small current the reverse way through the tube also lowers the vacuum. The latter experiment is not without danger to the tube. Heating is preferable.

To Herbert Jackson is due the credit of devising the best form of focus tube. (Fig. 2.) It is a modification of the Crookes' tube. The ordinary anode is replaced by a small square of platinum, arranged at an approximate angle of 40 deg. with the axis of the tube, and on a level with the small saucershaped kathode of aluminum. By this radiating plate of platinum the rays are directed towards the lower part of the tube, which explains the position of hand and photographic plate in Fig. 1. Though many so-called improvements have been made in this tube, it practically holds the field at the present time.

We will suppose the tube has been connected with the secondary terminals of a Ruhmkorff coil and the current turned on. The first thing to attract our attention is the beautiful fluorescence of the glass of that part of the tube, against which the rays have been directed by the platinum anode. Were it not for this radiating plate of platinum, the fluorescence would be most brilliant at a point opposite the kathode electrode.

The color of the fluorescence varies from an apple-green to a canary-yellow, according to the kind of glass used in the manufacture of the tube. It must be remembered, however, that the X rays themselves are invisible. The fluorescence is due to the bombardment, by the electric discharge, of the molecules of residual air against the wall of the tube. The interior of the tube is perfectly clear. How, then, can we ascertain whether X rays are being generated or not? By the effect on a sensitized photographic plate or the fluorescence of certain crystalline salts used in the manufacture of a fluoroscope. The fluoroscope and some of its uses will be discussed in another paper.

JAS. THIRD.

68