

## Selections.

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### Radium.

Radium, symbol Ra, was discovered in 1898 at Paris, by Prof. Pierre Curie and Mme. Sklodowska Curie in collaboration with M. Bemont. It is the most important and the most interesting of the radioactive substances which have thus far been found in uraninite, or, as it is termed in popular parlance, pitchblende.

Radium, which resembles common table salt in appearance, is a new element, having an atomic weight of 225. In its chemical and other characteristics it resembles barium, with which it is closely allied, and which latter substance has an atomic weight of 157.

Radium is a metal, and while it is never prepared in a metallic form, it readily could be so produced, although only at a great loss, involving perhaps thousands of dollars, but it would not last in this form, being very unstable, and, like sodium, immediately oxidized and destroyed. In the form of a chloride or bromide, in which form it is usually prepared, it lasts indefinitely, without any apparent physical or chemical change. Prof. Henri Becquerel has stated that if a square centimetre of surface was covered by chemically pure radium it would lose but one thousandth of a milligram in weight in a million years' time.

It gives off three distinct types of rays, named after the first three letters of the Greek alphabet, Alpha, Beta and Gamma. The Alpha rays constitute about 99 per cent. of all the rays, and consist of positively electrified particles. These were at first supposed to be uninfluenced by magnetism, but Rutherford has recently shown that with a powerful magnetic field about 30 per cent. of the rays are deflected, and in a powerful electric field as high as 45 per cent. are deflected. The deflection is in the opposite direction to the Beta rays. The mass of the Alpha body is about twice that of the hydrogen atom. They have scarcely any penetrative power and are readily absorbed in passing through a sheet of ordinary note paper, or a few inches of air.

The Beta rays, which are the most spectacular of the rays and have been given the largest amount of attention by investigators, consist of negatively charged particles, or "corpuscles," approximately one two-thousandth the size of those constituting the Alpha rays. In every particular these rays resemble the cathode rays produced by an electric discharge inside of a highly exhausted vacuum tube, although they work at a