Quantitative photographic investigation of electrical oscillations

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QUANTITATIVE PHOTOGRAPHIC INVESTIGATION OF ELECTRICAL OSCILLATIONS. BY J. MIESLER.

The object of the present research is to show the agreement between the times of oscillation of the Leyden Jar as found photographically, with the times calculated from the measured capacities and the coefficient of self-induction of the jars and the circuit; there being as yet no long comparative series of numbers. The photographs were taken by means of a rotating plane mirror and an object-glass. The times of rotation were then deduced from the dimensions of the photographs.

The coefficient of self-induction of the wire used in each case was determined by a null method by comparison with a condenser divided into thousandths of a microfarad. The capacities of the Leyden jars used in the separate observations were compared with this condenser by means of an electrometer. The time of vibration was determined from these two last series of data by means of the formula

$$T = \pi \sqrt{CL},$$

and compared with those deduced from the photographs, and it was found that there was a very close agreement. The thickness of the wires was always 0.8 mm., so that the above formula holds strictly for thin wires.—*Wiener Berichte*, July 1890; *Beiblätter der Physik*, No. 11, 1890.

ON THE SMALLEST PERCEPTIBLE VISUAL ANGLE IN THE VARIOUS PARTS OF THE SPECTRUM. BY W. UHTHOFF.

A spectrum more than 20 cm. in length was projected from zirconium light, through a large prism filled with cinnamic ether, and corresponding lenses, from which in seven places a portion 3 mm. in diameter could be cut off by a sliding metal screen. If the eye looked through the aperture of this screen, it saw the nearest face of the prism illuminated by the corresponding homogeneous colour. A wire grating could be moved backwards and forwards in the path of the rays. The wires were at a distance in the mean of 0.0926 mm. apart, and the intervals were exactly equal to the thickness of the wire. From the distance from the eye at which the grating had to be placed, so that the wires were just invisible, the sharpness of vision could be deduced for the various colours. This was almost the same for all colours; in the case of the author the smallest visual angle under which the eye could distinguish the object (the breadth of a wire and the space taken together) was 55.2, and for A. König 65.6 seconds, from which it is inferred that the diameter of the elements in the retina concerned in this is 0.002 to 0.004 mm.—*Zeitschrift für Psychol. und Physiologie*, i. p. 155; *Beiblätter der Physik*, No. 11, 1890.