·23	15	14·22	·78

Calculations similar to the above have been made on the number of ions which, on the basis laid down, should be generated per c.c. per second in the air enclosed by each of the lead cylinders, Nos. 2–7, and the deduced values are all recorded in Column 5 of Table VI. With cylinder No. 9 the calculated value and that found experimentally present a good agreement; but with cylinder No. 8 the calculated is slightly greater than the observed value, and may be due to our making too high an estimate of the ionization produced by the secondary rays from the zinc walls. Eve states in his paper that he found the secondary radiation came not