

subject—is laid indiscriminately before the reader.

Having said this much, and being forewarned as to these limitations, it is indisputable that the book has many good points, chief of which is that it will be of considerable use to mineralogists, and especially to those of a petrological bent; for chemical crystallography is largely ignored, except as it concerns naturally occurring crystallised substances. Next must come the valuable fact that the book is not only written under the influence of the knowledge acquired during the last seven years by means of X-ray analysis, but also inspired by the presence in the same university of the discoverer of this remarkable method of probing crystal structure. It is also noticeable that certain sections of the book are specially good, chiefly from their novel mode of presentation and illustration. The four pages of drawings of crystals showing their optical properties are of a very original character, and if one were not reminded so forcibly of the wall diagram by their grouping in such closely compacted numbers, the effect would have been more pleasing and the result more striking.

Doubtless the main use for the book will be as an aid to the author's own students, in affording an authentic account of their professor's lectures. The book covers an immense amount of ground, but is, in the main, elementary and superficial, besides being crudely and cheaply illustrated. It is largely redeemed, however, by the many references to X-ray results and by its occasional bursts of originality.

A. E. H. T.

Our Bookshelf.

Penrose's Annual. Vol. xxiii. of The Process Year Book and Review of the Graphic Arts, 1921.
Edited by William Gamble. Pp. xii + 88 + plates.
(London: Percy Lund, Humphries, and Co., Ltd.; Bradford: The Country Press, 1921.)
Price 10s. 6d. net.

THIS is the second issue after the war, and there is evidence that the editor has now been able to resume the high level of quality that he had attained before the publication of these instructive annuals was interrupted by the exigencies of military service. The volume may not be quite so thick as, but it seems to us superior to, last year's in many ways, especially in the quality and variety of its specimens of reproduction. The editor, in his summing up of the year's progress, finds no striking new departure to record, though there is much evidence of progress in many directions. The activity during the year has been rather in laying foundations that may well be expected to lead to future advances than in the realisation of improvements. Rotary photogravure holds its own, and is doubtless firmly established, as in

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the *Times Weekly Edition Illustrated Supplement*, but it appears that the production of the cylinders cannot be ensured within the short time necessary to enable a daily newspaper to be produced entirely by this process. The shortage of skilled labour in the process trade is becoming acute.

Among the several interesting and useful articles is a contribution from Prof. Namias, who finds that bichromated papers (as carbon tissue) may be impregnated with the chromate, and yet remain stable for a very considerable time, if not indefinitely, by using a neutral chromate with a small quantity of an alkali, preferably caustic potash. Such paper does not spontaneously deteriorate. To prepare it for use, the sheets may be hung in a box in which is a small dish containing acetic acid for about half an hour. Obviously other methods of acidification may be adopted. Dr. Reginald S. Clay suggests a method of photography in colour by means of a series of interference units (Newton's rings).

The New Hazell Annual and Almanack for the Year 1921. By Dr. T. A. Ingram. Thirty-sixth year of issue. Pp. lvi + 823. (London: Henry Frowde, Hodder and Stoughton, 1921.)
Price 7s. 6d. net.

WE are always glad to see this useful annual, which is invaluable for reference in many matters. The volume gives the "most recent and authoritative information concerning the British Empire, the nations of the world, and all the important topics of the day." It contains among other details, including interesting astronomical and meteorological data, a useful list of all the scientific and other societies in the United Kingdom, and the names of the holders of the various Nobel prizes from the date of their foundation. There are also many valuable articles dealing with such diverse subjects as the statistics of education in the British Isles and the present state of aviation. A wide field is surveyed, and the positions of all the outstanding points are recorded.

Das Schmerzproblem. By Prof. A. Goldscheider. Pp. iv + 91. (Berlin: Julius Springer, 1920.)
Price 10 marks.

IN this little monograph Prof. Goldscheider, whose earlier researches into cutaneous sense physiology are well known, criticises the evidence relied upon by v. Frey to establish the specificity of the peripheral basis of cutaneous pain. The following sentence expresses sufficiently the author's point of view: "The sensation of pain, therefore, owes its existence to a heightening of irritability produced by the stimulus; unlike other sensations, it is not the simple expression of an excitation due to a peripheral stimulus, but presupposes an increased tonus of the sensory nerve-cell in comparison with the physiological condition" (p. 89).

Many of Prof. Goldscheider's criticisms are interesting, but the value of his book as a contribution to psycho-physiology is greatly diminished by his failure to take account of the recent researches of Dr. Henry Head and the latter's colleagues.