dealing with transformations in solid gases. Perhaps the last two papers of the conference were the most significant: Weaire and Inglefield dealt with the application of the pseudo-potential approach to phase changes, and Wilkes and Hillel suggested a band structure for G P zone formation. These two papers indicate that the atomic theory approach to phase transformations is going to provide us with an exciting new way of looking at transformations.

Looking back over this conference it is apparent that there is still a lot of effort required before there is a generalised theory of phase transformations and that the important advances in our further understanding are going to depend upon the use of the high voltage electron microscope, with its ability to study "bulk" samples, and the scanning electron microscope to observe the surface changes in bulk samples which occur in a sample undergoing a phase transformation.

At a published price of £6. 0. 0, this monograph represents extremely good value and should be closely studied by all workers who are engaged on any aspect of crystallographic phase transformations.

R. A. FARRAR

Short Notices

Semiconductor Plasma Instabilities

Hans Hartnagel

(Heinemann Educational, 1969) 63*s*

The title of this work is in some ways misleading as its subject matter is concerned with a variety of semiconductor devices and phenomena not customarily associated with the word "plasma". The properties and principles of the operation of transferred electron devices (Gunn and L.S.A.), and avalanche devices are considered along with further forms of instability arising in electro-acoustic materials or other types of semiconductor. Although the treatment is primarily concerned with the physics of the processes involved, the basic physics is given rather scant treatment, making reading difficult for those not already conversant with the subject.

The phenomena discussed are essentially properties of the materials involved and more attention to the materials themselves and their preparation could have been justified. Despite these shortcomings, however, the volume makes a useful contribution to the literature of a field that is at present not well served by textbooks. In particular, the up-to-date bibliography which contains 309 references is extremely valuable.

G.D.S.

Electro-slag Refining

W. E. Duckworth, G. Hoyle

Pp 178 (Chapman and Hall, 1969) 80*s*

The extraction and refining of metals are sometimes considered to be outside the area of knowledge essential to a materials scientist, and certainly to a design engineer, is It certainly true that both of these can have no more than an awareness of such special topics as the one covered by this book, but is it essential that they have some kind of informed awareness; otherwise ignorance or prejudice (such as the false notion that "slag" is a dirty word) will take over. One of the aims of this book is to make the functions and achievements of electro-slag refining more widely known so that materials scientists, metallurgists and engineers become eager and ready to receive the products of this process. The book is written by two senior members of the BISRA team that has made such a big contribution to the development of the process in the UK; it presents the state of world knowledge on this subject as it was in the year 1969.

R.L.B.