mathematicians should enjoy this work with its pertinent bibliographical references at the end of each chapter, and its extensive index. Many exercise problems of varying degrees of difficulty are offered to illustrate and extend the work in the text.

E. I.

4[7.20].—HENRY E. FETTIS & JAMES C. CASLIN, *Ten-Place Tables of the Voigt and Growth Functions*, Technical Report AFFDL-TR-77-86, Air Force Flight Dynamics Laboratory, Wright-Patterson Air Force Base, Ohio, August 1977, v + 161 pp., 28 cm.

The precision stated in the title of these definitive tables is somewhat misleading; more precisely, the entries in the two main tables are given to 11S in floating-point form, as calculated on the CDC 6600/Cyber 74 systems at the Air Force Flight Dynamics Laboratory.

The Voigt function $H(a, x)$, defined by the definite integral

$$H(a, x) = \frac{a}{\pi} \int_{-\infty}^{\infty} \frac{e^{-t^2} dt}{(x - t)^2 + a^2} ,$$

is herein tabulated for $a = .0001(.0001).001(.001).01(.01).1(.1)1$, $x = 0(.1)20$, and $x^{-1} = .001(.001).2$.

The Growth function $G(a, y)$, defined in terms of the Voigt function by the relation

$$G(a, y) = \int_{-\infty}^{\infty} [1 - e^{-yH(a,x)}] \, dx,$$

is tabulated for the same range of the parameter a and for $\log y = -2(.1)b$, say, where b ranges from 9.0 for $a = .0001(.0001).0003$ down to 4.8 for $a = .7(.1)1$. This upper limit for $\log y$ is such that for larger values the function $G(a, y)$ may be calculated conveniently to the tabular precision from its asymptotic expansion, which is presented on page 16 (Appendix 2).

Properties of the Voigt function and the method of computing its tabulated values are presented in Appendix 1; similar information for the Growth function appears in Appendix 2.

As noted in the Introduction, the Voigt function is encountered in the study of spectral line formation under the influence of Doppler broadening, and the Growth function describes the integrated absorptance.

On the final page of the report there appears a short table (whose heading should read $A_G/2b$) which corrects and extends to from 6S to 8S the four-figure table of the Growth function in [1].

Also included in this report is a list of 12 references, which includes citations of earlier tables of these functions and their applications.

J. W. W.

1. C. VAN TRIGT, T. J. HOLLANDER & C. T. J. ALKMADE, "Determination of the a'-parameter of resonance lines in flames," *J. Quant. Spectrosc. Radiat. Transfer*, v. 5, 1965, p. 813.