As it is, the initiated reader must be amazed at the amount of useful information which has been compressed into 450 small octavo pages. In every branch and sub-branch of mathematics all the fundamental definitions, theorems, and formulæ have been given, sufficient explanation being added to make the whole intelligible to the average mathematician. A similar plan has been adopted for the physical and astronomical parts, numerous tables of constants being given, as well as descriptions of apparatus. At the end of the book is a useful list of mathematical and physical books and periodicals.

We have noticed a few errata, *e.g.* p. 44, the first theorem of the mean is incorrectly stated, and p. 46,

$$\int_0^\infty \frac{\sin bx}{x}\, dx$$

is equal to $\pi/2$ only if $b>0$. These, however, are slight blemishes, inevitable in a first issue. In conclusion, we wish the " Taschenbuch " all the success it undoubtedly deserves.

OUR BOOK SHELF.

An Introduction to the Science of Radio-activity. By C. W. Raffety. Pp. xii+208. (London : Longmans, Green and Co., 1909.) Price 4s. 6d. net.

THE aim of this book is to present a concise and popular account of the properties of the radio-active elements and of the theoretical conceptions which are involved in the study of radio-active phenomena. With this object in view, the treatment throughout is purely descriptive, and no attempt is made to develop the mathematical side of the subject. Nevertheless, the author has succeeded in describing and discussing most clearly the various phenomena of radio-activity.

The book is divided into three parts. The first part is descriptive, and, after a general note on the radio-active elements, is devoted to the consideration of the nature of the various radiations emitted by radio-active bodies. The characteristics of the α, β, and γ radiations are carefully explained.

In the second part of the book the author deals with the subject of radio-active transformations, and describes in detail the various disintegration products produced from thorium, uranium, and radium. Chapter iv. in this section contains an account of the theory of atomic structure from the electron point of view. The evidence drawn from various phenomena shows large variations in the number of electrons associated in the atom. The author gives the numbers calculated from experiments on kathode rays. The third part of the book is devoted to kathode, canal, and X-rays, and gives experimental details which should enable an amateur to carry out successfully a number of experiments with a small amount of apparatus. A feature of the book is the appendix, in which the author has collected and tabulated the physical constants of the α, β, and γ rays, the products of decay of the radio-active elements, with their rates of decay, and the absorption coefficients of the radiations emitted by the radio-active bodies.

Altogether the book can be heartily recommended to mathematical, as well as non-mathematical, readers who desire an acquaintance with the subject of radio-activity.

British Mountain Climbs. By George D. Abraham. Pp. xvi+448. (London : Mills and Boon, Ltd., 1909.) Price 7s. 6d. net.

MR. ABRAHAM here provides the lover of British mountaineering with a conveniently small and concise guide to the British rock-climbs. The climbs are grouped around the most convenient centres, and detailed instructions as to how to perform the various expeditions safely are given. The book is provided with eighteen illustrations and twenty-one outline drawings, showing the principal routes. It is written in a bright, interesting style, and is sure to become a favourite among mountaineers who are willing to learn from it the beauties and difficulties of climbing at home.

The Pond and other Stories. By Carl Ewald. Translated from the Danish by Alexander Teixeira de Mattos. Pp. 320. (London : Everett and Co., 1909.) Price 6s. net.

THIS series of eleven stories deals with animal and plant life in a way dear to children. The birds and beasts talk to one another, and incidentally supply the reader with many familiar facts of nature-study. Each story is provided with a good illustration, and the easy colloquial English of the translator will be understood by the young children for whom the book is evidently intended.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Magnetic Storms.

DR. CHREE contends that magnetic observations have now reached a high pitch of perfection, and that their discussion is not lightly to be undertaken by outsiders. That is no doubt so, and there must be many features about magnetic storms which are known only to experts. But when we find experts in doubt on such a fundamental matter as whether the cause of those storms is to be found in the sun or in the earth, it appears to be worth while to emphasise some comparatively simple and fundamental considerations which may possibly have become rather covered up by a mass of information.

The simple points that I venture to emphasise, with all due deference to specialists, are :—

(1) That by reason of the high temperature and convulsions of the sun it is almost bound to emit electric projectiles.

(2) That when the visible sign of a solar eruption is aimed at the earth, magnetic storms are often felt, while they are not so frequently experienced from eruptions the emissions of which may be reasonably supposed likely to miss the earth.

(3) That, taking into account the varying aspect of places on the earth to a solar beam, such a stream of particles is well qualified to produce changes in all the magnetic elements during the course of a day—even though deflection by magnetic lines, and the effect of currents induced in the conducting layer of the upper atmosphere, were ignored. (I do not say that the details of a storm fit so greatly simplified a theory.)

(4) That a great beam of this kind is not likely to be uniform, but may be supposed to contain rays of special intensity, the passage of which will cause well-marked and rapid reversals, such as are observed.

(Of course, I never thought that the recent storm was over in fifteen minutes ; it was common knowledge that it lasted for hours. I must have expressed myself badly if I conveyed such an idea.)

(5) That detection, in storm-recurrence, of any periodicity which corresponds at all closely with the period of the sun's relative axial rotation—such as is maintained by Mr. Maunder and apparently *half* admitted by Dr. Schuster— would surely be conclusive as to something solar in origin.

(6) And, especially, that simple calculations from known laboratory data show that the magnitude of the effect observed is not unreasonably great to attribute to local solar radio-active emissions.

Hesitation as to the truth of this last proposition was,