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ERRATA TO 3RD PRINTING OF TRANSPORT PHENOMENA, MOSTLY CONTRIBUTED BY PROFESSOR CARLOS A. RAMIREZ.

ENTRIES MARKED WITH * ARE ADDITIONAL CORRECTIONS FROM PROFESSOR RAMIREZ TABULATED ON MAY 6TH.

ENTRIES MARKED WITH # ARE FROM PROFESSOR DAI GANCE (East China Institute of Chemical Technology) RECEIVED ON JUNE 2.

ENTRIES MARKED WITH • (FROM PROFESSOR RAMIREZ) ARE AWAITING THE APPROVAL OF E.N.L.

Page	Location	Reads	Should Read
27#	11 lines after 1.4-16	CHOH	CH_3OH
37	Question 10	Fig. 1.4-2	Fig. 1.4-3
49	1 line above 2.3-7	(Eq. 2.3-8)	Eq. 2.3-6 (no parentheses)
89	1 line above 3.6-19	Equation 3.5-16	Equation 3.6-16
104	Question 6	Example 3.5-3	Example 3.6-3
112*	Eq 3C.5-3	In the second line, the first term should be preceded by a minus sign and, the last term should be multiplied by $[[\rho^{II}/\rho^{I}]]$	
116	1 line above 4.1-5	Eq. 4.4-1	Eq. 4.1-1
131	Fig 4.3-3 legend	$v_r = -cr^{\alpha-1}$ $v_r = +cr^{\alpha-1}$	$v_r = -c\alpha r^{\alpha-1}$ $v_r = +c\alpha r^{\alpha-1}$
137	Line 3a	by a function	be a function
140	Caption to Fig 4.4-4	Fig. 4.3-4(ii)	Fig. 4.3-3(ii)

140	4 lines after 4.4-35	Fig. 4.3-4(a) and Fig. 4.3-5	Fig. 4.3-3(i) and Fig. 4.3-4
147	Eq 4C.2-8	kI	$\sqrt{kI}$
148	2 lines after 4C.2-18	$\mu/\rho = 10\,\text{cm}^2/\text{s}$ $I = 2500\,\text{gm}/\text{cm}^2$	$\mu/\rho = 10^{-2}\,\text{cm}^2/\text{s}$ $I = 2500\,\text{gm cm}^2$
148*	3 lines after 4C.2-18	10^6 dyn cm.	10^6 dyn cm, $\rho = 1\,\text{gm}/\text{cm}^3, (a-1)R = 10^{-2}\,\text{cm}.$
174	Eq 5C.1-10	$\sqrt{J\rho z/W}$	$\sqrt{JW\rho z}$
175	Eq 5C.2-4	$\left\lfloor \frac{(b^2-a^2)^{3/2}}{\sqrt{a}} + (1-b^2)^{3/2} \right\rfloor$	$\left[\sqrt{1-b^2}\,(1-a^2)\right]$
176	Above Eq 5C.3-3	Eq. 5B.2-2	Eq. 5C.3-2
176	Eq 5D.2-1	$\frac{1}{2}\rho\overline{\mathbf{v}'^2}$ (twice)	$\frac{1}{2}\rho\overline{v'^2}$ (twice)
189	Fn 2	University of Bandung	Bandung Institute of Technology
196*	Eq 6C.3-2	$\int_S$	$-\mu\int_S$
205	2 lines after 7.4-11	Eq. 7.4-10	Eq. 7.4-11
252	Line 3b	Eqs. 8.5-14 and 15	Eqs. 8.5-12 and 13
261	Eq 8C.1-2	$\frac{\tau_{\theta\theta} - \tau_{\phi\phi}}{r}$	$\frac{\tau_{\theta\theta} + \tau_{\phi\phi}}{r}$
325	Eq. 10B.9-2	$\Theta(\xi, \zeta)$	$\Theta(\sigma, \zeta)$
332	Line 3 of Prob 10D.2	verify	Verify
332	Eq 10D.2-5	q_w	q_0
363	2 lines above 11B.2-3	Multiply by	Multiply Eq. 11B.2-1 by

