

SOME PECULIARITIES OF ELECTRIC SPARKS ACROSS SHORT SPARK GAPS.

BY R. R. RAMSEY.

Bloudlot, in his work on N-rays, used a very feeble spark gap. In our attempts to repeat Bloudlot's work Mr. W. P. Haseman and I found some very interesting phenomena which affected the sparking distance and consequently the intensity of the spark. The fact that we were not able to repeat Bloudlot's experiments has led me to make some further investigation.

T. J. Bowlker (*Phil. Mag.*, 8, p. 487, 1904), has worked with long spark-gaps, 1 cm. to 10 cm. in length, and has obtained some very curious results.

The work here described was with a spark gap between platinum wires .45 mm. in diameter and never more than $\frac{1}{4}$ mm. apart.

The spark-gap was provided with a micrometer so as to make length anything desirable. The gap was connected to the secondary coil of a 1-inch induction coil. The current in the primary coil was cut down by means of resistance until the sparking distance was very small. The gap was opened to the point where the sparking just ceased and the effects of various objects were tried. When one's hand or finger was brought within 1 cm. of the gap the sparks appeared. This was attributed to heat. A lighted match had the same effect as did one's breath or a current of hot air. A rod of glass or of brass which had been in the same room caused the effect. Any object brought near the gap caused an increase of the number of sparks.

A No. 20 copper wire 15 cm. long caused an increase when brought near the gap or when it was allowed to touch one of the electrodes a short distance from the gap. The effect was more noticeable when the wire was in contact with the negative terminal. Touching the electrode five centimeters from the wire had no effect. The effect was more marked when the wire was at right angles to the gap than when placed parallel to the gap.

