Corrections to An Introduction to Thermal Physics

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Here is a list of known errors in the book. If you find an error that is not listed here, please e-mail me at dschroeder@weber.edu .

Errors that were posted before 15 September 2000 have been corrected in the third and later printings of the book. Unfortunately, these corrections were made from laser-printed pages rather than directly to film, so the corrected pages (37 in all) are inferior in quality in the third and fourth printings. This cosmetic problem has been fixed as of the fifth printing, which incorporates all corrections posted through 1 November 2000. The most serious known errors in printings 5 through 7 are new ones, introduced by the printer while correcting older errors (see below). Very few known errors occur in still later printings. (To find out which printing you have, look at the leftmost number in the bottom line of the copyright page.)

For a version of this list sorted by date posted, click here.

- Page iv. The section number after 5.2 should be 5.3, not 5.4. (Posted 10/22/99.)
- Page viii. In line 13, "accomodate" should be spelled with two m's. (Posted 1/23/06.)
- Page x. The figures credited to Karen Thurber should be 1.15, 5.1, and 5.9 (not 5.8). (Thanks to T. Niebuhr; posted 2/11/00.)
- Page 6. In Problem 1.7, the value 550,000 for the inverse of the expansion coefficient of mercury is too large by a factor of 100; please replace it with 5500. The value beta = 1.81×10^{-4} K^{-1} is correct. (Thanks to O. Echt; posted 2/1/00.)
- Page 9. In the fourth line on the page, the elevation of Mt. Everest is given incorrectly as 8840 m; the correct value, to three significant figures, is actually 8850 m. The quoted elevation in feet is correct to three significant figures. (Thanks to H. Haber; posted 3/6/00.)
- Page 14. In Problem 1.22, part (d), please assume that the gas is air at room temperature. (Posted 1/4/00.)
- Page 23. In the right-hand graph in Figure 1.10, the labels "C" and "D" should be interchanged, so the letters go in sequence A-B-C-D. (Thanks to D. Jacobs; posted 6/26/00.)
- Page 24. In the line just above equation 1.31, "for and ideal gas" should be "for an ideal gas". (Thanks to S. Patitsas; posted 9/18/00.)
- Page 31. In parts (a) and (b) of Problem 1.41, please interchange the words "lost" and "gained". (Posted 5/15/00.)
- Page 52. In the last full paragraph, line 5, "can take on" should be "to take on". (Posted 11/22/99.)
- Page 59. In Figure 2.5, in the line in the table for $q_A = 59$, the entry for $\text{Omega}_{\text{total}}$ should be 6.7×10^{114}, not 6.8×10^{114}. (Posted 6/24/03.)
- Page 63. Just below equation 2.17, please change "the difference between N! and (N-1)!" to "the ratio of N! to (N-1)!". (Thanks to O. Echt; posted 9/13/00.)
- Page 66. In the second-to-last line before the problems, please insert the word "measurable" before "fluctuations". (Thanks to O. Echt; posted 9/13/00.)
- Page 68. In the first line of the second paragraph after the subsection heading, which begins "So suppose...", please change "total energy U" to "kinetic energy U". (Thanks to O. Echt; posted 9/13/00.)
- Page 86. In Table 3.1, in the line for $q_A = 60$, the entry for S_B/k should be 105.3, not 105.5. (Thanks to M. Park; posted 2/25/02.)
- Page 86. Also in Table 3.1, in the line for $q_A = 59$, the entry for $\text{Omega}_{\text{total}}$ should be 6.7×10^{114}, not 6.8×10^{114}. (Posted 6/24/03.)
- Page 86. Some copies of the 7th printing of the book contain a very serious printer's error: Where page 86 should appear, a copy of page 286 has been substituted (although the page number still says 86). If you are in possession of a copy of the 7th printing, please turn to page 86 and check the running headline. If it says "Chapter 7 Quantum Statistics," your copy unfortunately is faulty. If it says "Chapter 3 Interactions and Implications," your copy does not suffer from this error. If you're not sure which printing you have, check the bottom line of the copyright page: The first visible number is the number of the printing. Addison-Wesley has agreed to provide free replacements for all copies of the book that contain this error; the best way to get a replacement copy is through your local sales representative. While you're waiting for the replacement, you can use this pdf file of the actual page 86. (Thanks to J. Pribram; posted 6/24/03.)
- Page 87. In the caption to Figure 3.1, the third line should begin "therefore the slopes of the tangents to the graphs . . .". (Posted 8/20/99.)
- Page 105. In the paragraph beginning "In a real-world...", the third and fourth sentences should be clarified as follows: "The number of possible states for each dipole is always some small integer, depending on the total angular momentum of all the electrons in an atom or molecule. The simple case considered here, with just two states, occurs when there is just one electron per atom whose spin is uncompensated." (Thanks to O. Echt; posted 9/13/00.)
- Page 105. In the last line of the last full paragraph, five lines above the footnote, "proprtion" should be "proportion". (Thanks to In Hyun Nahm; posted 11/1/00.)
- Page 129. In Problem 4.12, the system considered is an ideal gas, as in Problems 1.34 and 4.1. (Posted 9/13/00.)
- Page 141. In Problems 4.30(b) and 4.32, the phrase "same extreme temperatures" should be replaced with "same reservoir temperatures". Choosing the correct reservoir temperatures requires some thought (more than I put in when writing the problems!), and is not entirely clear-cut. (Posted 6/26/00.)
- Page 153. At the end of the first line of text below the figures and figure captions, "energy" should be "entropy"; so the end of the sentence reads "--the system's entropy increases by this amount." (Thanks to R. Glosser; posted 3/9/00.)
- Pages 154-155. Most of the numbers given for the lead-acid reaction are in slight disagreement with the data on page 405. (I updated the data with a more recent source, but forgot to update the text.) A better value for Delta-G is -394 kJ, while a better value for Delta-H is -316 kJ. The difference between these two numbers is still 78 kJ, which is the maximum energy that can enter the system as heat. With the improved value of Delta-G, the electrical work per electron (equation 5.15) should instead be 3.27×10^{-19} J, or 2.04 eV. Therefore the predicted voltage is 2.04 V. (Posted 9/5/00.)
- Page 156. Problem 5.6(e) should refer to parts (b) and (c), rather than (a) and (b). (Posted 9/1/00.)
- Page 165. On the left-hand side of equation 5.39, P_0 (with a subscript zero) should instead be P^o (with a superscript circle), as on the right-hand side. (Posted 12/23/99.)
- Pages 172-173. Starting in equation 5.43, it's important to keep in mind that both G_l and G_g each refer to the entire amount of stuff (say one mole). So just above equation 5.43, it would be better to say "At the phase boundary the material is equally stable as a liquid or a gas, so its Gibbs free energy must be the same whether it is in either phase." And in the second line on page 173, instead of "the two phases remain in equilibrium", it would be clearer to say "the two phases remain equally stable". (Thanks to W. Wehrbein;