368	Prob 11B.13	(heat per unit per unit time)	(heat per unit area per unit time)
371	Prob 11C.6, line 5	local unit normal	local unit vector normal
371	Eq 11C.6-4, left side	$+\sigma$	$-\sigma$
371	Eq 11C.6-4, right side	$-\nabla^S\sigma$	$\nabla^S\sigma$
373	Eq 11D.3-1	$\int_V(\mathbf{v}\cdot\mathbf{g})dV$	$\int_V\rho(\mathbf{v}\cdot\mathbf{g})dV$
385*	Eq. 12.2-24	Remove the "$1-$" from the large parenthesis.	
385*	Footnote 15	pp. 255 et seq.	pp. 255 et seq.; see also Problem 12D.7.
393	1st line of Eq 12.4-33	$\int_\pi^0$	$\int_\pi^\theta$
399	Prob 12B.6, Ans. (c)	1.1981	$(1.1981)^{1/3}=1.0621$
400	Prob 12B.8	Ex. 12.4-2	Ex. 12.4-3
406*	Eq 12D.7-3	This equation should have $\int_\chi^\infty \bar{\chi}\exp\left(-\bar{\chi}^3\right)d\bar{\chi}$ inside the parentheses ( ) instead of the difference of two integrals.	
406*	1 line after 12D.7-3	$\int_\chi^\infty$	$\int_x^\infty$ (lower limit is lower case lightface italic "ex")
406*	Last line of 12D.703	gamma functions.	gamma functions.[14]
406*	Add footnote 14	[14]M. Abramowitz and I. A. Stegun, eds., *Handbook of Mathematical functions*, Dover, New York, 9th Printing [1973], p. 255 et seq.	
415	Eq 13.5-2	$=\rho\hat{C}_p$	$=-\rho\hat{C}_p$

416	Eq 13.5-14	v_z	$\overline{v}_z$
416	1st line of 13.5-11	$\int_0^{\xi} \frac{F}{\xi} d\xi$	$\int_0^{\xi} \frac{F}{\overline{\xi}} d\overline{\xi}$
416	1st line of 13.5-11	$\int_0^{\xi} \frac{C_3^2 \xi}{1+\frac{1}{4}(C_3\xi)^2} d\xi$	$\int_0^{\xi} \frac{C_3^2 \overline{\xi}}{1+\frac{1}{4}(C_3\overline{\xi})^2} d\overline{\xi}$
420	Fn 6	290-192	190-192
429	Fig 14.2-1, 2nd curve	7.341	7.541
437	Above Eq. 14.3-21	Fig. 14.3-1	Fig. 14.3-2
451	Prob 14B.3(b) first line	Delete: "given fluid and wire at"	
472	Ex 15.5-4, Soln, line 3	to left of it	to the left of it
474	After Eq 15.5-46	Eqs. 15.5-46 and 42	Eqs. 15.5-46 and 43
519	1st line of Ex 17.1-1	500K	500C
524#	2 lines above 17.2-12	Eq. 17.4-3	Eq. 17.2-3
534	Just above Eqs. P' and Q'	binary ystems	binary systems
535	6 & 7 lines above Eq 17.7-3	$\mathbf{J}_A^* = c_A\left(\mathbf{v}_A^* - \mathbf{v}^*\right)$	$\mathbf{J}_\alpha^* = c_\alpha\left(\mathbf{v}_\alpha^* - \mathbf{v}^*\right)$
539	Prob 17A.4, Soln	At $x_A = 0, \mathrm{Sc} = 3.43$; at $x_A = 1.00, \mathrm{Sc} = 0.407$	As $x_A \to 0, \mathrm{Sc} \to 0.057$; as $x_A \to 1.00, \mathrm{Sc} \to 2.44$
549	Above Eq 18.2-17	…gas phase.	…gas phase (with interfacial surface area *S*):
562	1 line above 18.6-1	$\cos\theta$	$\cos\beta$
563	Line after Eq 18.6-8	gamma function of $\frac{4}{3}$.	gamma function of $\frac{4}{3}$ (see Appendix C.4).
564	Fn 2	265-268	262-268
576	2 lines above 18B.13-1	c_{O}	c_0

