tronic computers accelerates interpretation of new results in many fields of geophysics and permits rapid checking of hypotheses. Total funds available for geophysical research, even after the International Geophysical Year, are many times more than they used to be. New conclusions, many of them about properties of the oceanic crust of the Earth, mount rapidly and many of them are making apparently well-confirmed hypotheses obsolete. We have to consider the possibility that phase changes in silicates are responsible for discontinuities in the Earth which before have been attributed to sudden changes in material. Our hypotheses concerning the source of the Earth's magnetic field are in a state of flux. It has been found that the temperature inside the Earth may be greatly affected by radiation, especially across portions of the Earth's mantle. There are other examples for the fact that, at present, many of our hypotheses concerning the Earth are changing much faster than during any earlier period. Moreover, hypotheses about new fields in geophysics, for example on the outer atmosphere, are added. As a consequence, it is now impossible for one person to be expert over the whole of geophysics, as Jeffreys points out in the preface, and he does not discuss the problems mentioned above.

This rapid progress in geophysics requires that any geophysicist who wants to be up to date must consult new books and publications. Since Jeffreys's "The Earth" is the most used and best accessible book about geophysical problems, it is very gratifying that the fourth edition has been published. Every scientist working with problems which are discussed in the book will have to familiarize himself with the new edition. Among the problems, for which Jeffreys has revised earlier discussions, are some related to non-elastic processes. Unfortunately, many of these, while playing a very important part in geophysics, are still poorly understood even by specialists. Lack of such information affects investigations of the processes connected with body tides, variation of latitude, Love's numbers for the Earth and related problems, etc. Among other sections which have been revised by Jeffreys are those related to the temperature in the Earth and the structure of the upper portion of its mantle. New results concerning both have been published since the new edition was written. The suspected wandering of the Earth's magnetic poles is mentioned in the fourth edition, but in connexion with this and the related problem of continental drift, Jeffreys has still too many doubts about the underlying processes to give details. However, his books are always inspiring, regardless of whether the reader agrees with his conclusions or not. To summarize: study of the fourth edition of "The Earth" is strongly recommended to all scientists investigating problems related to physics of the Earth.

B. Gutenberg

GEMMOLOGY

Gemstones

By G. F. Herbert Smith. Thirteenth edition, revised by F. C. Phillips. Pp. 560+27 plates. (London: Methuen and Co., Ltd., 1958.) 50*s*. net.

HERBERT SMITH'S "Gemstones" has been a standard book of reference on precious stones and a text-book for students of gemmology ever since its first edition appeared in 1912. In its ninth edition, published in 1940, it was considerably enlarged and still further additions were made to the tenth edition in 1949.

In the new edition Dr. Coles Phillips has shortened and simplified the chapters on crystal form and structure and the chapter on optical properties. Chapters on organic products—ivory, tortoise-shell, coral, jet and the resins—have been reduced and a short chapter on the formation of gemstones has been added, and also a very welcome chapter on the polarizing microscope.

An important change in the arrangement is made in that the distinction of precious and semi-precious stones is dropped. Instead of the old arrangement the principal gemstones are described in fifteen chapters and the others are collected in alphabetical order in one long chapter. This chapter contains descriptions of 25 mineral species that provide gemstones of varying merit and scarcity, including two new species discovered as gemstones: painite and taafeite, $MgBeAl_4O_8$. Sinhalite, $MgAlBO_4$, is described under olivine, with which it was confused until about 1957.

The book has been brought up to date wherever necessary and it has been possible to include a brief account of the successful crystallization of diamond in the laboratories of the General Electric Co., Schenectady, New York. Another piece of diamond news, concerning the famous Hope Diamond, was announced perhaps too late for printing in this book. This wonderful blue diamond of 44·4 carats, formerly the property of Mr. Harry Winston of New York, has now been presented by him to the Smithsonian Institution and is displayed in a special case in the newly designed mineral gallery of the National Museum in Washington.

In conclusion it should be added that print, paper and illustrations in this new edition are much improved and both author and publishers are to be congratulated.

W. Campbell Smith

TRENDS IN STATISTICS TEACHING

A First Course in Statistics

By Robert Loveday. Pp. xii+121. (Cambridge: At the University Press, 1958.) 8*s*. 6*d*.

Statistics

An Introduction. By Prof. D. A. S. Fraser. (Wiley Publications in Mathematical Statistics.) Pp. ix+398. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1958.) 54*s*. net.

THE flow of statistical text-books, which some years ago threatened to swell into a flood, has recently dwindled to a trickle; the appearance of two new books almost simultaneously is therefore a matter of some interest. But simultaneity is about the only thing these books have in common. The fact that they are aimed at different classes of students, in Mr. Loveday's case General Certificate of Education ordinary-level candidates, and in Prof. Fraser's case mathematical students in universities, accounts for only part of the difference. The main difference arises from a fundamentally different conception of what statistics is about.

Mr. Loveday is concerned throughout with distributions of empirical data and how to describe them. The concept of probability scarcely enters into the discussion; in the index, for example, the term is not even mentioned. No doubt Mr. Loveday has