ever, be admitted into the evacuated chamber containing the metals, a great increase takes place in the contact difference of potential between the metals.

In view of all these experiments it was thought well to investigate what the effect would be on the intensity of the delta radiation from zinc under bombardment by alpha rays when care was taken to remove as far as possible all gases from the surface of the zinc bombarded. The following paper contains an account of this investigation and from what follows it will be seen that with freshly prepared zinc surfaces the delta ray effect is exceedingly small; but that when air is permitted to be occluded in such surfaces a very great increase takes place in the magnitude of the effect.

II. Apparatus.

The apparatus used in conducting the experiments is similar to that used by Hughes[1] in his investigations on the photo-electric effect and is shown in Fig. 1. It consisted of a glass tube about 3

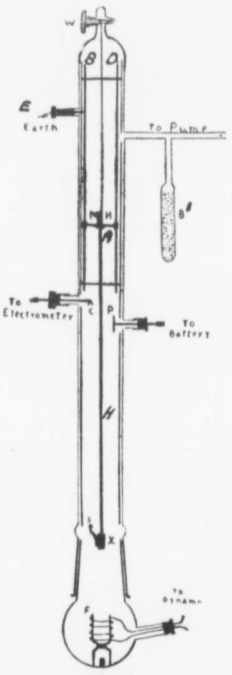

Fig. 1.

[1] Hughes. Phil. Trans. A. CCXII, p. 205, 1912.