576	2 lines above 18B.13-1	oxygen	O_2
576	Eq 18B.13-1	$z_f = \sqrt{\frac{2\mathscr{D}_{O_2-MO_x} t}{x} \frac{c_O}{c_f}}$	$z_f = \sqrt{\frac{4\mathscr{D}_{O_2-MO_x} t}{x} \frac{c_0}{c_f}}$
583#	Eq 19.1-7	*A* (under 4 terms in eq)	α (under 4 terms in eq)
584#	Eq 19.1-11	*A* (under 4 terms in eq)	α (under 4 terms in eq)
584#	Line 4b	9.1-16	19.1-16
601	15b	Pr	Sc
605	Fn 3	**2**, 35-42 (1955)	**2**, 35-42 (1952)
609	Prob 19D.2(c), line 3	0 to *N*	1 to *N*
626	2 lines above 20.2-14	linear first-order reaction	linear first order equation
629	7 lines after 20.2-37	20.3-37	20.2-37
630	Fig 20.2-3, abscissa	$\eta\sqrt{2} = y\sqrt{\frac{v_\infty}{v_x}}$	$\eta\sqrt{2} = y\sqrt{\frac{v_\infty}{\nu x}}$
632	Eq 20.2-56	$\mathrm{Pr}^{2/3}$	$\mathrm{Pr}^{-2/3}$
635	Eq 20.3-12	$\int_0^x h_x h_z^2 v_s x$	$\int_0^x h_x h_z^2 v_s d\bar{x}$
635	1 line after 20.3-12	20-3-9	20.3-9
636	Eq 20.3-24	dx	$d\bar{x}$
636	Eq 20.3-26	dx	$d\bar{x}$
636	1 line after 20.3-26	18.6-11	18.6-9
637	Eq 20.3-28, 1st line	$R\sin\theta$	$R^2\sin\theta$
639	1 line before 20.4-4	$(\partial/\partial v)_{\mathbf{r}_S}$	$(\partial/\partial w)_{\mathbf{r}_S}$
639	1 line before 20.4-4	$(\partial/\partial y)_{\mathbf{r}_S}$	$(\partial/\partial y)_{\mathbf{r}}$

646	Fig 20.5-2, ordinate	$\langle vz \rangle$	$\langle v_z \rangle$
646	Fig 20.5-2, box in lower right corner	20.5-15	20.5-19
646	Fig 20.5-2, legend	20.3-15	20.5-15
647	Line 11a	Instead of Eq. 20.3-19,	Instead of Eq. 20.5-19,
647	Last paragraph of text	Equations 20.5-1 and 19	Equations 20.5-1 and 18
652	Prob 20B.8	(20B.10-1)	(20B.8-1)
652	Fn 3	(1961)	(1962)
654	Eq 20D.1-1	$\pm$	$\mp$
654	After 20D.1-1	Replace the sentence "Here… $\pm L$" by: Here $x_A^{\pm}$ are the mole fractions of A at $z = \pm L$.	
656•	Eq 20D.4-2 (denominator in integral)	$\sqrt{t'}$	$\sqrt{t'-t}$
667*	Eq 21.5-22	k'''	k_2'''
669	Fig 21B.3	Fig. 21B.3	Fig. 21B.4
669	Prob 21B.4	Fig. 21B.3	Fig. 21B.4
670	Line 1a	Fig. 21B.3	Fig. 21B.4
670	Prob 21B.4, Ans (a)	Fig. 21B.3	Fig. 21B.4
673	Fig 22.1-4	Remove left half of line with two arrowheads, labeled *r*. Delete arrowhead to right of *r*	
675	Fn 4	R. H. Perry and D. W. Green, 8th edition	R. H. Perry, D. W. Green, and J. O. Maloney, 7th Edition
676	Ht trf Péclet number	$l_0 v_0 \hat{C}_p / k$	$\rho l_0 v_0 \hat{C}_p / k$
677	Eq 22.2-5	$(c_A - 0)$	$(c_{A0} - 0)$

678	Eq 22.2-7	$(c_A - 0)$	$(c_{A0} - 0)$
678#	Eq 22.2-11	$\int_0^x \sqrt{h_z \beta} h_x h_z dx$	$\int_0^x \sqrt{h_z \beta} h_x h_z d\overline{x}$
678#	Eq 22 2-12	$\int_0^x \sqrt{h_z \beta} h_x h_z dx$	$\int_0^x \sqrt{h_z \beta} h_x h_z d\overline{x}$
680	Eqs 22.3-10 & 12	r	$\breve{r}$
680	Eqs 22.3-11 & 13	z	$\breve{z}$
684#	1 line below 22.3-33	22.2-32 and 33	22.3-32 and 33
685	3 lines above 22.3-41	Example 22.2-1	Example 22.3-1
685	l line above 22.3-41	22.3-37	22.3-38
686	Fn 4	Geankopolis	Geankoplis
692	Line 3a	22.3-20	22.4-20
692	Eq 22.4-30	$\int_0^1 \overline{C}_s \xi d\xi$	$\int_0^1 \overline{C}_s \xi^2 d\xi$
692	Eq 22.4-31	c_{A0}	c_0
695	Line 3a	Eq. 20.3-3	Eq. 20C.3-5
696	2 lines above 22.5-10	Eq. 20.1-39	Eq. 20.1-38
702#	3rd line of "Solution"	shown[9] by	shown by
705	2 lines after 22.8-6	22.7-5 and 6	22.8-5 and 6
708	Line 12b	Figures 22.8-6,7, and 8	Figures 22.8-6 and 7
710	Line 3b	$N_A = 0.400$	$N_A = 0.400 \text{lb - mole/hr} \cdot \text{ft}^2$
711#	1 line above 22.8-27	Example 22.3-3	Example 22.3-1
714•	Eq 22.8-46	$-\rho^{(S)} v_\delta$	$\rho^{(S)} v_\delta$
717	Ref 2	**10**	**9**