posted 9/13/00.)

- Page 173. Near the bottom of the page, note that L refers to the total heat needed to convert the material from one phase to the other. So here, L is defined as an extensive quantity, not as heat per unit mass (an intensive quantity) as in Chapter 1. (Thanks to J. Wrinkle; posted 9/13/00.)
- Page 176. In the displayed equation in Problem 5.41, part (b), the minus sign on the left-hand side should instead be a division symbol. That is, the left-hand side should read $P_v(P) / P_v(P_v)$. (Thanks to D. Lowe; posted 1/20/00.)
- Page 177. In Problem 5.43, please change the assumed environmental air temperature from 5^oC to 10^oC. This makes the problem much more interesting. (Posted 9/1/00.)
- Page 177. In Problem 5.45(a), you may assume that H_2O makes up only a small percentage of the air mass. (Posted 9/1/00.)
- Page 180. Van der Waals first proposed his equation of state in 1873 (in his doctoral thesis), not in 1881. (Thanks to M. Moloney; posted 5/22/00.)
- Page 192. In Problem 5.58(b), please assume that the mixing is totally random. (Posted 9/13/00.)
- Page 228. In Problem 6.11, line 3, the formula E = m mu B should have a minus sign: E = - m mu B. (Thanks to D. Durian; posted 11/1/00.)
- Page 241. At the end of the fourth line of part (c), the word "smallest" should actually be "largest". (Thanks to S. Jackson; posted 8/25/05.)
- Page 255. To work Problem 6.49, you need the value of the rotational constant epsilon for the nitrogen molecule. From the numbers given for other molecules in Section 6.2, you can make a good estimate; since it appears inside a logarithm, you don't need to be terribly accurate. The correct value, though, is 0.00025 eV. (Posted 10/31/99.)
- Page 259. In the fourth line of the first paragraph, "other molecules" should be "other atoms". (Posted 8/30/99.)
- Page 260. In the last sentence of Problem 7.1, "myosin" should be "myoglobin". (Posted 3/1/00.)
- Page 276. In the equation at the very bottom of the page, the numerical factor on the right-hand side should be 0.0088, not 0.0086. (Posted 2/27/00.)
- Page 284. In equation 7.62, after the second integral sign, the denominator should have a straight d rather than a partial-derivative curly d. (Thanks to H. Geyer; posted 7/22/00.)
- Page 284. The problem referred to just before equation 7.67 should be Problem 7.29, not 7.28. (Thanks to H. Geyer; posted 7/22/00.)
- Pages 285-286. In the course of correcting the earlier errors on these pages, a printing error caused dozens of mathematical symbols to disappear in the fifth and sixth printings. Here is a pdf file of these two pages (216k) showing the corrections. (Posted 2/16/03.)
- Page 285. In the caption to Figure 7.16, the reference to Problem 7.31 should instead be to Problem 7.32. (Posted 7/9/99.)
- Page 286. In the third line on the page, within the hint to Problem 7.32(a), please replace "x=epsilon/kT" with "x = epsilon/$epsilon_F$". (Posted 2/27/00.)
- Page 314. In the fourth line (not counting the figure caption), in the numerical value of m^*, the exponent should be -29, not +29. (Posted 9/13/00.)
- Page 355. In Problem 8.30, part (c), please delete the instruction to sketch a graph of the most likely magnetization vs. temperature. (The graph is too boring to sketch.) (Posted 11/1/00.)
- Page 364. In part (d) of Problem A.8, the final expression should be ik Psi, with no minus sign. (Thanks to D. Fillmore; posted 9/2/99.)
- Page 372. In the energy level diagram in Figure A.11, the second arrow from the left should originate at the next level up, with 3 units of vibrational energy, not 2. (Posted 4/5/00.)
- Page 404. A better value for the enthalpy of formation of glucose is -1273 kJ. Sources of data for glucose are often incomplete, and are further complicated by the fact that glucose comes in several different varieties. So I'm still not entirely sure of what the best values are for any of the glucose data. However, making this change improves the results of Problem 5.6 considerably. (Posted 9/5/00.)

Errata lists for the November 1997, August 1998, and December 1998 prepublication editions are still available, but I am no longer adding to these lists. Really you should toss these editions out and get the published book.

Last modified on January 23, 2006.