Reply:

In response to Chen and Speddings communication, "Transition to Annular Flow in Vertical Upward Gas-Liquid Flow," each of the models suggested in our paper "Modelling Flow Pattern Transitions for Steady Upward Gas-Liquid Flow in Vertical Tubes" by Taitel, Bornea and Dukler [*AIChE J*, **26**, 345 (1980)] are subject to refinement and improvement, and suggestions along these lines are welcome. In this case, Chen and Spedding agree with the basic mechanism we propose for this transition, namely, that the gas velocity must be large enough to lift the largest drop. They differ in how to calculate this velocity. In the end, a careful comparison with data provides proof of the pudding!

Chen and Spedding state that their model (Equation 2) gives better agreement with our data than does our model. In fact, this is not quite true. Their Equation 2 gives somewhat better agreement with our data taken in the 5.1 cm diameter pipe, while our model does better with the data from the 2.5 cm diameter pipe.

As to the data from the Hewitt-Roberts report (1969), the comparisons do not seem as clear cut as indicated. If one compares predicted transition velocities with *the data for* air-water (rather than using the empirical correlation), this is the result:

DATA:	>6.2 m/s
Chen and Spedding:	5.0 m/s
Taitel et al:	7.9 m/s.

The data are insufficient to locate the transition curve, and the transition velocity must be *greater* than 6.2 m/sec. A similar comparison with the steam-water data there is as follows:

Data:	2.0 m/s
Chen and Spedding:	1.4 m/s
Taitel et al:	2.2 m/s.

The evidence doesn't seem to support the proposed change in the model, especially if one recognizes that this transition boundary is not a sharp one easy to discern visually.

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ERRATA

In "Effects of London-van der Waals Forces on the Thinning of a Dimpled Liquid Film as a Small Drop or Bubble Approaches a Horizontal Solid Plane," by J. D. Chen and John C. Slattery, [*AIChE J* **28**, 955 (1983)] the first result on page 959 should read:

a) The initial profiles of Figures 2 through 6 are identical, indicating the absence of the effect of the disjoining pressure.

The second sentence under this result should be deleted.

The first sentence of the caption for Figure 11 should read: Comparisons of the predictions of the present theory (R_h = 1.96, B = −0.005, m = 4, C = 5.05, —●—), ...

In "Fine Structure of the CSTR Parameter Space" by V. K. Kwong and T. T. Tsotsis [*AIChE J*., 29, 343 (1983)] the following should appear after the reference to Figure 3 on page 344:

(The types of dynamic behavior shown in Figure 3 are formally correct only if one neglects a normally narrow region of $D\alpha$ numbers around the saddle-point separatrix loop type bifurcation point on the upper steady-state branch, which is often characterized by dynamic behavior—Kwong (1982). Theoretically, however, the saddle-point separatrix loop type bifurcation behavior shown in Fig. 3, as well as in regions IV_C and IV_D of Williams and Calo (1981) and in region IV_A of Uppal, Ray and Poore (1974) is topologically incorrect since the saddle-point separatrix loop is unstable and a stable limit cycle cannot annihilate into an unstable saddle-point separatrix loop. A detailed account of the complex issues and types of bifurcation associated with saddle and saddle-node separatrix loops exceeds the scope of this publication and will be presented in a forthcoming publication.)

The following literature citation should appear on page 347:

Kwong, V. K., "Bifurcation Phenomena in Lumped Parametric Arrhenius Type Reaction Systems with Finite Activation Energies," MS Thesis, University of Southern California, December 1982.