polaroid discs upon the output shaft which follows the integrator. Any angular difference in the positions of the integrator disc and output shaft causes one of the light beams to be attenuated more than the other. The difference is detected by balanced phototubes and used to control the speed of the motor which drives the output shaft. The entire torque of the motor is available at the output shaft, but the torque required from the rolling disc is only that necessary to overcome the friction of its jewelled bearings.

The electronic follower-system and other refinements have made it possible to operate the analyzer at higher speeds, thus cutting the time required for obtaining its graphical solutions.

PAUL L. MORTON

University of California, Berkeley

NOTES

37. NOTATION yer$_n x$, yei$_n x$.—We have been informed by J. C. P. MILLER that ALAN FLETCHER, of the University of Liverpool, was the inventor of the notation

$$Y_n(xi^{3/2}) = \mathrm{yer}_n x + i\,\mathrm{yei}_n x,$$

which is used in the Liverpool *Index*. This note is in correction of the statements, *MTAC* p. 252, l. 23–24, and Corrigenda et Addenda p. 375.

38. A ROOT OF $y = e^y$.—In N **20**, p. 202f. (see also N **25**, p. 334f.) the solution was given of the transcendental equation 10 log $x = x$ or $x = 10^{x/10}$. In *Assurance Mag. and J.*, of the Institute of Actuaries, v. 3, 1853, p. 323, E. J. FARREN contributes an article "On the form of the number whose logarithm is equal to itself." The equation $y = e^y$ is considered, and it is found that

$$y = 1 + \frac{2}{2} + \frac{3\cdot 3}{2\cdot 3} + \frac{4\cdot 4\cdot 4}{2\cdot 3\cdot 4} + \frac{5\cdot 5\cdot 5\cdot 5}{2\cdot 3\cdot 4\cdot 5} + \cdots.$$

The derivation of this solution seems to have been due to ROBERT MURPHY.

R. C. A.

39. ROOTS OF tan $x = xf(x)$.—Compare N **18**, p. 201f. In L. COHEN, "Alternating current cable telegraphy," Franklin Institue, *J.*, v. 195, 1923, p. 165f., there is a table, with 4–5S, of the first 8 roots of the equation

$$\tan x = 20x/(x^2 - 100).$$

H. B.

QUERIES

14. TABLES OF TAN^{-1} (m/n).—In some work I am now carrying on it is necessary to evaluate expressions of the form tan^{-1} (m/n), to 10D, where m and n are integers, ranging from 1 to 25 inclusive. For values of $n = 1, 2, 4, 5 \ldots$, the values of the argument, and therefore the function may be found directly in NYMTP, *Tables of Arc Tan x*, Washington, D. C., 1942. Is there a table to cover the cases $n = 3, 7, 11 \ldots$?

M. POLLACK

105 Marion Road
Oak Ridge, Tennessee