ERRATA IN "INTRODUCTION TO CONVECTIVE HEAT TRANSFER ANALYSIS"

Page 3 - In Fig. 1.4, equation should be

$$q_w \;=\; k\,\frac{\partial T}{\partial y}\,|_{n=0}$$

Page 23 - 4th line above Fig. 1.19 should read:" i.e., equal $\dot{m}V$, i.e., equal to $\rho V dA V$, ...

Page 24 - Equation near the top of the page should be:

$$Re \;=\; \ldots\ldots \;=\; \frac{\rho U^2}{\mu U \ell}$$

Page 29 - Problem 1.10 "..... in the Appendix, draw graphs ....."

Page 39 - The term near the middle of Eq. (2.31) should be:

$$+\,u\mu\left(\frac{\partial^2 u}{\partial y^2} \;+\; \frac{\partial^2 v}{\partial y \partial x}\right)$$

Page 48 - The line at the top of the page should read "so using the continuity equation, Eq.(2.75)

can be written as:

Page 52 - The last term in Eq. (2.96) should be:

$$+\,\nu\left(\overline{\frac{\partial^2 \bar{u}}{\partial x^2}} \;+\; \ldots\ldots\ldots\right)$$

Page 54 - The first term in the equation following Eq. (2.107) should be:

$$\sigma_x \;=\; 2\mu\frac{\partial \bar{u}}{\partial x}$$

Page 54 - The last term in Eq. (2.108) should be:

$$+\,\frac{\partial}{\partial y}(\bar{\tau}_{xy} \;-\; \rho\overline{v'u'})\;\ldots$$

Page 63 - The last term in equation at the bottom of the page should be:

$$\cdots \left[\frac{o(1)}{o(1)} + \frac{o(1)}{o(1)}\frac{1}{(\delta/L)^2}\right]$$

Page 64 - The equation numbers in the middle paragraph are incorrect. It should read".....dimensionless equation (2.131), the magnitude .....also from Eq. (2.134)...

Page 66 - In the statement following the first two equations, it should state ... are at most of the order of $(\delta/L)^2$ ...

Page 75 - In the fourth paragraph from the bottom of the page, the equation number is incorrect. It should read ... integral equation (2.172) ...

Page 76 - In the paragraph near the middle of the page, the figure number is incorrect. It should read ...shown in Fig. (2.21) ...

Page 77 - The last line should read ... integral equation can be solved...

Page 81 - Problem 2.8. The middle line should read ... a dimensionless temperature of ...

Page 81 - Problem 2.9. The second line should read as follows: .... $u_k = w$ ... and $x_k = z$.

Page 87 - The numerator in the second term in the equation at the bottom of the page should be $f'_\infty - 1$.

Page 104 - In the statement of Example 3.4, the third line should read ... the surface temperature of the plate is given by ...

Page 111 - The second line of text should read ... the solution given in and earlier section ...

Page 116 - The equation number given in the paragraph that begins near the middle of the page is incorrect. It should read ... integral equation (2.172) can ...

Page 126 - In the second last paragraph on the page, the second sentence should read ... to

derive the finite difference form of Eq. (3.177) attention ...

Page 128 - The line after Eq. (3.185) should end ... involving ΔX^2 ...

Page 130 - The equation in the first line is incorrect, it should read ... application of Eq. (3.198) ...

Page 141 - The last line should read η large, $f' \rightarrow 1$

Page 142 - The second line should read ... in Fig. 3.4. This ...

Page 148 - The sentence after Eq. (3.270) should read ... shown in Section 3.2...

Page 153 - Problem 3.11. The statement...Assuming a Prandtl number of 1... should be removed.

Page 154 - Problem 3.18. The second sentence should read Consider the simple case shown in Fig. P3.18. Also, the figure at the bottom of the page should be labeled P3.18.

Page 170 - Eq. (4.56) should read $\dot{m} = \rho u_c W$ ...

Page 180 - The second line after the figure should read adopted, e.g. if the rate of diffusion of heat ...

Page 181 - The sentence after Eq. (4.104) should read Here, $A = B/W$ ...

Page 184 - In Eqs. (4.114) and (4.115), T_1 should be replaced by T_c .

Page 184 - The sentence following Eq. (4.118) should read Here, again, $A = B/W$ ...

Page 187 - The second sentence after Eq. (4.133) should read ... i.e., if $G^n_{i,j}$ ...

Page 205 - In the fourth term of Eq. (4.218), the numerator should be ... $+U_{i-1,j-1} - U_{i-1,j})$

Page 205 - In the sixth term of Eq. (4.219), the numerator should be ... $+U_{i-1,j-1} - U_{i-1,j})$

Page 207 - In the third term of Eq. (4.231), the numerator should be ... $+\theta_{i-1,j-1} - \theta_{i-1,j})$

Page 207 - In the fourth term of Eq. (4.232), the numerator should be ... $+\theta_{i-1,j-1} - \theta_{i-1,j})$

Page 209 - The denominator in the last part of Eq. (4.242) should be $1 - 4\overline{Nu_D}Z$

Page 216 - The second sentence after Eq. (4.273) should read ... $\theta_{i,2}$ and $\theta_{i,N} = 1$. Once these ...

