

the primary basis of anxiety is the sex instinct in some pathological development is likewise a question that may be scientifically approached in an atmosphere free from the dust of prejudice. The barrier that Dr. Wittels accepts as part of the natural order of things must be broken down in the interests of science and medicine as well as of psycho-analysis. M. C.

Our Bookshelf.

Bituminous Substances: Scientific Progress of Practical Importance during the last Fifteen Years. By Dr. Percy Edwin Spielmann. Pp. xvi+206+8 plates. (London: Ernest Benn, Ltd., 1925.) 15s. net.

BITUMINOUS substances are here interpreted as "asphalt" in its varied form and utilisation, but the treatment of the subject is essentially physico-chemical, wherein this volume differs as a text-book from its predecessors.

The complexity of the chemistry of petroleum, more particularly its products of high boiling point and molecular weight, is well known, but the chemistry of asphalt is the least understood of all. For this reason it was a bold effort to compound in a small volume the essence of our knowledge, so far as it has progressed, of the constitution, properties, effects of heat, ageing and solvents, critical physical and chemical tests and behaviour under diverse experimental and practical conditions, of this remarkable substance. From the earliest times (according to the author, 12,000 years ago) there are isolated references to the utilisation of bitumen in the service of man, chiefly as an adhesive material; history further shows that throughout the progress of civilisation, man availed himself of this natural product without in the least understanding its true nature and composition. To-day we recognise extended uses of bitumen, but theory still lags far behind practice, and our knowledge of its chemistry, as indeed our methods of investigating it, are mainly empirical, if not actually arbitrary.

In "Genesis of Petroleum" the author revealed his knack of extracting successfully the pith of published work from many sources (often inaccessible to most people), and of presenting it in the form of a coherent summary of progress; in the present work he does much the same thing, supplementing data thus obtained with results of personal research and that of his former colleagues. One cannot but welcome a book of this description, even though it must be regarded as an interim report and be subject to the limitations of such publications. H. B. M.

Money Scales and Weights. By T. Sheppard and J. F. Musham. Pp. vi+221. (Hull: A. Brown and Sons, Ltd.; London: A. Brown and Sons, Ltd.; Spink and Son, Ltd., 1924.) 10s. 6d.

THE versatile curator of the Hull Museums has collated in this volume the notes on coin scales and weights—mainly with reference to the unique collection in his charge—which have appeared during recent years in the *Numismatic Circular*, together with a few addenda. Mr. Musham has added a descriptive catalogue of the comprehensive series of English coin weights collected

by him and acquired by the Hull Corporation. The result should be of interest to the collector and the antiquary. As a reference work, however, its usefulness would be much enhanced by the addition of a general index and a bibliography and by a careful editorial revision. One would expect the scales to be grouped according to their principles of construction, whereas the *fundamentum divisionis* that has been selected is the structure and decoration of their cases. The descriptions of the various scales are disparate and contain much needless repetition. Dates are sometimes assigned without any apparent evidence; the balance described under No. 151 is given the date 1765, but the patent for it was not granted until 1774. The word "crescentric" is persistently used for "crescentic."

A chat with a practical scale-maker would have facilitated clearer description and obviated, for example, the use of the term "oil-caps" for balance bearings (pp. 75, 79, etc.). The importance of the nature of these bearings does not seem to have been grasped, nor is investigation made as to the probable degree of accuracy with which the instruments may have fulfilled their functions. The illustrations are copious and good, but the explanatory diagram on p. 31 suffers from excessive reduction.

Text-book of Cellulose Chemistry: for Students in Technical Schools and Universities as well as for Cellulose Experts. By Prof. Emil Heuser. Translated from the second German edition by Clarence J. West and Gustavus J. Esselen, Jr. Pp. xi+212. (London: McGraw-Hill Publishing Co., Ltd., 1924.) 12s. 6d. net.

THE literature of the chemistry of cellulose is prodigious in quantity and very variable in quality, and bits of it may be found in anything from treatises on tropical agriculture to the prospectuses and reports of limited liability companies. Attempts have been made to collect it all between one pair of covers, but these have mostly resulted in tomes for reference rather than in books for students. With the development of technical education it has apparently been found necessary to teach students connected with the textile, paper, and other industries something about the chemistry of their common raw material—cellulose—and hence the demand for a text-book such as that under review.

Bearing in mind the extent and character of the literature to be dealt with, Prof. Heuser has been remarkably successful in bringing the data into some sort of order and compressing them into reasonable compass. British chemists will, however, be somewhat surprised to find how small a part the British contribution to knowledge of the chemistry of cellulose, both on the scientific and the technical sides, plays in Prof. Heuser's story. This feature of the book seems to have struck the translators, and in the chapter on the constitution of cellulose they have felt it necessary to insert a note describing some of the very important work on this subject done by Hibbert in the United States and by Irvine and his collaborators in Great Britain. Work on cellulose esters is so voluminous that the author is perhaps not unreasonable in devoting 47 pages to it and only 8 to cellulose ethers, though the latter may be much more important in their bearing on the constitution of cellulose than the former. T. A. H.