

Selected Article.

RÖNTGEN RAY AND ITS USEFULNESS.*

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To thoroughly familiarise yourself with the discovery of the Röntgen ray, I shall give you a summary of experiments which led up to this important event. Faraday invented the terms anode and cathode, which indicate the conductor terminals of a current of electricity. He also studied the effects of electrical discharges within tubes containing rarefied gases. Geissler improved these tubes and increased the degree of rarefaction ; he also experimented with many kinds of gases noticing the beautiful effect of a number of them. It was also noted that these gases acted differently at the anodal and cathodal terminals within the tubes and that fluorescence was produced, which was the result of the cathode extremity. Following these experiments came the magnificent researches of Prof. Crookes, who, by his high vacuum tubes, demonstrated that electrified particles were projected in straight lines within the tubes from the cathode end producing a fluorescence of the glass, which was caused by the bombardment of these electrified particles.

Next came Hertz, who showed that the cathode rays possessed penetrable power within the tube, and his student, Lenard, discovered that the cathode rays possessed the same qualities outside the tube to about the distance of three inches from the tube, and that the ray would pass through certain substances easier than through more dense objects ; he also showed that these shadows caused by the ray not passing through opaque substances might be impressed on a sensitive plate and developed in the usual art of photography. But to Prof. Rontgen is given the credit of producing similar effects at enormously long distance from the tube, he also being the first to bring the ray into practical use by having shadow-photographs taken of the bones of the human organism. Prof. Rontgen claimed that the rays from which these results were obtained were not those of his predecessors, and brought forth arguments to substantiate his claim, but arguments may be brought forward also in favor of the cathode ray being identical with the Rontgen ray, differing from it only in degree as regards severity or penetrable power. In my

* Read before the Buffalo Medical Union, February 23, 1898.