Page 219 - The sentence following Eq. (4.289) should read ... into the program DUCTSYM.

Page 220 - Problem 4.1. This should read ... laminar fluid flow through ...

Page 221 - Problem 4.3, Part (f). This should read ... temperature of 250^oC flowing ...

Page 221 - Problem 4.6. This should read ... a length of 15m. An ...

Page 222 - Problem 4.15. This should read ... the quantity $Q/k(H + W)(T_w$ ...

Page 223 - Problem 4.15 Part (ii). This should read ... the quantity $Q/k(H + W)(T_w$ ...

Page 223 - Problem 4.18. The third line should read ... length of 1 m ...

Page 223 - Problem 4.21. This should read ... enters a 2.5-cm diameter...

Page 223 - Problem 4.22. The third line should read ... of 1.5 mm and are kept ...

Page 229 - Equation (5.7) should be

$$q_m \;=\; \ldots\ldots \;=\; -\,\rho c_p \alpha \frac{\partial \bar{T}}{\partial y}$$

Page 255 - Equation (6.2) should be

$$q \;=\; \ldots\ldots \;=\; -\,k\frac{\partial \bar{T}}{\partial y} \;+\; \rho c_p \overline{v'T'}$$

Page 264 - The first part of Eq. (6.33) should be:

$$0 \;=\; \frac{k}{\rho c_p}\frac{\partial^2 \bar{T}}{\partial y^2} \quad \text{i.e. ...}$$

Page 265- The line Eq. (6.43) should read ... this into Eq.(6.41) ...

Page 268 - Equation (6.62) should be

$$u^+ \ = \ 5\ln y^+ \ - \ 3.05$$

Page 269 - The right hand side of Eq. (6.62) should be

$$...\ln\left\{1 \ + \ \frac{Pr}{Pr_T}\left[\left(\frac{y^+}{5}\right) \ - \ 1\right]\right\}$$

Page 269 - The middle part of the second line of Eq. (6.75) should be

$$...\ln\left[\frac{1 \ + \ 5Pr/Pr_T}{6}\right] \ ...$$

Page 272 - The second term on the left hand side of Eq. (6.83) should be

$$... \left(1 \ - \ \frac{\bar{u}}{u_1}\right) dy\Big] \ ...$$

Page 277 - The middle term in Eq. (6.105) should end with

$$... \left(\frac{y}{\delta}\right)^{1/n}\Big] d\left(\frac{y}{\delta}\right) \ ...$$

Page 277 - The middle term in Eq. (6.106) should end with

$$... \left(\frac{y}{\delta}\right)^{2/n}\Big] d\left(\frac{y}{\delta}\right) \ ...$$

Page 279 - The right hand side of Eq. (6.120) should be

$$\int_{x_0}^{x} \frac{dx}{x}$$

Page 286 - In the vector on the right hand side of the matrix equation above Eq. (6.147), the second from bottom term should be L_{N-1}

Page 292 - The denominator on the right hand side of Eq. (6.174) should be $k(T_{wr} - T_1)$

Page 294 - The following extra term should be added to the right hand side of Eq. (6.179)

$$... + \frac{\partial}{\partial Y}\left(\frac{E_H}{Pr_T}\frac{\partial \theta^*}{\partial Y}\right)$$

Page 314 - The sentence following Eq. (7.40) should end ... is constant and known for a given situation.

Page 319 - In the second sentence following Eq. (7.77) and in Eq. (7.78) the symbol y_1^+ should be replaced by y_c^+

Page 321 - In Example 7.2 following the line $f = 0.0173$, the sentence should read Eq. (7.88) was derived for the uniform wall heat flux case. It will, however, be assumed to apply here. It gives:

Page 338 - In the sentence following the temperature profile, $\bar{u}_m/u_c$ should be replaced by $\bar{u}_m/\bar{u}_c$

Page 357 - In the equation that follows the sentence beginning Eq. (8.59) can be integrated ..., the limits of integration are 0 to η

Page 362 - In the denominator in the first two terms of Eq. (d), the factor 2 should be removed

Page 373 - In the second line above Figure 8.19, z should be replaced by Z

Page 380 - The vertical axis in Figure 8.23 should be labeled $Q_L \times L$ and the caption should read Variation of $Q_L \times L$ with L ...

