

oils, benzene and its derivatives, naphthalene, anthracene, and miscellaneous polynuclear compounds. A final chapter deals with apparatus. "The various reactions have been carried through historic sequences from laboratory scale experiments to technical developments wherever possible. When sufficient data were available, industrial practice has been discussed."

The text is fully documented, and there are sixty illustrations. Although modestly described as a monograph, the book partakes rather of the nature of a comprehensive treatise. In producing it, the authors have accomplished a very laborious and useful piece of work, for which they deserve the thanks of the numerous workers in this important field of modern chemistry.

*Handbuch der Geophysik.* Herausgegeben von Prof. Dr. B. Gutenberg. Bd. 2, Lief. 2: *Der geologische Aufbau der Erde.* Von Prof. Dr. A. Born. Pp. v+565-867. 69 gold marks. Bd. 4, Lief. 3: *Erdbebengeographie.* Von Prof. Dr. A. Sieberg. Pp. iv+687-1005. 84 gold marks. Bd. 9, Lief. 1: *Der Aufbau der Atmosphäre,* von Prof. B. Gutenberg; *Die Schallausbreitung in der Atmosphäre,* von Prof. B. Gutenberg; *Wärmehaushalt der Stratosphäre,* Teil 1, von Prof. J. Tichanowski; *Wärmehaushalt der Stratosphäre,* Teil 2, von Dr. R. Mügge. Pp. v+171. 36 gold marks. (Berlin: Gebrüder Borntraeger, 1932.)

IN the first of the recently issued parts of this 'handbook', Prof. A. Born carries out a geological description of the earth as a whole. In the second, Prof. A. Sieberg gives a detailed account of the geography of earthquakes. We learn that Great Britain is a moderately active country seismically; but the Channel Islands seem to have escaped mention. The third deals with the structure of the atmosphere and its heat balance. This is by Profs. Gutenberg, Tichanowski and Mügge. Decent burial is given to geocoronium. Astronomers will, however, have something more to say about the explanation of the zodiacal light as a phenomenon of the upper atmosphere. All the accounts are very thorough.

*Practical Microscopy.* By Prof. L. C. Martin and B. K. Johnson. (Blackie's "Technique" Series.) Pp. vii+116+10 plates. (London, Glasgow and Bombay: Blackie and Son, Ltd., 1931.) 3s. 6d. net.

THE notion underlying this series—evident enough from the general title—is an admirable one, and the volume under review is a most useful addition to the series. The microscopist, in some instances, adopts an attitude towards his instrument not very remote from that of certain car drivers, whose mood of cheerful assurance, so long as all is well, changes to one of very helpless bleating for assistance when difficulties arise. This book is designed to give the microscopist an idea of the constructional details and the potentialities of his instrument, and, without entering into over-fine

detail, the authors have given a very full account of the instrument from the practical point of view. They deal with the subject from most sides, treating, *inter alia*, lens and illumination problems, questions connected with the stand and with mechanical parts generally, the preparation of specimens, polarised light and photomicrography. As one would expect, there is a section dealing with ultra-violet microscopy.

The book is well produced and illustrated, and will be found helpful in a measure much exceeding that to be expected from its very modest price.

A. F.

*Induction Coil Theory and Applications.* By Prof.

E. Taylor Jones. Pp. viii+244. (London: Sir Isaac Pitman and Sons, Ltd., 1932.) 12s. 6d. net.

PROF. JONES gives in this volume an account of the induction coil, which is more descriptive than his "Theory of the Induction Coil" of eleven years ago. The chief departures from a simple action are caused by the distribution of capacity in the secondary circuit, and the decay due to causes other than resistance, namely, eddy currents, hysteresis and leakage. Equations for the primary and secondary voltage and current are thus obtained and it is shown how coupling affects these quantities. The calculated curves are well in accord with those obtained experimentally and throw an important light upon the action of the induction coil. The forms of oscillograph for secondary voltage and primary current are described and a series of excellent oscillograms illustrating the wave forms is given.

A chapter is devoted to the diffraction of electrons by thin films, in which the author's results are described, and the book closes with a valuable chapter on spark ignition.

Admiralty Compass Department. *Admiralty Manual of the Sperry Gyro Compass, 1931.* (B.R. 9.) Pp. viii+136+43 plates. (London: H.M. Stationery Office, 1931.) 4s. 6d. net.

THE first gyro compasses tried in the Royal Navy were those of Anschütz, several being fitted in 1910-11. Two years later, in 1913, Sperry gyro compass outfits were fitted in H.M.S. *St. Vincent* and Submarine *E.I.*, and tests were carried out at the Royal Naval College, Greenwich. As a result of these experiments, during 1914-15 Sperry gyro compasses were supplied to all capital ships, cruisers and the larger submarines, and after the War to all ships. Magnetic compasses are still provided as a useful check on the gyro compasses and for use in the event of electrical failure. To meet the needs of officers navigating ships, in 1925 the "Admiralty Manual of the Gyroscopic Compass" was issued. This has now been cancelled by the publication of the present volume. It is a work of the utmost value to navigating officers, containing as it does a series of chapters on the theory, construction, adjustment and maintenance of gyro compasses, all illustrated by photographs and diagrams.