

edition, improved, Edinburgh, 1878. A set of stereotype plates for this work was given to the R.S.E. with Sang's manuscripts. See J. HENDERSON, *Bibliotheca Tabularum Mathematicarum*, 1926, p. 135f; E. SANG, "Account of the new table of logarithms to 200 000," R. So. Edinburgh, *Trans.*, v. 26, 1872, p. 521-528. Also *Specimen Pages of a table of the Logarithm of all Numbers up to One Million . . . shortened to nine figures from original calculations to fifteen places of Decimals*, [1874?], 26 p. 4to, not in the List of his Writings. There is a copy in the Brown University Library. The first page is a copy of a memorial of the president and council of the R.S.E. dated 19 June 1874, to the Chancellor of Her Majesty's Exchequer, and the last 16 pages are devoted to communications from academies and scholars, dated 1872-73, commending the idea of publishing a 9-place table of logarithms of numbers to 10^9 , in three volumes; but the publication was never achieved.

Sang "received a grant of £100 per annum from [the] Government as a recognition of his valuable scientific work; and the associated Scottish life assurance offices, feeling that some substantial recompense was due to him for his logarithms and actuarial tables, at a meeting in 1878 resolved to recommend to the offices the payment of an annuity of £100 . . . for the remainder of his life, which was agreed to, and subscribed by the offices."

R. C. A.

MECHANICAL AIDS TO COMPUTATION

12[Z].—L. J. COMRIE, "Mechanical computing," Appendix I, p. 462-473 of DAVID CLARK, *Plane and Geodetic Surveying*, v. 2, third ed. revised by JAMES GLENDEENING, London, Constable, 1943. 14 × 21.7 cm. Also as a pamphlet reprint.

Some computations possible on several calculating machines are described and there are illustrations of four of them, namely: (1) Brunsviga, (2) 10-key Facit, (3) Marchant Electric, (4) Twin Marchant. Two pages are devoted to a listing and discussion of published tables, and some other literature.

13[Z].—L. J. COMRIE, "Recent progress in scientific computing," *J. Sci. Instruments*, v. 21, Aug. 1944, p. 129-135, illustrated.

The substance of this paper was delivered 3 July 1943 at a joint meeting of the London and Home Counties' Branch of the Institute of Physics, and the London Mathematical Society. The headings in the paper are as follows: "Differential analysers," "The training of computers," "Numerical integration by hand," "Finite differences," "Direct and inverse interpolation," "Double-entry interpolation," "Punched-card machines," "Solution of simultaneous equations," "Mathematical tables," "Short bibliography."

NOTES

26. AGETON'S METHOD.—Navigators and other persons who use Hydrographic Office, *Publication*, no. 211 (see *MTAC*, p. 80-81) regularly, will be interested in two notes recently published on Ageton's method of celestial navigation. The first is "The accuracy of Ageton's method in celestial navigation" by SAMUEL HERRICK, *Astron. So. Pacific, Publications*, v. 56, 1944, p. 149-155. Herrick points out that the warning appearing in H.O. 211 against the use of sights for which the value of K is found to lie between the limits of $87^{\circ} 30'$ and $92^{\circ} 30'$ is not adequate. He shows that, when the tables are used in the conventional fashion and K lies outside the forbidden range, the maximum error in the computed altitude, h , is six minutes of arc. He shows also that an error of a minute of arc in h may occur even when K is quite small. He points out that the "caution" mentioned above is unfortunately omitted from Ageton's *Manual of Celestial Navigation*, New York,