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2. *Description of the Tables*

2·1. The complete integral of the differential equation (2) may be written in the form

$$y = A\,\text{Ai}(x) + B\,\text{Bi}(x) \tag{3}$$

where A and B are constants, and Bi(x) is a suitably chosen independent solution of (2) that is defined in §4. The tables are concerned mainly with Ai(x) and its derivative; every solution of (2) which remains finite as $x \to \infty$ is a multiple of this integral, which itself tends to zero as $x \to \infty$.

The complete integral of (2) can also be written in the form

$$y = C\,F(x)\sin\{\chi(x) + \epsilon\} \tag{4}$$

in which C and ϵ are arbitrary constants. If we take

$$C^2 = A^2 + B^2 \qquad \tan\epsilon = B/A \tag{5}$$

where A and B are the same constants as in (3), then

$$\text{Ai}(x) = F(x)\sin\chi(x) \qquad \text{Bi}(x) = F(x)\cos\chi(x) \tag{6}$$

The corresponding derivative can be similarly expressed, with the *same* constants C and ϵ, as

$$y' = C\,G(x)\sin\{\psi(x) + \epsilon\} \tag{7}$$

where $$\text{Ai}'(x) = G(x)\sin\psi(x) \qquad \text{Bi}'(x) = G(x)\cos\psi(x) \tag{8}$$

The tables aim at an 8-figure standard of accuracy throughout for Ai(x), Bi(x) and their derivatives; this corresponds to 6 decimals of a degree in the phases $\chi(x)$ and $\psi(x)$ in Table VII, and to 9 decimals for $\pm\tau = 0{\cdot}1\,\text{Bi}'(\pm x)$ in Table IV. Reduced derivatives of higher order in Table IV are given to the 10 decimals needed for interpolation of Bi′(x) to 8 decimals.

Provision for interpolation is made everywhere (except of course in Tables III and V); the desire to make this provision resulted in a decision to tabulate $\log_{10}$ Ai(x), Ai′(x)/Ai(x), $\log_{10}$ Bi(x) and Bi′(x)/Bi(x) in Tables II and VI. The details of interpolation are discussed in § 3; BRITISH ASSOCIATION *Auxiliary Table I* is available to assist in this process.

2·2. *Notation for Reduced Derivatives.* The operator τ is defined by

$$\tau\phi(x, h) = \int_0^h \frac{\partial}{\partial x}\phi(x, t)\,dt \tag{9}$$