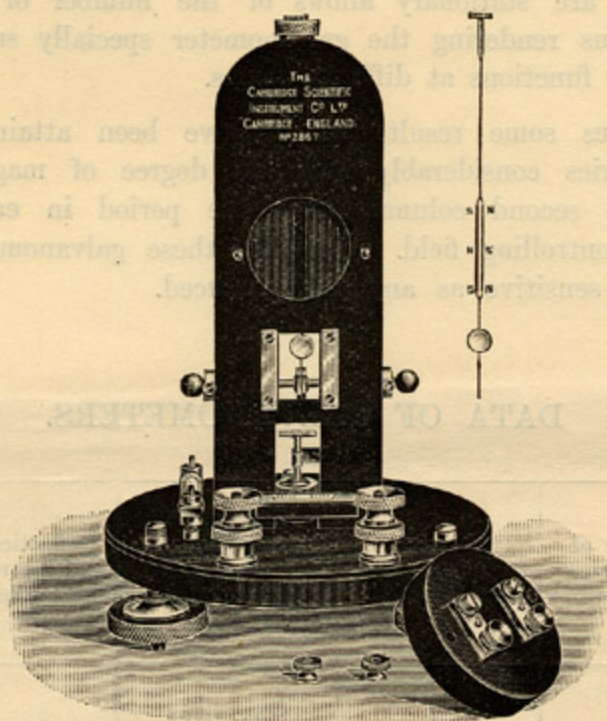


Leaflet No. 34.

THE CAMBRIDGE  
SCIENTIFIC INSTRUMENT COMPANY, LTD.,  
CAMBRIDGE, ENGLAND.

**BROCA GALVANOMETER.**



The principle of these galvanometers is that introduced by Professor Broca of the École Polytechnique Paris, and further developed in this country, chiefly by Dr Harker of the National Physical Laboratory. For the same resistance it is much more sensitive than the suspended coil galvanometer and possesses in a considerable degree the advantage, peculiar to that type, of being unaffected by external magnetic fields. It also possesses the further advantage that the period can easily be varied within wide limits by merely altering the position of the controlling magnet, and that the amount of damping is also completely under the control of the user.

We can also supply if desired coils of different resistances which are readily interchangeable, and thus one instrument can be very easily converted from a low resistance galvanometer, such for example as that suitable for work with thermo-junctions, to a high resistance galvanometer suitable for insulation testing.

The distinctive feature of this form of galvanometer is in the moving system. This is of the suspended needle astatic type, and the galvanometer owes its sensitiveness largely to the exactness with which the astatic condition is realised. To this astaticism, combined with the closeness of the two magnets, is also due the freedom of the galvanometer from disturbance

[P. T. O.]



by external magnetic fields. The magnets consist of two short wires placed vertically and each so magnetised that its two ends are of like polarity, with a consequent pole in the middle. This form enables the suspended system to be made of very small magnetic moment and exceedingly light, and it can thus be suspended by a fine quartz fibre which gives a very stable zero. The necessary directive force is supplied in a small degree by the quartz suspension but principally by a small directing magnet mounted so as to be readily adjustable.

Below the suspended magnets a very light plane mirror is attached, and below this again is a damping vane which turns with the suspended system and has a stationary flat brass plate on each side of it. To increase the damping coefficient it is only necessary to push these plates closer together and so reduce the size of the chamber within which the vane moves. Two brass knobs, one on each side of the instrument, allow of this adjustment being very readily made.

The fact that the coils are stationary allows of the number of turns and resistance being varied within wide limits, thus rendering the galvanometer specially suitable where one instrument is required to perform various functions at different times.

The following table gives some results which have been attained with this galvanometer. The sensibility of course varies considerably with the degree of magnetic control exercised. To give some idea of this the second column gives the period in each case, the longer period corresponding to a weaker controlling field. We offer these galvanometers in the confident belief that they will be found as sensitive as any yet produced.

#### DATA OF GALVANOMETERS.

Resistance of coils in series in ohms	Period in seconds	Deflection in mm. at 1 metre	
		For 1 micro-amp.	For 1 micro-volt
10.9	8	218	19.9
107	12	1190	11.1
935	11	2450	2.62

#### Prices.

	£	s.	d.	\$	Code words
Broca Galvanometer, complete, with one pair of coils (Resistance about 100 ohms, unless otherwise ordered) ... ..	7	10	0	36.50	<i>Headspring</i>
Extra Coils (Resistance of the pair about 10 ohms), per pair ...	1	10	0	7.30	<i>Headstone</i>
„ „ (Resistance of the pair about 1000 ohms), per pair	1	15	0	8.60	<i>Headstrong</i>

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