J.R.BARBER, ELASTICITY, 2nd edition

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Page 39, Problem 1: Replace

$$-\frac{3\nu Fxy}{2b^3} \quad \text{by} \quad \frac{3\nu Fxy}{2b^3}$$

— i.e. delete the negative sign.

Page 63, Equations (5.100, 5.101) should read

$$\sigma_{xx} = f''(y)\cos(\lambda x)\ ;\ \sigma_{xy} = \lambda f'(y)\sin(\lambda x)\ ;\ \sigma_{yy} = -\lambda^2 f(y)\cos(\lambda x)$$

and

$$\sigma_{xx}(a,y) = f''(y)\cos(\lambda a)\ ;\ \sigma_{xy}(a,y) = \lambda f'(y)\sin(\lambda a)$$

respectively.

Page 74, In equations (6.11, 6.12) replace 'y' by 'b' in the last term.
Page 107, Table 8.1: In the entry for the stress function $r\theta\cos\theta$, the stress component σ_{rr} requires a negative sign — i.e.

$$\sigma_{rr} = -2\sin\theta/r\ .$$

Page 116, equation (9.34)

$$\text{Replace} \qquad (1+\nu)a^4 r^3 \qquad \text{by} \qquad \frac{(1+\nu)a^4}{r^3}\ .$$

Page 129, equation (10.35): Add a '+' sign in the second line to read

$$\begin{aligned}\phi &= A'r^3(\ln(r)\sin\theta + \theta\cos\theta) + B'r^{-1}(\theta\cos\theta - \ln r\sin\theta) \\ &\quad + C'r\ln(r)\theta\cos\theta + D'r(\ln^2 r\sin\theta - \theta^2\sin\theta)\ .\end{aligned}$$

Page 130, equation (10.36): Correct coefficients on D' to read

$$\begin{aligned}\sigma_{rr} &= (2A'r - 2B'r^{-3} + C'r^{-1} - 4D'r^{-1})\theta\cos\theta \\ &\quad + (2A'r\ln(r) - A'r + 2B'r^{-3}\ln(r) - 3B'r^{-3} \\ &\quad - 2C'r^{-1}\ln(r) + 2D'r^{-1}\ln(r) - 2D'r^{-1})\sin\theta\end{aligned}$$

Page 133, equation (10.56): Omit the first power of 2, obtaining

$$A_1(1) = A_2(1) = \frac{Sb(b^2 - a^2)}{2} .$$

Page 153, lines 5 and 11: §11.3 should read §11.2.

Page 158, equation (12.3): The first line should read

$$\sigma_{rr} = r^{-1}(2C_1 \cos\theta - 2C_2 \sin\theta + C_3 \cos\theta + C_4 \sin\theta)$$

In other words, the 'C_2' term should be negative.

Page 159, equation (12.7): should read

$$\sigma_{rr} = \frac{2C_1 \cos\theta}{r} - \frac{2C_2 \sin\theta}{r}$$

In other words, the 'C_2' term should be negative.

Page 215, Problem 8: Replace "...a uniform antiplane shear stress $\sigma_{\theta z} = S$..." by "...a uniform antiplane shear traction $\sigma_{\theta z} = S$..."

Page 236, Figure 16.6: The 500 N force and the 24^o angle are irrelevant to this problem and should be deleted. The corrected figure is as follows:-

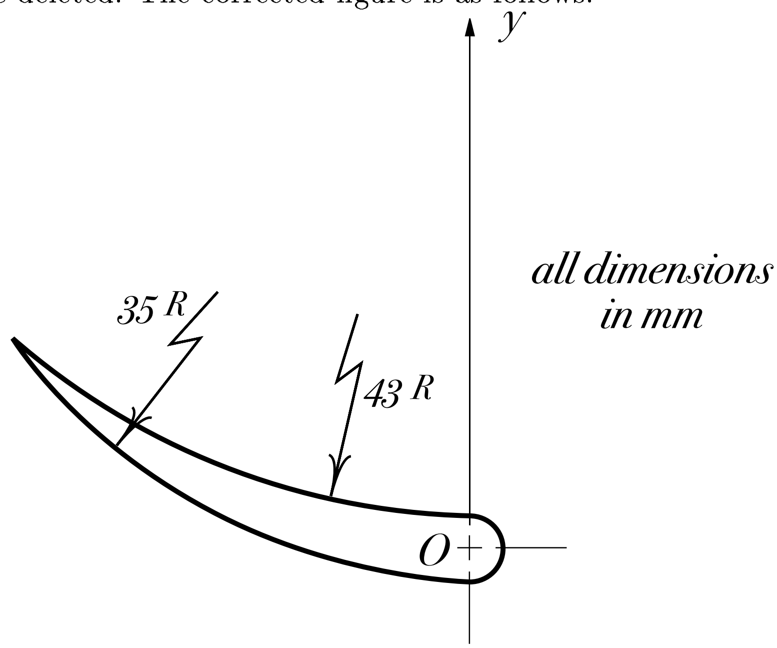

Figure 16.6: Turbine blade cross-section.

