In the experimental determination of the discharge curve the following values were used:

$C_1 = 10^{-6}$ farad.
$C_2 = \cdot 27\,(10)^{-6}$ farad (capillary No. 12).
$L = \cdot 81$ henries.
$R_1 = 100$ ohm.
$R_2 = 171000$ ohm (capillary No. 12, approximate value).

C_2 was measured by the method already outlined and is the value for zero difference in potential. The resistance was determined from the discharge curve as explained later.

The λ equation becomes

$$\lambda^3 + 150,3\lambda^2 + 1,238,700\,\lambda + 26,741,000 = 0 \qquad (12)$$

Trial shews one root to be $-21\cdot 64$, and the resulting equation yields the roots $-64\cdot 33 \pm 1110\,i$ (13)

so that $\alpha = -64\cdot 33 \qquad \beta = 1110.$

and the period $\dfrac{2\pi}{\beta} = \cdot 00566.$

The period obtained by experiment is $\cdot 00567$ sec.

We may now determine the constants of integration,

for when $t = 0$ $q_2 = Q_2$, $\dfrac{dq_2}{dt} = 0$, $q_1 = Q_1$ and $\dfrac{dq_1}{dt} = 0$

of which one is redundant.

Take $a + A = Q_2$

$a\,\lambda + \alpha A + \beta B = 0.$ and

$a\,\lambda^2 + \alpha^2 A + 2\,\alpha\,\beta\,B - \beta^2 A = 0$

Solving and substituting values, we have

$$\left.\begin{aligned} a &= 1\cdot 00188\,Q_2 \\ A &= -\theta\cdot 00188\,Q_2 \\ B &= 0\cdot 0194\,Q_2 \end{aligned}\right\} \qquad (14)$$

and $\phi = \tan^{-1} 10\cdot 32 = -84^0\cdot 28^1$

$\omega = \tan^{-1} 23\cdot 93 = 87^0\ 48^1$

$\phi^1 = \tan^{-1} \cdot 05816 = 3_1{}^0 19$

We may obtain q_2 experimentally by inserting K_2 at **z**, q_1 by inserting at y and $q_1 + q_2$ by inserting at x (Fig. 2)

Since $Q_2 = \dfrac{C_2}{C_1}\,Q_1 = .\cdot 27 Q_1$

$$q_1 + q_2 = Q_1\left\{ \cdot 2715\,\epsilon^{-21\cdot 64t} + \epsilon^{-64\cdot 33t}\left(\begin{matrix}\cdot 9938 \cos 1110t + \cdot 0633 \\ \sin 1110t\end{matrix}\right)\right. \qquad (15)$$

If we use the capillary electrometer to indicate the potential without determining q_1 or q_2, we may insert key K_2 at either **z** or **x**, when we obtain the potential of the electrometer at the instant of