

Neapolitan earthquake of 1857 (published in 1862). Since then, though methods of studying perceptible earthquakes have been given in various papers, there has been a great want of a more complete treatment of the subject, such as is attempted in this part of Abderhalden's "Handbuch." About two-thirds of it is devoted to microseismic methods, to descriptions of the various instruments employed, and to the interpretation of seismograms. Two useful diagrams (on pp. 2156-57) illustrate the advantage of damping, one showing the similarity of the records of the same earthquake by two damped pendulums (Wiechart and Mainka), the other giving records of the same earthquake by undamped and damped pendulums.

The next section, on the investigation of perceptible earthquakes, is slighter than the other. The author quotes Sieberg's list of questions, the Sieberg and Mercalli-Cancani scales of intensity, and the Sieberg scale of sound-intensity. The questions seem too numerous for general use, the Sieberg scale of intensity contains too many tests for each degree, leading to the irregular construction of isoseismal lines, while a scale of sound-intensity depends on a very variable instrument—the human ear—and can only be of service when the number of observations is very large. In the remaining sections are described very briefly the investigation of submarine earthquakes, of the causes of earthquakes and related subjects (such as periodicity), of the geographical distribution of earthquakes, of microseismic motions, and of the methods of applied seismology. If, in parts, the treatment is somewhat scanty, this is a defect that may easily be remedied in a later edition of a very useful work.

C. D.

*Buried Treasures of Chinese Turkestan: an Account of the Activities and Adventures of the second and third German Turfan Expeditions.* By Prof. Albert von Le Coq. Translated by Anna Barwell. Pp. 180 + 52 plates. (London: George Allen and Unwin, Ltd., 1928.) 18s. net.

PROF. A. VON LE COQ gives a vivid account of two expeditions' to Eastern Turkestan on an archaeological mission from the Berlin Ethnological Museum. After giving a historical survey, the labours and excitements of the expeditions are narrated, and incidentally there are ethnographical observations and descriptions of archaeological remains. At one place the expedition arrived too late to save some remarkable Sassanian-Hellenistic paintings, and cartloads of Manichæan manuscripts had been thrown into the river by peasants; as paintings of persons are an abomination to Moslems, they are usually destroyed whenever found. Another library of priceless manuscripts had been destroyed in the course of time by water. Though there were frequent disappointments, various sites offered a rich harvest of frescoes and other objects which can now be seen in Berlin.

The narrative is illustrated by beautiful photographs of scenery, people, monasteries, rock-temples, and the like, and especially of Hellenistic statuary and wonderful frescoes. A reader desiring

more detailed information than the somewhat slight amount supplied in this book is referred to the large number of publications which are mentioned in an appendix.

*The Great Chemists.* By Dr. Eric John Holmyard. (The Great Scientists Series.) Pp. vi + 138. (London: Methuen and Co., Ltd., 1928.) 3s. 6d. net.

THIS interesting work is essentially a short history of chemistry, written in a very attractive and informative manner. Dr. Holmyard has shown great skill in weaving the story of the 'Divine Art' about the lives and works of outstanding alchemists, chymists, and chemists, as he follows his pleasant path down the ages from ancient times to the present day. Each of the 'great chemists' is chosen as typical of his period, and the names are: Jabir, Razi and Ibn Sina, Roger Bacon, Paracelsus, Boyle, Stahl, Priestley, Lavoisier, Dalton, Avogadro, Davy, Liebig, Kekulé, Pasteur, Arrhenius, Mendeléeff, and Ramsay. Few readers are likely to cavil at this selection, which manifestly fulfils the author's purpose of imparting a sense of historical continuity to his narrative. It is interesting to notice in passing that the list includes five Englishmen and one Scotsman. As would be expected, other names are to be found in the text: the index refers to more than thirty workers in the cause of chemistry, the most notable absentees which occur to us being the enigmatical Basil Valentine and that potential Lavoisier of the seventeenth century—John Mayow. The authoritative chapter on Jabir is to be particularly commended.

J. R.

*Elements of Optics.* By Prof. Joseph Valasek. (General College Physics.) Pp. xiii + 215. (New York: McGraw-Hill Book Co., Inc.; London: McGraw-Hill Publishing Co., Ltd., 1928.) 10s. net.

THIS is an attractive little book on 'light' which would form a good introduction to the subject for those who will not be concerned with technical applications of geometrical optics. The sign convention employed by the author would be very confusing in the treatment of any problems but those of thin lenses, and no attempt is made to discuss more complex optical systems on Gaussian lines, except for a short paragraph on thick lenses. The discussion of aberrations is limited to brief notes on spherical aberration, chromatic aberration, and astigmatism in their geometrical aspects.

Apart from these deficiencies, the chapters on physical optics are well written, and the sections on colour, radiation, double refraction, and the like, bring the older material into co-ordination with modern ideas. The mathematics used is confined to elementary algebra and trigonometry.

In a book on optics which discusses quanta and spectral series, etc., it is a little surprising that some of the results of the electromagnetic theory should not be used to discuss such topics as reflection. Material of this kind should replace the interesting but unnecessary account of 'relativity.'