

is also a glossary which, like much of the work, needs revision—e.g. "palisade tissue" is defined as the "water-conducting region of plant stems," and "chloroplasts" as "chlorophyll cells." With one of his dicta we heartily agree: "Since ecology and physiology are really complementary, neither can be adequately studied without the other." The volume includes a number of illustrations from photographs, many of which are exceedingly good and very well reproduced.

### An Historical Catalogue of Science.

*Bibliotheca Chemico-mathematica.* Compiled and annotated by H. Z. and H. C. S. Vol. i. Pp. xii+428+plates. Vol. ii. Pp. 535+plates. (London: Henry Sotheran and Co., 1921.) 3l. 3s. net.

THE mental stimulus to be gained by the study of the historical development of science is of much greater value than is sometimes supposed. He who follows, from the first vague beginnings, the efforts of many workers in various lands, leading at length to some great discovery, whether of practical or of theoretical significance, will be apt to ask himself the question: "Could not I also do something to help forward human knowledge?"

In this sale catalogue of more than 17,000 books on mathematics, astronomy, physics, chemistry, engineering, meteorology, and allied subjects there is ample opportunity for anyone to pick out books relating to his own special department. The search is rendered easy by a subject index.

The volumes comprise two catalogues arranged according to authors' names, together with a supplement, and give the date of publication and present price of each book. The whole work is due to Heinrich Zeitlinger, of Linz, and it is said to contain nearly all the standard works on the subjects catalogued, and most of the earlier works of historical importance.

The most striking features of the catalogue are the fascinating illustrations. They are prepared by a photographic process, and give excellent facsimile representations of title-pages, woodcuts, diagrams, and letterpress taken from more than one hundred books celebrated either for their quaintness or for having announced new discoveries of far-reaching importance. Thus there is a reproduction, on a reduced scale, of Galileo's famous proposition that a body starting from rest under uniform acceleration moves distances proportional to the square of the time. This is photographed from the first edition of his "Discorsi e Dimostrazioni Matematiche," published at

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Leyden in 1638. Another facsimile is taken from Huygens's "Traité de la Lumière," published in 1690, in which he deduced the equality of the angles of incidence and reflection from the wave theory of light. There are also beautiful reproductions from Kepler's "Dioptrice," published in 1611. The selected pages discuss the refraction of light and the formation of images by convex lenses.

Some pages from "De Beghinselen der Weeghconst," by Simon Stevinus, of Bruges, published in 1586, contain propositions on the inclined plane (triangle of forces), levers, and laws of floating bodies. Among other curious illustrations, we find an early velocipede from a book by Ovenden, dated 1774, and an early railway train, in which stage coaches, complete with driver, guard with coach-horn, and luggage on the roof, are being drawn by a quaint locomotive with a single rope.

Another illustration shows a very early electric telegraph devised in 1816 by Sir Francis Ronalds. The invention was offered to the Admiralty, but Sir Francis was officially answered that, now the French War was over, telegraphs of any kind were totally unnecessary, and that no other method of signalling than the semaphore then in use would be adopted.

From "Mathematicall Magick," by Bishop Wilkins (1648), are given some illustrations of perpetual motion. As it is obvious that the machines could not work, we wonder whether the Bishop, who was the first secretary to the Royal Society, ever tried the experiments!

These few examples will show that the illustrations are mainly selected to show great discoveries in their early stages.

### Maps and Map-reading.

- (1) *Topographic Maps and Sketch Mapping.* By Prof. J. K. Finch. Pp. xi+175. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1920.) 13s. 6d. net.
  - (2) *Ordnance Survey Maps: Their Meaning and Use. With Descriptions of Typical 1-in. Sheets.* By Dr. Marion I. Newbiggin. Second edition. Pp. 128. (Edinburgh: W. and A. K. Johnston, Ltd.; London: Macmillan and Co., Ltd., 1920.) 2s. net.
  - (3) *Notes on Geological Map-reading.* By A. Harker. Pp. 64. (Cambridge: W. Heffer and Sons, Ltd., 1920.) 3s. 6d. net.
- (1) AS the author states in his preface, this book was the outcome of the demand for instruction in map-reading and field sketching