Page 384 - In the equations below Figure E8.5 and in the paragraph following these equations, replace Q_a with Q_L

Page 385 - Starting with the paragraph From the ... replace Q_a with Q_L

Page 387 - In Eq. (8.127b) replace w with W

Page 389 - In Eq. (8.133) replace w with W

Page 392 - The last term in the middle equation should be :

$$Ra\left[\left(\frac{\theta_{i+1,j}-\theta_{i-1,j}}{2\Delta X}\right)\sin\phi - ...\cos\phi\right]$$

Page 406 - The right hand side of the first equation should be :

$$Ra\frac{\partial\theta}{\partial Y}$$

Page 417 - Problem 8.2 should read A 0.3-m square vertical ...

Page 417 - Problem 8.4 should read A 0.1-m square ...

Page 417 - Problem 8.5 should read A vertical plate 30 cm high ...

Page 417 - Problem 8.6 should read ... along a 1-m high ...

Page 417 - Problem 8.8, the second sentence should read If the plates are 30 cm high ...

Page 432 - The last term in Eq. (9.21) should be:

$$= \sqrt{\frac{u_1}{\nu x}}$$

Page 433 - In Eq. (9.30) the second term on the left hand side should be deleted

Page 434 - In Eq. (9.37) the minus sign on the right hand side should be replaced by a plus sign

Page 435 - The first sentence in the last paragraph should read ... with Eqs. (9.35) and (9.38) ...

Page 439 - In Eqs. (9.48) and (9.49) the term $G_x^{0.25}$ should be replaced by $G_x^{0.5}$

Page 440 - Eq. (9.56) should read:

$$H_1''' + \frac{3}{4}Pr...$$

Page 440 - Eq. (9.57) should read:

... $H_1^{'}(0)/{G_x}^{0.5}$

Page 446 - The second last line before Eq. (9.62) should read ... are Eqs. (9.5) to (9.8). If ...

Page 447 - The sentence following Eq. (9.65) should read ... force term in Eq. (9.63)...

Page 450 - In Eq. (9.70) the x following the G should be a subscript

Page 451 - In Eq. (9.74) the minus sign on the right hand side should be replaced by a plus sign

Page 452 - In the first equation on the page the minus sign should be replaced by a plus sign

Page 457 - In the second last line a ρ should be added after the g

Page 459 - In Eq. (9.89) the denominator in the second term on the right hand side should be $2K|u'|$

Page 460 - In the first equation on the page, the last term should be $\rho|v'||T'|$

Page 469 - In Eq. (9.116) there should be a minus sign in front of the pressure gradient on the right hand side

Page 475 - The right hand side of Eq. (9.126) should have a plus sign inserted between the pressure gradient and the ν

Page 475 - The right hand side of Eq. (9.129) should have a plus sign inserted before the ν and the extra plus sign should be deleted

Page 491 - The sentence before Eq. (10.6) should read ... in Eq. (10.5) will ...

Page 505 - In the middle term in Eq. (10.63) the D should not be a subscript

Page 510 - The sentence following Eq. (10.90) should read ... lie outside the boundary layer, the ...

Page 517 - In Eq. (10.125) the commas should be deleted

Page 528 - In Eq. (10.175) the g in the denominator on the right hand side should not be a subscript

Page 549 - Problem 10.14 should read ... to deal with non-vertical enclosures ...

Page 561 - The sentence following Eq. (11.9) should read ... its latent heat h_{fg} must be ...

Page 563 - The minus sign on the left hand side of the first equation on the page should be deleted

Page 563 - The sentence following Eq. (11.19) should read ... transfer rate to a wall ...

Page 573 - The specific heat is 4217 J/kg K

Page 578 - The first sentence should read So, integrating Eq. (11.49) ...

Page 579 - In the equation in the center of the page, m should be replaced by $\dot{m}$

Page 585 - In the third and fifth equations on this page, the term Re^*2 should be replaced with Re^{*2}

Page 586-594 - Replace T_{sat} with T_s

Page 590 - In Eq. (11.98) replace hfg by h_{fg}

Page 590 - In the last equation on this page, replace ν by ν_ℓ and make the upper limit on the integral in the last term η_δ

Page 591 - In the first equation on this page, replace ν by ν_ℓ

Page 593 - In Eqs. (11.118) to (11.120), replace η^4 by ζ^4

Page 596 - In the last terms of the first two equations, replace the denominator 3 with 2

Page 598 - The left hand side of Eq. (11.135) should be:

$$h_{fg}\left[\frac{\rho_\ell^2\omega^2}{3\mu_\ell}\right]...$$

Page 601 - Problem 11.11 should state ... shown in Figure P11.10 and the figure at the bottom of the page should be numbered Figure P11.10

ADDITIONAL ERRORS

Page 114 - The temperature difference $T_w - T_1$ has been omitted from the dfinition of the Nusselt number in Example 3.5. The answer is, as a consequence, incorrect.

Page 125 - In the left hand side of Eq. (3.172), the T's should be replaced by u's.