J.R.BARBER, ELASTICITY, 3rd edition

ERRATA — last updated April 25, 2019

Page 72, Equations (5.127, 5.128) should read

$$f_3(x) = \frac{F\delta(x)}{2} \qquad (5.127) \qquad\qquad \int_{-a}^{a} f_3(x)\cos(\lambda_m x)dx = \frac{F}{2} \qquad (5.128)$$

respectively.

Page 78, last line before §6.2, $b/a \gg 1$ should read $a/b \gg 1$.

Page 88, footnote 9 'Chapter 19' and 'Table 19.1' should read 'Chapter 21' and 'Table 21.1' respectively.

Page 165, Equation (11.79) should read

$$\begin{aligned} r^c\phi(r,\theta) &= \frac{1}{2\pi}\int_{-\infty}^{\infty} f(c+\imath\omega,\theta)r^{-\imath\omega}d\omega \\ &= \frac{1}{2\pi}\int_{-\infty}^{\infty} f(c+\imath\omega,\theta)e^{-\imath\omega\ln(r)}d\omega\ , \qquad (11.79) \end{aligned}$$

Page 189, Equation (12.83) should read

$$\begin{aligned} h'(x) &= -\frac{d}{dx}\left(u_{x1}-u_{x2}\right) = \frac{A}{4\pi}\int_{-a}^{a}\frac{2fF\sqrt{a^2-\xi^2}d\xi}{\pi a^2(x-\xi)} = \frac{fFA}{2\pi^2 a}\int_0^{\pi}\frac{\sin^2\theta d\theta}{(\cos\phi-\cos\theta)} \\ &= \frac{fFA}{2\pi a}\cos\phi = \frac{fFAx}{2\pi a^2}\ ; \quad -a<x<a\ . \end{aligned}$$

Page 196, Problem 12.4: The last sentence should read

"Express c and $p(x)$ as functions of F, x, a and b."

Page 311, line 1: "...substitution into (19.61, 19.63)..."

should read

"...substitution into (19.50, 19.51)..."

Page 312, Equation (19.101) should read

$$\gamma\chi_\zeta(\zeta) = -\frac{1}{2\pi\imath}\oint_S\frac{f_\zeta(s)ds}{(s-\zeta)} + \frac{1}{2\pi\imath}\oint_S\frac{\omega(s)\overline{\chi'_\zeta(s)}ds}{\overline{\omega'(s)}(s-\zeta)}\ . \qquad (19.101)$$

(sign error in the last term)

Page 350, Equation (22.27), the second of the three equations should read

$$e_{yy} = \frac{\partial u_y}{\partial y} = \alpha(1+\nu)T$$

Page 356, Table 22.1: The expression for $\sigma_{\theta\theta}$ in Solution T should read

$$\sigma_{\theta\theta} = \frac{z}{r}\frac{\partial\chi}{\partial r} + \frac{z}{r^2}\frac{\partial^2\chi}{\partial\theta^2} - 2\frac{\partial\chi}{\partial z} \ .$$

In other words, the sign should be changed on the second term.

Page 384, Equation (24.35) should read

$$Q_n(x) = \frac{1}{2}P_n(x)\ln\left(\frac{1+x}{1-x}\right) - W_{n-1}(x) \ , \qquad (24.35)$$

Page 387: The last equation in (24.55) should read

$$S_{15} = \frac{5}{2}(3zr^3 - 4z^3r)\ln(r) + \frac{z^5}{r} + 5z^3r - \frac{75zr^3}{8} \ .$$

Page 400, §25.3.1: The first line should refer to "...the solid cylinder $0<r<a$, $0<z<L$,..."

Page 407, The first equation in (26.8) should read

$$\sigma_{rr} = \sigma_{\theta\theta} = -(A_1 + 2\nu B_1)$$

There is a factor of two missing in the original expression.

Page 408, The expression for $\sigma_{\beta\beta}$ in Equation (26.15) should read

$$\begin{aligned}\sigma_{\beta\beta} = {} & S\sin^2\beta \\ & + \frac{S}{2(7-5\nu)}\left(\frac{a^3}{R^3}(4-5\nu+5(1-2\nu)\cos^2\beta) + \frac{3a^5}{R^5}(3-7\cos^2\beta)\right)\end{aligned}$$

Page 421, Equation (27.10) should read

$$\frac{\partial^2\phi}{\partial r^2} + \frac{\partial^2\phi}{\partial z^2} = -3r\frac{\partial^2\Psi}{\partial r\partial z} = \frac{3}{r}\frac{\partial\phi}{\partial r} \ ,$$

Page 462: After equation (30.19), Table 19.3 should refer to Table 21.3.

Page 467, Equation (30.34): The upper limit on the integral should be a, giving

$$\frac{1}{r}\frac{d}{dr}\int_r^a \frac{tg_1(t)dt}{\sqrt{t^2-r^2}}$$

Page 482: The text after equation (31.26) should read "...using Solution P of Table 22.1, in terms of which (31.25, 31.26) define..."

Also, after equation (31.28), §30.3 should read §30.2.6.

Page 522, Figure 34.3: The arrows on the left side of the bottom surface in Figure 34.3(b) should be reversed in direction.

Index: References to page numbers from 427 upwards should be increased by 2. For example, for page 473 read page 475.