

PROCEEDINGS
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ADDITIONAL DATA ON THE ILLUMINATION-PHOTO-ELECTRIC CURRENT
RELATIONSHIP.¹

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IN a previous paper presented before the Society² it was shown that the relation between illumination and photo-electric current in potassium cells is not linear, but is different for every cell. It was concluded that the most important influencing factor is the pressure of the gas in the cell. Results were given obtained with a cell which was exhausted to different pressures on the pump and which showed a number of the curves found in individual cells. The new data herewith presented were all obtained from one cell whose construction permitted the passage of a glow discharge between the platinum electrode and the guard ring without affecting the potassium surface. The effect of this discharge was to improve the vacuum, as is well known.

Voltage-current and illumination-current curves were taken at four stages:

1. With the cell in its original condition, gas pressure probably .01 mm. or more.
2. After running the discharge from a small transformer until current no longer passed.
3. After 18 hours running on an induction coil.
4. Upon standing 18 hours thereafter.

RESULTS.

The voltage-current curves show various stages between one extremely convex to the voltage axis, and one extremely concave thereto.

The illumination-current curves correspondingly change from convex to the illumination axis to concave.

Points of interest in the effect of variation of applied voltage will be noted in the complete publication. These results confirm the conclusion from the previous work that the photo-electric current is not as yet proved to be a linear function of illumination.

¹ Abstract of a paper presented at New York meeting of Physical Society, February 28, 1914.

² Atlanta meeting.