$$\xi_2 = \pm\frac{1}{2}\left\{-2\frac{\left(\frac{\partial g}{\partial \xi}\right)_0}{g_0}\right\}h^2 + \epsilon,$$

$$\xi_1 = \pm\frac{1}{2}\left\{-\frac{1}{3g_0}\left[\left(\frac{\partial g}{\partial \xi}\right)_0 + 4\omega^2 \sin\phi_0 \cos\phi_0\right]\right\}h^2 + \epsilon',$$

where ϵ and ϵ' are infinitesimals of order higher than that of h^2. In order to remove the ambiguity in sign let us observe that since the latitute ϕ lies between $-90°$ and $+90°$, it follows that $\cos\phi > 0$, and therefore, by relation (40), $(\partial j/\partial s)/j$ and d^2y/dx^2 are either both positive or both negative. Hence it follows from (45) and Theorem 8 that for the curve d, $-(\partial g/\partial\xi)_0/g_0$ and $(d^2z/d\tau^2)_0$ are either both positive or both negative; and from (50) and Theorem 9 that for the curve c', $-1/g_0\{(\partial g/\partial\xi)_0 + 2\omega^2\sin 2\phi_0\}$ and $(d^2z/d\tau^2)_0$ are either both positive or both negative. Furthermore, we assumed ξ_1 and ξ_2 to be positive toward the equator. Consequently if for definiteness we suppose (as shown in Fig. 5) that for curve d, $(d^2z/d\tau^2)_0 > 0$ and for curve c', $(d^2z/d\tau^2)_0 < 0$, it follows that $\xi_2 = -P_1T < 0$ and $\xi_1 = TC' > 0$. Therefore in the above expressions for ξ_2 and ξ_1 the lower signs must be used and thus we have

(52) $$\xi_2 = \frac{\left(\frac{\partial g}{\partial \xi}\right)_0}{g_0}h^2,$$

(53) $$\xi_1 = \left\{2\omega^2\sin 2\phi_0 + \left(\frac{\partial g}{\partial \xi}\right)_0\right\}\frac{h^2}{6g_0},$$

to terms of order not higher than the second in h, whence

(54) $$\text{S.D.} = \xi_1 - \xi_2 = \left\{2\omega^2\sin 2\phi_0 - 5\left(\frac{\partial g}{\partial \xi}\right)_0\right\}\frac{h^2}{6g_0},$$

which is formula (I).

NOTE ON SOLVABLE QUINTICS.

BY PROFESSOR F. N. COLE.

(Read before the American Mathematical Society, January 2, 1915.)

THE substance of the following paper was included several years ago in my university lecture course on the theory of