in the circuit through the box of coils, when the resistance r_b is unplugged, it appears that

$$\frac{P}{p}=\frac{r_b+\rho_x}{r_b}$$

But, according to § 192, and since the same condenser is used for both readings (*i.e.*, $K=K'$)

$$\frac{P}{p}=\frac{D}{D'}$$

Hence

$$\rho_x=\left\{\frac{D}{D'}-1\right\}r_b$$

whence ρ_x can be found. In practice r_b can generally be so adjusted as to make

$$D=2D'$$

In this case, therefore

$$\rho_x=r_b$$

This method will give good results, and is applicable to inconstant batteries; but it requires careful manipulation. Great care should be taken to prevent the leads connected to the box of coils from influencing the galvanometer.

MEASUREMENT OF DIFFERENCE OF POTENTIAL.

224. The general problem is to measure the difference of potential between any two points in a circuit. Let these two points be denoted by A and B; let p_a be the potential at A, and p_b that at B, then p_a-p_b is the difference of potential between A and B.

These measurements are made by comparing p_a-p_b with some known difference of potential, such as that furnished by a standard cell.

225. The cells to be used, to obtain the known difference of potential, are either Latimer Clark's standard, Grove's, Bunsen's, or Daniell's.*

BY LAW'S CONDENSER METHOD.

226. One plate of the condenser is connected to the point B,† and the other through a key to the point A; a reflecting galvanometer is introduced between A and the condenser, as shown in

*See §§ 158 161.

†See § 224.