Equation (6) therefore becomes

$$\sum_{i=1}^{n-1} x_i \ln \gamma_i = \int_0^{1/(1+\sum_{i=2}^{n-1} M_i)} \left[\ln \frac{\gamma_1}{\gamma_n} + M_2 \ln \frac{\gamma_2}{\gamma_n} + M_3 \ln \frac{\gamma_3}{\gamma_n} + \cdots M_{n-1} \ln \frac{\gamma_{n-1}}{\gamma_n} \right] dx_1 \quad (8)$$

The consistency test is carried out by the arbitrary selection of a set of parameters and the numerical (or graphical) evaluation of the integral in Equation (8) with activity-coefficient data for the solution of n components utilized. This integral must then be equal to the excess free energy of a solution of $n - 1$ components having the composition

$$x_1 = \frac{1}{1 + \sum_{i=2}^{n-1} M_i}; \quad x_2 = M_2 x_1;$$

$$x_3 = M_3 x_1; \cdots x_{n-1} = M_{n-1} x_1$$

If this equality is met, the data tested are thermodynamically consistent. To cover a large section of the data it will of course be necessary to repeat the calculation several times with new sets of parameters each time. For a system of many components the calculations are necessarily quite tedious. However the form of this consistency test is very well suited for programming on an electronic computer.

NOTATION

ΔG^E = excess free energy
M = parameter defined by Equation (2)
n = number of components in solution
R = gas constant
T = absolute temperature
x = mole fraction in the liquid phase
γ = activity coefficient

Subscript

i = component i
$1,2 \cdots n$ = component $1,2 \cdots n$

LITERATURE CITED

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2. ———, *Research*, **3**, 41 (1950).
3. ———, *J. Appl. Chem.*, **2**, 11 (1952).
4. Redlich, Otto, and A. T. Kister, *Ind. Eng. Chem.*, **40**, 345 (1948).

ERRATA

Vapor-Liquid Equilibria and Heat of Mixing: n-Octane-Ethylbenzene-Cellosolve System. P. S. Murti and Matthew Van Winkle.

Figure 4 of the above paper is in error. The corrected plot is presented below.
This article appeared on page 517 of the December, 1957, issue of the Journal.

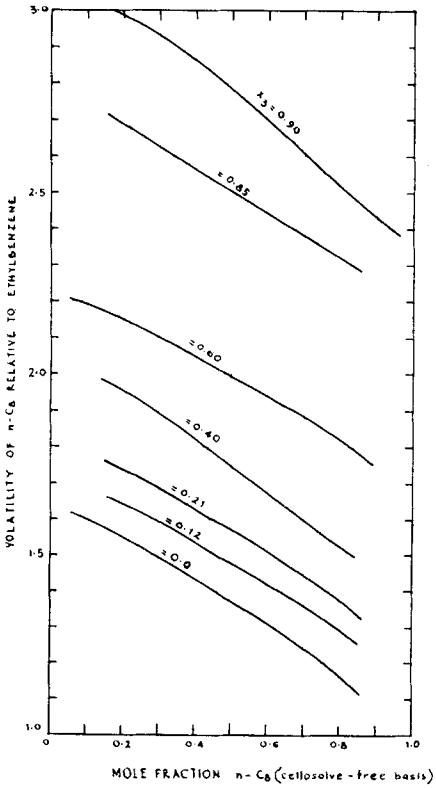

Fig. 4. Relative volatility parameter: mole fraction Cellosolve in ternary mixtures

Liquid-Side Mass Transfer Coefficients in Packed Towers. Kakusaburo Onda, Eizô Sada, and Yasuhiro Murase.

Equation (3) of the above paper is in error. It should read

$$a_w/a_t = 1 - 1.02e^{-0.278(L/a_t\mu)^{0.4}}$$

This article appeared on page 235 of the June, 1959, issue of the Journal.

(*Continued from page 276.*)

Fluid Dynamics and Heat Transfer, James G. Knudsen and Donald L. Katz, McGraw-Hill Book Company, Inc., New York (1958). 576 pages. $12.50.

The need for solving problems concerned with fluid heat transfer has always faced many engineers. In the past, because of the complex nature of fluids in motion, solutions to these problems have been found by an approach which was basically empirical. One illustration of this approach is an early edition of McAdams's comprehensive book "Heat Transmission." However there has been a growing awareness that fluid heat transfer could best be understood by first understanding the

(*Continued on page 98.*)