

would still have left those whom he addresses with the impression that they are studying, not the sifted wisdom of the ages, but the opinions of M. Maurice Lecat.

However, the subsidiary claim that he makes may be heartily supported. It is a most entertaining volume to dip into for a few moments to pass the time. If it were only rather handier, and the type a little larger, it would be ideal for the bedside. As it is, perhaps the dentist's waiting-room provides for it the proper sphere of usefulness.

N. R. C.

#### OUR BOOKSHELF.

*Penrose's Annual*. Vol. xxii. of "The Process Year Book." Edited by William Gamble. Pp. x+112+plates. (London: Percy Lund, Humphries, and Co., Ltd., 1920.) Price 10s. 6d. net.

OUR special congratulations are due to the editor and publishers of this ever-welcome annual that, after an interval of three years, they have been able to resume its issue. The editor, as usual, in his "Foreword" reviews the recent advances and the present condition of the reproductive graphic arts. In the circumstances one could scarcely expect anything strikingly new, but we are told that one bright and hopeful feature of the present is that work is now being adequately paid for, and that as a consequence employers are able to give satisfying wages as well as to improve their plants. Photo-lithography is coming more and more into use. Collotype is "coming into its own again, thanks to the absence of German competition." The collotype work now being done in this country is of excellent quality, and probably greater in quantity than ever before. Half-tone and three-colour work stand pretty much where they were before the war, while rotary photogravure is coming increasingly to the front for newspaper and periodical work. It is now quite practicable to print both text and illustrations together by this last process, and there are signs that before very long type-setting may be rendered unnecessary. Two American journals have already been produced without the aid of the compositor. The volume contains articles from the pens of many contributors, and is very rich in illustrations of all kinds.

C. J.

*The Occlusion of Gases by Metals: A General Discussion held by the Faraday Society, November, 1918.* (Reprinted from the Transactions of the Faraday Society, vol. xiv., parts 2 and 3, 1919.) Pp. 93. (London: The Faraday Society, n.d.) Price 8s. 6d.

This volume contains a record of another of the valuable symposia held by the Faraday Society. The subject of the gases retained by solid metals bears on a number of technical processes, so that the papers contributed cover a wide range. Sir Robert Hadfield's introduction gives a useful summary of the knowledge of the gases in iron and

steel, with a bibliography. The theoretical aspects are dealt with by Profs. Porter and McBain, the well-known case of the absorption of hydrogen by palladium receiving attention, whilst Dr. McCance's paper on balanced reactions in steel manufacture discusses the question of the equilibrium in the steel furnace which determine the proportions of the various gases which will be in contact with the metal at the time of tapping. The view that the amorphous phase in solid metals is responsible for much of the dissolved gas is maintained by several of the contributors, but no evidence is adduced to prove that gases are insoluble in crystals of pure metals. The fact that the solubility of gases in molten metals increases with the temperature has often seemed remarkable, but Prof. Wilsmore points out that this is probably the normal behaviour, water being exceptional in its diminished solvent power for gases with increasing temperature. The discussion contains much that is of interest both to metallurgists and to physical chemists.

C. H. D.

*Examples in Heat and Heat Engines.* By T. Peel. Pp. iii+104. (Cambridge: At the University Press, 1919.) Price 5s. net.

THE working of exercises forms a very important part of the course work of an engineering student. Many of the exercises required for the purpose of elucidating the subject of heat and heat engines can easily be made up; on the other hand, there are many important facts which can be illustrated only by exercises containing as data observations made during experiments. Teachers and students will welcome the book before us, because, among numerous other exercises, there is a large number giving experimental data on steam, gas, and oil engines, steam boilers and turbines, refrigerators, and calorimetric work. It is true that the best data for exercise working are those obtained by the student in experiments carried out by himself. Since most heat and heat-engine tests take a rather long time to carry out, the amount of information thus accumulated in the case of any one student can have only a limited scope, and the excellent exercises contained in the book will make a very useful supplement.

*The Hill of Vision: A Forecast of the Great War and of Social Revolution with the Coming of the New Race. Gathered from Automatic Writings obtained between 1909 and 1912, and also, in 1918, through the Hand of John Alleyne under the Supervision of the Author.* By Frederick Bligh Bond. Pp. xxv+134. (London: Constable and Co., 1919.) Price 7s. 6d. net.

THIS book is a sequel to "The Gate of Remembrance," which contained an account of the automatic script giving instructions for excavations in Glastonbury. The further script now published deals with the war and after, but it cannot be said that the correspondences and verifications of predictions pointed out are particularly striking or convincing.