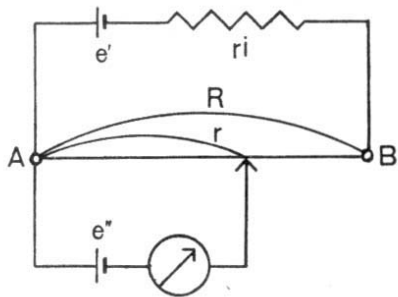


1 Electrical measurement

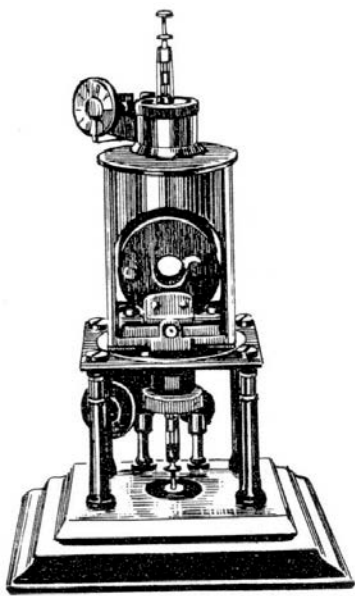


$$R, r_i \cdots \text{constant} \quad e'' = \frac{r e'}{R + r_i}$$

Potentiometer (measurement of electromotive force with zero current)



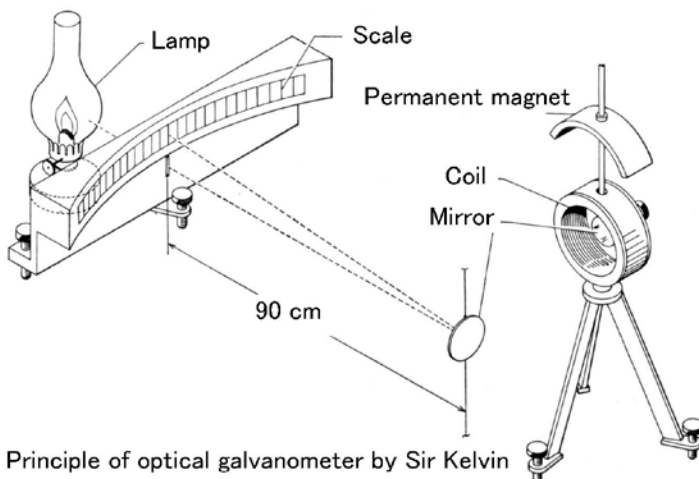
Prof. William Thomson
(1824–1907, Sir Kelvin)
Glasgow University



First galvanometer by Sir Kelvin



Optical galvanometer (1)



Principle of optical galvanometer by Sir Kelvin



Optical galvanometer (2) (sensitivity $0.02 \mu\text{A}$)

(J.Takagi, "History of electricity", Ohm Ltd. (1967))