This is the errata for the second printing, September 2001. Cambridge University Press corrected some of the errors in the first printing and created some new errors. Also, some errors in the first printing were not discovered before the second printing.

Last Update: October 6, 2014

Page viii. The table of contents at the top of the page should read "3.2 The Conservation Principles"

Pages 21-22. The last paragraph on page 21. The comment about recycling the heptane/propanol output from the washer is wrong. Recycling is both possible and effective. Change the paragraph as follows:

Solid/liquid separation followed by washing should work. The process can be improved further by recycling the n-heptane/i-propanol effluent from the washer to the 90% heptane/10% propanol stream. Note that the n-heptane/i-propanol effluent from the washer cannot be recycled to the stream entering the washer. This would not allow the propanol to leave the washer-melter loop, except by a purge stream on the recycle. The purge would have the same flow rate of i-propanol as the stream leaving the washer in the above design.

Page 30. The charge on the oxygen atoms in reactions (2.17) and (2.18) should be 2−, not −. reactions (2.17) and (2.18) should be corrected as follows.

\[ \text{O}_2 + 4e^- \rightarrow 2\text{O}^{2-} \]  \hspace{1cm} (2.17)

\[ 4\text{H}^+ + 2\text{O}^{2-} \rightarrow 2\text{H}_2\text{O}_{(\text{liquid})} \]  \hspace{1cm} (2.18)

Page 33. In footnote 2, the publication year should be 1900, not 1990.

Page 44. exercise 2.10. Ernst Solvay should be Ernest Solvay.

Page 49. In the table at the top of the page, the boiling point of O₂ should be −183, not −182.

Page 112. exercise 3.13. The composition for stream 6 in part (C) is incorrect. The correct composition is 50.3 wt % water.

Page 133. exercise 3.45. The ROI in parts (A) and (B) is given with incorrect units. The ROI should be 20%/year.

Pages 133-4. exercise 3.46. The ROI in part (B) is given with incorrect units. The ROI should be 20%/year.

Page 134. exercise 3.47. Replace the last sentence in the exercise as follows:

Assume a 30-year lifetime for the refrigerators and a 75-year lifetime for the lake source cooling equipment. The electricity cost for the present refrigerators is $1.9 \times 10^6 \$/year. Calculate the operating costs for both options.

Page 138. Table of Thermodynamic properties for compounds at 1 atm.

The heat capacity for Air is incorrect. The correct value is 29 joules °C⁻¹ mol⁻¹.

Page 174. The text at the top of the page should read:

… and at the maximum concentration, the flow rate of the vapor distillate is nearly zero.
Page 188, exercise 4.2. The gridlines were omitted in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmtd/Graphs.

Page 189, exercise 4.4. The path on the graph should show the entire process. A corrected plot is shown below.
Page 197, exercise 4.10. The gridlines were omitted in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.

Page 199, exercise 4.11. The gridlines were omitted from the upper plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.
Page 202, exercise 4.15. The gridlines were omitted from the plot. A proper plot is shown below. A proper graph is also available online at www.cheme.cornell.edu/~tmd/Graphs.
Page 203, exercise 4.16. The gridlines were omitted from the plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.

Page 204, exercise 4.16. There is a superfluous box around the first heater in the flowsheet. The correct flowsheet is shown below.
Page 207, exercise 4.21. The gridlines and the $x=y$ line were omitted from the plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.
Page 208, exercise 4.21. The gridlines were omitted from the plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.
Page 209, exercise 4.22. The gridlines were omitted from the plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.
Page 211, exercise 4.24. The gridlines and the $x=y$ line were omitted from the plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.


Change the second sentence to read "The input to the distillation column is a liquid-vapor mixture with an overall composition of 30. mol % DCE."
Page 212, exercise 4.26. The gridlines and the $x=y$ line were omitted from the plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.

Also note that the labels on the $y$ axis of the graph are out of order. Switch 0.6 and 0.7.
Page 215, exercise 4.30. The gridlines were omitted from the plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.
Page 216, exercise 4.31. The gridlines and the $x=y$ line were omitted from the plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.
Page 220, exercise 4.33. Nearly everything was omitted from the plot in the 2nd printing. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.
Page 232, exercise 4.41. The gridlines were omitted from the upper plot. A proper plot is shown below. A proper graph is also available on-line at www.cheme.cornell.edu/~tmd/Graphs.

Page 264, equation (5.88). The density in the equation for the Reynolds number is the fluid density, not the sphere density. The calculation should be as follows:

\[
\text{Re} = \frac{D \nu \rho}{\mu} = \frac{(1 \times 10^{-6} \text{ m})(6 \times 10^{-4} \text{ m/s})(1.3 \text{ kg/m}^3)}{1.8 \times 10^{-6} \text{ Pa} \cdot \text{s}} = 4 \times 10^{-4} \quad (5.88)
\]

Change the paragraph after equation (5.88) as follows:

The Reynolds number is less than one, so it was legitimate to apply Stokes's law. Likewise the Reynolds number for a 10 \( \mu \text{m} \) particle is less than one. However, for a particle of diameter 1 mm, \( \text{Re} = 400 \). This lies outside the valid range of Stokes's law. So, will a 1 mm particle fall faster or slower than predicted by Stokes's law?

Page 265, in the sentence that precedes equation (5.89), the flow should be \( 4.3 \times 10^5 \) barrels/day.

Page 269, equation (5.113). Change the flow rate to \( 4.3 \times 10^5 \) barrels/day, which changes the result to 0.8 m\(^3\)/s, as follows.

\[
\left( \frac{4.3 \times 10^5 \text{ bbl}}{\text{day}} \right) \left( \frac{0.159 \text{ m}^3}{1 \text{ bbl}} \right) \left( \frac{1 \text{ day}}{24 \text{ hr}} \right) \left( \frac{1 \text{ hr}}{60 \text{ min}} \right) \left( \frac{1 \text{ min}}{60 \text{ s}} \right) = 0.8 \text{ m}^3/\text{s} \quad (5.113)
\]

Page 275. In the equation for the Stanton Number, eqn 5.135, \( \rho \) should be variable in the denominator, not a subscript to \( v \). The correct equation is as follows:
\[
\frac{h}{C_p \nu \rho} = \text{St} = \text{Stanton number} = \frac{\text{heat transferred}}{\text{thermal heat capacity}}
\] (5.135)