On the inconstancy of the potential required for a spark

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A small light mirror is fastened with wax to the vibrating body in the usual way, and a telescope is sighted at a distance of about two metres. Between the telescope and the mirror is fixed near the latter a thin plane glass, silvered by means of Böttger's solution, making an angle of 45° with the vertical. This must reflect more light than it transmits.

A watch is placed on a table below the mirror so that its image reflected from the silvered surface is distinctly visible in the field of view of the telescope. The watch must be brightly lighted by a lamp, and another lamp so placed near the telescope that its rays passing through the transparent coating are reflected by the small mirror into the telescope. On looking through the telescope after the body has been made to oscillate, we see the second-hand strongly magnified, while at each oscillation the small vibrating mirror gives a short flash in the field of view. The image of the second-hand moves in the opposite direction to the hand itself. By following the motion of the hand it is easy to accurately determine the time of the flash to a quarter of a second. If the oscillations are rapid, it is of course more convenient only to observe the time of every fifth or tenth oscillation. After a few observations we know when the following is to be expected, and by fixing the eye on the division of the dial where the second-hand will be at the moment of the flash, it is possible to determine the time to within a quarter of a second. We soon get accustomed to the backward motion of the index, and the reading is as easy as the ordinary one.

Instead of the semitransparent silver mirror an ordinary opaque plane mirror may be used (metal of course is best), if it is so arranged that the mirror on the oscillating body is visible just above or below its edge.—Wiedemann's *Annalen*, No. 9, 1895.

ON THE INCONSTANCY OF THE POTENTIAL REQUIRED FOR A SPARK. BY G. JAUMANN.

The author summarizes as follows the results of his investigation:—

I. Sparks alter the path through which they pass; strong ones in an unfavourable sense, and weak ones often in a favourable sense. The path spontaneously recovers from this after-action in the course of some hours.

II. By avoiding the smallest variations of force very high potentials may be obtained.

III. When the conditions for a discharge are not quite satisfied, the discharge takes place after a delay of a few seconds to several minutes. During this retardation there is a preliminary process of discharge which itself is no real discharge.

IV. During this retardation the exciting influence of variations of force can be demonstrated in an incontestable manner.

V. A moderate variation of force does not produce the spark at once, but only after 0.1–5 seconds. It only accelerates the preliminary process and shortens therefore the retardation.—Wiedemann's *Annalen*, No. 8, 1895.