

Mach and Rimmer¹ while investigating the emanation content of the atmosphere at Vienna also made so. measurements on the ionisation of air confined in closed metallic vessels, and from their measurements they were led to conclude that the penetrating radiation was more intense in the mornings and in the evenings than at noonday.

Amongst others Wood and Campbell,² at Cambridge, England, made an extensive examination of the penetrating radiation for a daily variation. In their experiments they made measurements on the ionisation in different gases contained in closed metallic vessels of 6000 cc. capacity, and they used a sensitive quadrant electrometer as the measuring instrument.

From their experiments they showed that a periodic variation occurred in the ionisation of the enclosed gases having two maxima and two minima each twenty-four hours. They also shewed that the periodic variation was independent of the nature of the enclosed gas, and that the periodicity was independent of the metal of which the enclosing receiver was made. Their ionisation curves representing these periodic changes were found, too, to be approximately the same as the curves representing the variations of atmospheric potential. As to the magnitude of the changes noted, these experimenters found on the average that the variations in the ionisation which took place in any one day amounted to about 12% of the whole.

McKeon,³ of Washington, U. S. A., made an attempt to study the radiation by examining the variations in the potential assumed by an insulated metal cylinder placed within and completely surrounded by a second metallic cylinder, 120 cms. long and 20 cms in diameter. In his observations he noted a double daily variation in the potential of the insulated cylinder. The effect measured in his experiments, however, does not appear to be exclusively dependent upon the intensity of the penetrating radiation.

Strong,⁴ of Baltimore, also made a study of this penetrating radiation using a small enclosed gold-leaf electroscope as the measuring instrument. In his experiments he observed the loss of charge from this instrument in a variety of places including (1) a room in the Physical Laboratory at Johns Hopkins University, (2) a cistern filled with rain water, the electroscope being placed at the centre, and (3) a room in the open country in the State of Pennsylvania near Mechanicsburg.

¹ Phys. Zeit. 7, pp. 617, Sept. 15, 1906.

² Phil. Mag., Feb. 1907.

³ Phys. Rev., 1907.

⁴ Phys. Rev., July, 1908.