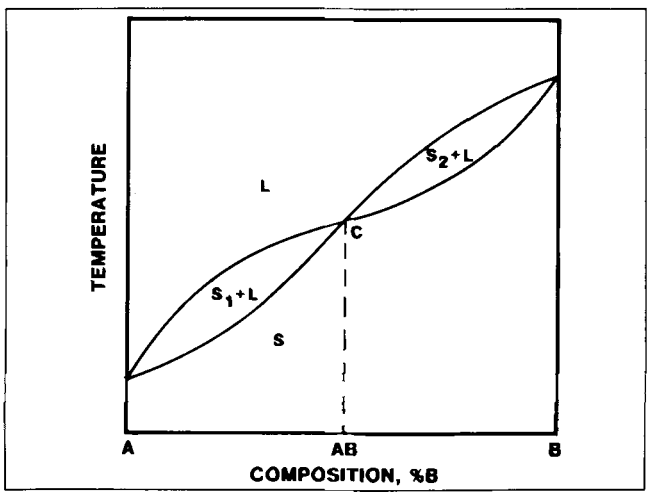
Editor's Corner

• In evaluating phase diagram data from the literature, it is necessary to (1) make judgments about the resolution inherent in the various experimental techniques used by the original investigators, (2) ascertain what degree of equilibrium has been achieved or retained, and (3) be cognizant about the characterization of the materials used, both initially and after processing. These points were emphasized and illustrated in a useful article by Jack Smith [J.F. Smith, "Requisites for Reliable Determination of Phase Equilibria", *Mat. Sci. Eng., 48,* 1 (1981)].

A series of articles is being planned for the *Bulletin of Alloy Phase Diagrams* which will expand on these points, especially stressing the errors in the determination of the phase diagram that can occur due to the limitations of the experimental techniques used. We hope these articles will aid the evaluators in performing their function of assessing the validity of the phase diagram, but we also expect that these articles, as well as emphasis on these same points by the evaluators of the literature data in their published evaluations, will raise the quality of both carrying out and reporting of the original experimental phase diagram determinations.

In this issue of the *Bulletin,* Dr. Robert D. Shull reports on the most basic of the experimental techniques for phase diagram determinations: the preparation of alloy specimens. He addresses the question of purity (both of the starting materials and of the processed specimens), the achievement of homogeneity, and the problem of equilibrium. He gives examples of bad procedures and makes some suggestions for improvements in preparing alloy specimens.

Future issues of the *Bulletin* will contain articles that address other aspects of experimental techniques. Readers are encouraged to comment on any of these articles appearing in the *Bulletin* as well as to prepare articles of their own on any aspect of this broad topic.



• John Cahn called attention to the above figure, purporting to be a binary phase diagram *"when the two components form a homogeneous series of solid solutions, and they also form a compound miscible with either component"*. Without identifying the specific reference, suffice it to say that the diagram is from an otherwise high-quality and widely used textbook of a generation

ago. Most of the very extensive discussion of phase diagrams in this text is valuable and correct. Would any reader like to note the various things that are wrong with this diagram? For further indications of the textbook's intentions, there is included the following footnote:

"It is seen that at the temperature of C the solid solutions of the S_2 type have been converted into those of the S_1 type; hence the justification of the use of the term transition point. The term peritectic point is used, however, to describe a transition of this type where one solid solution changes into another."

To all readers who respond, we will give a copy (until the supply runs out) of *Phase Diagrams of Uranium Alloys* by O.S. Ivanov, T.A. Badaeva, R.M. Sofronova, V.B. Kishenevskii, and N.P. Kushnir, translated from Russian and published for NBS by Amerind Publishing Co., New Delhi (1983).

• Professor Ted Massalski is the Editor-in-Chief for binary alloy systems, but it is in his role as a new Category Editor, for binary gold alloys, that we welcome him to this issue of the *Bulletin.* The Ag-Au system has been evaluated by Prof. Massalski and Dr. Hiroaki Okamoto. Three systems have been contributed by Dr. Joanne Murray (Al-Be, co-authored by Dan Kahan, Al-Zn, and Ti-Cu), and two systems have been evaluated by Prof. Jack Smith (Nb-V, co-authored by O.N. Carlson, and H-Nb). A number of rare earth-rare earth evaluations by Prof. Karl Gschneidner and Dr. F.W. Calderwood (Dy-Y, Er-Sc, Er-Y, Eu-Sc, Eu-Y, Ho-Sc, and Ho-Y) are also included in this issue.

• The establishment of a new repository for unpublished data on alloy phase diagrams was announced in the "Activities" department of the *Bulletin of Alloy Phase Diagrams, 3*(2), 141 (1982). We are pleased to note that two of the evaluations in this issue of the *Bulletin* (Nb-V and H-Nb) include references that are available from the ASM repository.

Larry Bennett

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Editor
Bulletin of Alloy Phase Diagrams