gain amplifiers interconnected by networks whose elements bear definite relationships to the known coefficients and constants of the system of equations. The stability criterion for such a system, and its application to an equation solver are described. Since the device produces the answers to a system of equations without delay, it is adaptable to problems of synthesis as well as those of analysis."

3. FRANCIS J. MURRAY, *The Theory of Mathematical Machines*. New York, Kings Crown Press, [second] revised ed., 1948. viii, 139 p. 21.5 × 28 cm. Lithographed; plastic binding. $3.00.

The general character and contents of this interesting work is indicated in the review of its first (1947) edition; see *MTAC*, v. 2, p. 317–318. Besides minor corrections, the revision of the first edition consists mainly in adding: (A) a detailed account of trigger circuits with a good mathematical treatment; (B) a chapter on electronic digital computers with special reference to the ENIAC, the IBM electronic computer, and the proposed IAS machine; (C) a short chapter entitled "Noise, accuracy and stability"; and (D) a much needed index. The pagination has been altered so that the numbering commences anew with the beginning of each of the four parts.

D. H. L.

4. F. M. TILLER, "Stagewise operations. Graphical solutions of difference equations," *Chemical Engin. Progress*, v. 44, 1948, p. 299–306. 21 × 28.7 cm.

Summary: "Operations of multiple contact extraction, plate fractionation, and plate gas absorption are stagewise by nature. The writing of material balances for these processes leads to difference equations just as material balances for differential processes lead to differential equations. In this paper a summary of graphical methods for a number of different types of equations is given. The methods are illustrated with examples in binary fractionation, plate stripping, and stagewise chemical reactions." Part I of this paper, "Stagewise operations—applications of the calculus of finite differences to chemical engineering," was published in A. I. Chem. Eng., *Trans.*, v. 40, 1944, p. 317–331.

NOTES

95. RYDBERG INTERPOLATION TABLE.—In 1934 the Departments of Physics and Astronomy of Princeton University published at Princeton: *Rydberg Interpolation Table. Values of the function* $109737\cdot4/(n+\mu)^2$ for all values of $n+\mu$ from 1.000 to 11.000 in steps of .001. 24 p. 30.7 × 26.9 cm. It is a 4S to 6S table with differences, for $n = 1(1)10$, $\mu = 0(.001)1$. We are told that the original calculations were made by Miss JANET MACINNES and were checked by Dr. DONALD N. READ. There is no suggestion as to any earlier table of the kind (in the field of spectroscopy), as to who Rydberg was, or as to when or where the function here tabulated first appeared. On looking into the matter I found that the function was first given in K. Svensk. Vetensk.-Akad., *Handlingar*, v. 23, no. 11, 1890, p. 42, by JOHANNES ROBERT RYDBERG (1854–1919) who, at the time of his death, was professor of physics and director of the Physical Institute at the University of Lund. The memoir in question is entitled, "Recherches sur la constitution des spectres d'émission des éléments chimiques," and there is a 5S–6S table, p. 48–51, of $109721\cdot6/(n+\mu)^2$, for $n = 1(1)9$, $\mu = 0(.01)1$, Δ.

R. C. A.