In the development of any field there is a time of reconnaissance followed by a period in which more precise data are sought. In experimental petrology, this time has arrived. If we are to progress to the assignment of more exact conditions of stability in more complex systems, then we must look critically and intelligently at experimental results and methods. The term "equilibrium diagram" should not be used unless it is reasonably justified by both experimental and geological criteria. Where, as has commonly happened, experimental results conflict with inferences based on geological observations, the experimentalist has a special responsibility to scrutinize and state clearly the limitations of his laboratory procedure.

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