Page 245, equation (17.44):

$$\frac{12(-1)^m a^3}{\pi^2 m^2} \quad \text{should read} \quad \frac{3(-1)^m F\nu a^2}{2\pi^2 m^2 b^3(1+\nu)}$$

Page 247, Problems 3 and 4: "Find the shear stresses.... on the cross-section." should read "Find the shear stresses.... on the cross-section for the special case where $\nu =$ 0.5..."

Page 247, Problems 3 and 4: "...the centroid of the section $(0, a/2\sqrt{3})$..." should read "...the centroid of the section $(0, a/\sqrt{3})$..."

Page 247, Problem 6: $x/(x^2+r^2)$ and $(x^3-3xy^2)/(x^2+y^2)$ should read $x/(x^2+y^2)$ and $(x^3-3xy^2)/(x^2+y^2)^3$

Page 247, Problem 7:

$$r^\gamma \cos(\gamma\theta) \quad \text{should read} \quad r^\gamma \sin(\gamma\theta)$$

Page 275, Equation (19.66): should read

$$\Phi_\alpha = e^{-2\imath\alpha}\Phi$$

Page 287, Problem 1: "solution A of Table 19.1" should read "solution A of Table 19.2".

Page 288, Problem 2: "Table 9.1" should read "Table 19.1".

Page 307, Equation (22.34): The first of the three equations should have a 1/2 multiplier. i.e.

$$R^0 Q_0(z/R) = \frac{1}{2}\ln\left(\frac{R+z}{R-z}\right)$$

Page 320, equations (23.49): The term "$-6B_4\nu zr$" in σ_{rz} should read "$-6B_3\nu zr$".

Page 324, Problem 4: The third line of the boundary conditions should read

$$\sigma_{zr} = \sigma_{zz} \quad = \quad 0 \ ; \quad z = 0 \, .$$

Page 329, Equation (24.13): The last term $2(1+\nu)B_2/R^3$ should be positive, giving

$$\sigma_{R\beta} = \left(-3A_1 + \frac{12A_2}{R^5} - 2(1-2\nu)B_1 + \frac{2(1+\nu)B_2}{R^3}\right)\sin\beta\cos\beta$$

The same change should be made in the last of the three equations on the next page, which becomes

$$-3A_1 + \frac{12A_2}{a^5} - 2(1-2\nu)B_1 + \frac{2(1+\nu)B_2}{a^3} = 0$$

Page 330, Equation (24.15): The expression for $\sigma_{\theta\theta}$ should be multiplied by 3. In other words

$$\sigma_{\theta\theta} = \frac{3S}{2(7-5\nu)}\left(\frac{a^3}{R^3}(5\nu - 2 + 5(1-2\nu)\cos^2\beta) + \frac{a^5}{R^5}(1 - 5\cos^2\beta)\right)$$

Also, equation (24.15) should read

$$\sigma_{R\beta} = S\left\{-1 + \frac{1}{(7-5\nu)}\left(-\frac{5a^3(1+\nu)}{R^3} + \frac{12a^5}{R^5}\right)\right\}\sin\beta\cos\beta\ .$$

Page 331, equation (24.19): Add $= F$ at the end of the equation, giving

$$\int_0^{2\pi}\int_0^{\beta_0}\{\sigma_{RR}(R_b,\theta,\beta)\cos\beta - \sigma_{R\beta}(R_b,\theta,\beta)\sin\beta\}R_b^2\sin\beta d\beta d\theta = F\ .$$

Page 341, Figure 25.1: The surfaces $ABCD$ need to be added. The corrected figure is as follows:-

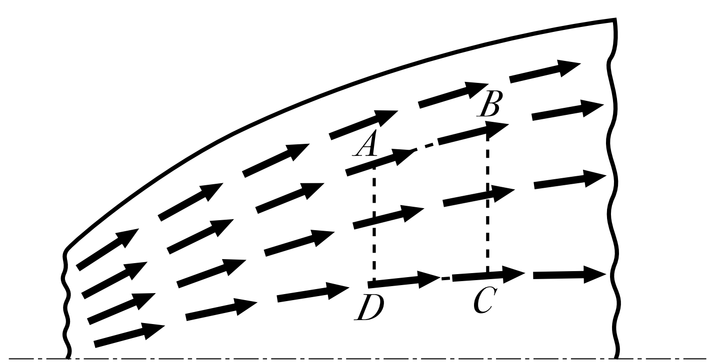

Figure 25.1: Vector representation of the shear stresses on the cross-sectional plane.

Page 347, equation (25.40): There should be a negative sign in the last term, — i.e.

$$\sigma_{\theta\beta} = -\frac{1}{r^2}\frac{\partial\phi}{\partial R} = -\frac{1}{R^2\sin^2\beta}\frac{\partial\phi}{\partial R}$$

Pages 349, 350, Problems. All references to 'equation (25.14)' should read 'equation (25.11)'.

Page 375, equation (28.19): replace

$$u_z \quad \text{by} \quad u_z(r, 0^+)$$

Also in the line above this equation, replace $z = 0$ by $z = 0^+$.

Page 379, Problem 4:

$$0 \leq a \quad \text{should read} \quad 0 \leq r < a$$