718	Eq 22.9-11	x_α	$\overset{\vee}{x}_\alpha$
719	Eq 22.9-14	Add a right paren ")" after the entry in the upper left hand corner of the square bracket to the right of the equals sign	
719	1 line below 22.9-15	$J_{\alpha 0}$	$J^*_{\alpha 0}$
719	6 lines before 22.9-17	$r = N_{A0} \big/ N_{B0}$	$r = N_{B0} \big/ N_{A0}$
719	5 lines before 22.9-17	Eq. 21.1-9	Eq. 22.1-10
719	2 lines before 22.9-20	Fig. 22.8-2	Fig. 22.8-6
720	1 line after 22.9-23	$\overset{\vee}{k}\omega$	$\left[\overset{\vee}{\mathbf{k}}_\omega\right]$
723	Eq 22B.3-1	$\left(x_A - x_A\right)$	$\left(x_A - x_{A0}\right)$
726	Line 1a of introduction	laws of the conservation	laws of conservation
727	2 lines after 23.1-1	$-\Delta w_a$	$-\Delta w_\alpha$
738	Fn 1 (§23.3), last line	Table 17-8-1	Table 17.8-1
742	7 lines above Solution	tower height *z*	tower height *Z*
747	Eq 23.5-33	ax_n	αx_n
747	Eq 23.5-36b	α^N	α^{N-1}
753	Fig 23.6-1	W_L (twice)	W_B (twice)
753	Fig 23.6-1, caption	absorber	adsorber
754	2 lines before Eq 23.6-10	Eq. 22.3-3	Eq. 23.1-3
754	Fig 23.6-2	W_L (twice)	W_B (twice)
754	Fig 23.6-2, caption	absorber	adsorber
756	Fn 4	**36**	**37**

757	Eq 23.6-39, second integral	$\int_0^{Q/V}$	$\int_0^{V/Q}$
760	Eq 23B.6-1	D_{n-1} $x_{n-1}D_{n-1}$	D_{n+1} $x_{n+1}D_{n+1}$
762#	2 lines after 23C.4-1	$(T_{h1}-T_{c1})$ and $(T_{h1}-T_{c1})$	$(T_{h1}-T_{c1})$ and $(T_{h2}-T_{c2})$
762	5 lines after 23C.4-1	23.6-27	23.6-25
770	4 lines after 24.2-9 5 lines after 24.2-9 7 lines after 24.2-9	an auxiliary relation the auxiliary relation its auxiliary relation	*N* auxiliary relations the auxiliary relations its auxiliary relations
772	1 line after 24.2-14	23.2-13 and 14	24.2-13 and 14
773	Line 2b	mixing *A-B*	mixture *A-B*
774	Fig 24.3-2, caption	(…(at 25°C)	(…at 25°C)
779	1 line above 24.4-21	$\kappa/R=\tilde{N}$	$R/\kappa=\tilde{N}$
780	Fig 24.4-2 caption	galvonometer	galvanometer
781	Eqs 24.4-26 through 31	All light face italic *N* should be replaced by boldface roman **N** (12 of them)	
781•	Eq 24.4-33	$\gamma_S=\gamma_{M^+}\gamma_{X^-}$	$\gamma_S^2=\gamma_{M^+}\gamma_{X^-}$
781•	Eq 24.4-34	z_α	$\lvert z_\alpha\rvert$
783	Line 2b	electro-osmosis especially	electro-osmosis is especially
783•	Eq 24.4-48	$+\varepsilon$	$-\varepsilon$
783	2 lines above Eq 24.4-43	24.4-38	24.4-40
786	Third equation on page	(25.4-3)	(24.5-3)
786	Eq 24.5-4	$(x_\alpha-x_\beta)$	$(\mathbf{v}_\alpha-\mathbf{v}_\beta)$
786•	Eq 24.5-6	Add a term to the left side of the equation:	

