

ERRATUM for Energy and Entropy: A Dynamic Duo (Ed. 1)

Where?	Correction
p. 51, Key Point 2.13	The word "measurement" is incorrectly hyphenated.
p. 76, line 6	$d\zeta_1 - d\zeta_2$ should be $d\zeta_1 \neq -d\zeta_2$
p. 96, Eq. (4.1)	Right side should be $Nk \left[\frac{3}{2} \ln \left(\frac{E}{N} \right) + \ln \left(\frac{V}{N} \right) + s_o \right]$ It is straightforward to show that $S = Nk[\ln(\text{dimensionless quantity}) + 5/2]$.
p. 96, 2 lines below Eq. (4.3)	Delete redundant word "at."
p. 98, par. 2, line 7	$ \psi(q) ^2 dx$ should be $ \psi(q) ^2 d^3q$
p. 102, Eq. (4.15)	Denominator should read $(\exp(\epsilon - \mu)/kT)$
p. 109, Eq. (4.26)	The term $C_v dT$ is missing in the equation's last line. Replace the words leading to Eq. (4.27) by: The internal energy can be found by integrating the corrected third line with respect to V along a path of constant T , giving $E(T, V) = -aN^2/V + \chi(T, a, b)$. The last term is a "constant" of integration along a path where T is constant. Equality of the mixed derivatives of $E(T, V)$, along with the T -independence of aN^2/V guarantee that C_v is independent of V . For $V \rightarrow \infty$, $C_v \rightarrow 3/2NkT$, so for all a, b and V , $\chi(T, a, b) = 3/2 NkT = \chi(T)$ and Eq. (4.27) is verified.
p. 110, par. 2	Assuming spherically symmetric interparticle forces and potential energies for a homogeneous and isotropic fluid, the probability of finding a second molecule in a spherical shell of thickness dr at distance r from a given molecule is $g(r)dV = g(r) 4\pi r^2 dr$.
p. 140, last line	Delete "in" following T_2
p. 157, par. 1	Volume should be $V = 3 m \times 4 m \times 5 m = 60 m^3$
p. 296, before last paragraph.	Just as temperature is a measure of <i>hotness</i> , the Caratheodory development provides an interpretation of entropy as a measure of the adiabatic accessibility of states: State B is reversibly accessible from state A if $S_B = S_A$, is irreversibly accessible from A if $S_B > S_A$, and is inaccessible from A if $S_B < S_A$. (This insight was kindly provided to me by Prof. Chris Gray.)