use. His invention of the 'monophone' is of importance at the present time as it will relieve the pressure for more channels for broadcasting in the air. He shows how it is possible to send out a number of different 'sound' programmes over the telephone loop circuits emerging from the telephone exchanges. This is accomplished by burying the antenna of the high frequency transmitter in the cable group at the telephone central office in place of erecting it in the usual way. The energy is in this way transferred to the subscribers' loops and conveyed to their homes, where the sound programmes can be reproduced without disturbing in the slightest the ordinary telephone service. We do not like the new words for the radio art which the author gives in an appendix.

The book is nicely got up and printed. Under their motto *sans tache* (without blemish) the printers—the Waverley Press—publish the names of their operators, including those in the Proof Room. The names of several scientific workers, however, are spelt wrongly in various parts of the book.

Genesis of Magmatic Rocks

Igneous Rocks and the Depths of the Earth: containing some Revised Chapters of "Igneous Rocks and their Origin" (1914). By Prof. Reginald Aldworth Daly. Pp. xvi+598. (New York: McGraw-Hill Book Co., Inc.; London: McGraw-Hill Publishing Co., Ltd., 1933.) 30*s.* net.

As pointed out by Teall more than thirty years ago, "The state of advancement of a science must be measured, not by the number of facts collected but by the number of facts co-ordinated". Judged by this standard, there is much to be accomplished before petrogenesis can be ranked as a science, for the majority of the accumulated observations still await co-ordination. This second edition of Prof. Daly's book on the igneous rocks will be welcomed, however, as a notable advance towards this ultimate goal.

The first general statement of the author's "eclectic theory" appeared in "Igneous Rocks and their Origin", published in 1914, and in the preparation of the second edition of the book he has had the benefit both of his own increased experience and of the new facts which have been discovered during the intervening twenty years or so. The recent advances in petrology have necessitated a complete rewriting of the book; many new facts have been incorporated and, although in its broader lines the general theory remains essentially the same, various modifications have been introduced. It is remarkable how many of the hypotheses put forward by Daly in 1914 have come to be the accepted facts of to-day.

Daly believes, and rightly so, that, in the study of igneous processes, the petrologist cannot rely entirely on his own observations but must borrow constantly from the geophysicist and cosmogonist. The origin of magmas lies somewhere in the "mysterious depths", and it is impossible to formulate any theory of the genesis of magmatic rocks without taking into account the physical and chemical state of the earth's interior. His belief in the importance of this cosmical aspect of petrogenesis has led to the modification of the title.

The book is divided into three parts, each complete in itself but together forming an evolutionary sequence in the development of the theory. The first part is devoted entirely to a statement of the facts which call for explanation, and is of great value both to the student and to the research worker. The chapter on the physical properties of rocks is especially valuable in this respect. The general theory is developed in the second part, which deals in considerable detail with certain cosmical aspects of the subject. The necessity of a contracting earth as a necessary condition for abyssal injection is questioned and the author is inclined to ascribe a more important rôle to continental migration.

The distinction between igneous activity in Archean and post-Archean times and the predominant part played by melting and assimilation in the genesis of igneous rocks is the central theme and has been, in great part, justified by recent research.

Part 3 consists of an application of the general theory in the case of the different igneous rock "clans", and is probably more open to dispute than either of the preceding sections. Altogether, there is scarcely a single phase of igneous activity which is not dealt with somewhere in the book and, although petrologists may disagree with many of the conclusions, they require careful consideration. As the author himself points out, any comprehensive work on petrogenesis is only a report of its author's own synthetic thought, and whether the theory is right or wrong this book cannot fail to have a far-reaching influence and stimulating effect on the investigation of igneous petrology.

W. Q. K.