$$\ln\left(a_{\alpha m}/a_{\alpha e}\right)+\ldots$$

788	Line 6a	Problem 24C.8	Problem 24C.9
789	Second equation	(25.5-12)	(24.5-12)
789•	Eq 24.5-14	$P=K_D D_{A,\text{eff}}$	$P=K_D D_{A,\text{eff}}/\delta$
789#	1 line after 24.5-15	${}_{Ae}0$ and ${}_{Ae}\delta$	$Ae0$ and $Ae\delta$
790	Eqs 24.5-16 and 17	All 6 lower case italic v should be changed to bold face lower case roman **v**	
790	Eq 24.5-20	Both cap light face italic *N* should be changed to cap bold face roman **N**	
791	4 lines after 24.5-24	24.5-24	24.5-23
791	1 line above 24.5-25	24.5-23	24.5-20
791•	Eq 24.5-25, 1st term	$N_S\left(\frac{x_W}{c\mathcal{D}_{WS}}-\frac{\phi_S}{c\mathcal{D}'_{SM}}\right)$	$N_S\left(\frac{x_W}{c\mathcal{D}_{SW}}+\frac{\phi_W}{c\mathcal{D}'_{SM}}\right)$
792•	Eq 24.5-29	$\frac{\gamma_{Sm}}{\gamma_{Se}}\left(\frac{c_m}{c_e}\right)^2$	$\left(\frac{\gamma_{Sm}}{\gamma_{Se}}\frac{c_m}{c_e}\right)^2$
792	Eq 24.5-31	$\left(-\frac{z_{M^+}F}{RT}\right)$	$\left(\frac{z_{M^+}F}{RT}\right)$
798•	Eq 24.6-16	$\left(\frac{v_A}{\mathcal{D}'_{AM}}+\frac{v_B}{\mathcal{D}'_{BM}}\right)$	$\left(\frac{x_A v_A}{\mathcal{D}'_{AM}}+\frac{x_B v_B}{\mathcal{D}'_{BM}}\right)$
798	Eqs 24.6-17 and 19	5 light face italic *N* should be bold face roman **N**	
799	Prob 24A.3, line 3	definion	definition
799*	Prob 24B.1, line 2	25.4-51	24.4-50
800#	Problem 24B.6	toruous	tortuous

800	Eq 24B.6-2	$\frac{\pi}{4}\left(1+\frac{1}{8}\pi\right)$	$\frac{\pi}{2}\left(\frac{1}{1+\frac{1}{8}\pi}\right)$
803	Prob 24C.9, line 4	Fig. 24C.8	Fig. 24C.9
803	Figure at bottom of page	Fig. 24C.8	Fig. 24C.9
831#	1st line of Example A.7-1	$(\nabla \cdot v)$	$(\nabla \cdot \mathbf{v})$
831#	1st line of Example A.7-1	∇v	$\nabla \mathbf{v}$
839	Ex 4, line 1	$\nabla^2 v$	$\nabla^2 \mathbf{v}$
839	Ex 4(b), line 2	$[\nabla \cdot \nabla v]$	$[\nabla \cdot \nabla \mathbf{v}]$
845	Eq B.2-4	$\frac{dT}{\partial r}$	$\frac{\partial T}{\partial r}$
849	Eq B.8-3	Bracket on right side should be preceded by a minus sign	
850	Eq B.10-3	Bracket on right side should be preceded by a minus sign	
851	Line 2 of B.11	Both omega and rho should be light face	
851#	Below Table	$\rho \quad \omega_\alpha \quad \mathbf{v} \quad r_\alpha$	$\rho \quad \omega_A \quad \mathbf{v} \quad r_A$
851#	Below Table	$c \quad x_\alpha \quad \mathbf{v}^* \quad R_\alpha - x_\alpha \sum_{\beta=1}^{N} R_\beta$	$c \quad x_A \quad \mathbf{v}^* \quad x_B R_A - x_A R_B$
876*	Line 2b	(12.2-24)	(12.2-24), Prob. 12D.7
879	Bottom 1st column	Geankopolis	Geankoplis
888	3rd column	Froude number, 98, 355	Froude number, 98, 356
892	3rd column	Slot, flow toard	Slot, flow toward