UNDERSTANDING PHASE DIAGRAMS

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Understanding PHASE DIAGRAMS

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Preface

My colleagues and I have observed that many students, in particular students of engineering, seem to find great difficulty in understanding the principles of phase diagrams. In consequence, I thought that there could be many students who would appreciate the existence of a monograph on this subject. Normally the student of engineering is only informed about the p — t diagram for water and t — c phase diagrams for binary alloy systems. I believe that phase diagrams will be more readily appreciated if the subject is given some unity and to this end I have chosen to include vapour pressure curves and t — c diagrams for liquid mixtures in this small work. While the book is intended primarily for those following courses in engineering or metallurgy, it is to be hoped that students in other disciplines might find the volume of some interest and value.

Chapter 5, which deals with some specific alloy systems, seeks only to indicate the relationships which exist between phase diagrams, structure and properties, including the existence of metastable phases, for a few major systems. It is not intended that this chapter be a comprehensive review as there are numerous full definitive works available which deal with the properties of alloys.

I would like to thank my colleague, Clive Beesley, for his assistance with manuscript checking, and I am greatly indebted to my wife for her patience and understanding during the gestation period of this work and for converting an often almost illegible manuscript into type.

V. B. John