

2. This radioactive gas decays approximately according to an exponential law, falling to a half value in 3.125 days.

3. It produces an induced radioactivity whose rate of decay is such that it falls to a half value in about 35 minutes.

4. There are indications of the existence in crude petroleum of slight traces of a radio-active substance more persistent than the radium emanation.

In a paper published during the progress of the experiment by Elster and Geitel<sup>1</sup> reference is made to a recent investigation by Hinstedt on the radioactivity of petroleum, but up to the present time this communication has not been received, so that a comparison with his results cannot be made here.

In conclusion, I desire to express my thanks to Professor J. C. McLennan for suggesting the research and for his invaluable aid and advice at all times. I also wish to acknowledge my indebtedness to Mr. L. Gilchrist and to Mr. S. Dushman for kindly aiding me in making some of the observations.

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<sup>1</sup> Archives des Sci. Phys. et Nat., 4. t. XVII, Jan. 1904, pp. 5-22.