OUR BOOK SHELF.

Penrose's Pictorial Annual. The Process Year Book for 1906–7. Edited by William Gamble. (London: A. W. Penrose and Co., Ltd., n.d.)

THIS valuable and beautifully got-up volume surpasses, if possible, its predecessors. In the last few years the colour process has been rapidly coming to the front, and the present issue of this annual gives the reader an excellent insight into the good quality of the results which may be secured by the best processes of the day. The editor's task has evidently been no light one to include in this volume the wealth of material that is available, but the reader will be more than satisfied when he peruses it himself.

The arrangement of the book is the same as in former years. A most interesting series of articles dealing with process work and allied subjects is contributed, and the names of the authors are a sufficient guarantee for them. Thus, to mention only one or two cases, the editor gives a brief but clear account of the recent progress in process work, while Major-General Waterhouse describes the work of M. Léon Vidal, who, as he says, was a man who "fully recognised the educational value of photography," and who did much for its development, especially in the direction of photomechanical work, and the practical application of permanent printing processes for book illustration. M. Vidal's last contribution to this annual is contained in the present volume, and is entitled "The Future of Colour Photography when Autochrome Plates come into General Use."

Turning from the text to the illustrations, we have here also much food for thought. The frontispiece is an admirable engraving of Charles I. by the Rembrandt Intaglio Printing Co., Ltd. Of the numerous three- or four-coloured illustrations, mention may be made of those opposite p. 8, entitled "Still Life," by Messrs. John Swain and Son Ltd.; opposite p. 128, entitled "Dessert," by Messrs. H. Kollien and Co.; and following p. 136, entitled "Mimosa Blossom," by Messrs. Hood and Co., Ltd.

Einführung in die mikroskopische Analyse der Drogenpulver. By Dr. L. Koch. Pp. viii+174. (Berlin: Gebrüder Borntraeger, 1906.) Price 4 marks.

THE microscopical examination of drugs for the purpose of gaining an accurate knowledge of their constitution and of learning to detect impurities and adulterations is now recognised as a necessary part of the usual courses for pharmaceutical students, and as many chemists endeavour to acquire part of their knowledge during the term of their apprenticeship, they require books of this nature to help them in their independent studies.

Dr. Koch has prepared this elementary manual as an introduction to the specialised vegetable histology that affords the principal means of distinguishing pharmaceutical products with the aid of the microscope. A few examples of well-known drugs selected as specimens of bark, seed, and other plant products are described in detail, and the elements are figured. The instructions are so minute and thorough that a student using the book intelligently should soon become proficient in histological determination. The chapter on methods is not, however, so complete as would be expected. Although powdered preparations are generally used for investigations, it is at least desirable that the student in his training should become efficient in section-cutting. Further, a more extensive account of reagents would be helpful, for while agreeing with the substitution of chloral hydrate in place of potash, there seems no reason for leaving out potash altogether, or sulphuric acid and several other recognised testing solutions.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.]*

An Occurrence of Helium in the Absence of Radio-activity.

I MENTIONED in NATURE a few weeks ago (January 17, p. 271) that I was engaged in examining the inert gases contained in ordinary (inactive) minerals. A result has been obtained so surprising that it seems worthy of immediate record. I have found that beryl contains a quantity of helium of quite a different order of magnitude from what is found in ordinary inactive minerals. Thus 250 grams of beryl from New Hampshire gave 4·2 c.c. of helium on heating. The mineral appears to be absolutely without radio-activity. A tray of the powder, placed in the case of an electroscope of exceptionally small natural leak, did not increase that leak to any measurable extent.

It seems likely that we have here a case of rayless change. In all probability beryllium is the constituent of beryl which is concerned. It is hoped to test this view further by the comparison of different minerals.

R. J. STRUTT.

Sunnyside, Cambridge, February 19.

The Rusting of Iron.

SEVERAL letters have appeared in NATURE respecting the conditions under which iron rusts. The usually accepted view has been that iron will not rust unless carbonic acid is present. After a very careful investigation of the subject, I was led to the conclusion that provided iron, oxygen, and liquid water are brought together, chemical change takes place with the production of rust, even when every precaution has been taken to exclude even traces of carbonic acid, and that therefore some other explanation must be found for the fact that alkalis inhibit the rusting of iron. An explanation has also to be found for the fact, established in the course of this investigation, that if polished iron is immersed in a solution of potassium dichromate, rusting is completely inhibited, and the surface of the metal remains perfectly bright (Dunstan, Jowett, and Goulding, Journ. Chem. Soc., 1905).

Dr. Gerald T. Moody has recently given (Journ. Chem. Soc., 1906) an account of experiments he has made, from which he concludes that carbonic acid is essential to the rusting of iron, and that rusting does not occur in its absence.

As these experiments were made under somewhat different conditions from mine, they have been repeated. The results obtained are, however, not confirmatory of the conclusion that carbonic acid is essential to the rusting of iron.

This apparently simple chemical change requires additional experimental study, and I hope shortly to be able to make some further contribution to the subject.

February 19. WYNDHAM R. DUNSTAN.

Ionisation and Anomalous Dispersion.

THE experiment recently described in a letter in NATURE by Dr. Schott (January 17, p. 271) does not appear to me to have any very direct bearing upon ionisation. There appears to be no question but that the changes observed in the dispersion curve were due to an alteration in the optical density gradient of the sodium vapour, resulting from local heating by the wire. The experiment is very similar to one which I made two years or more ago, during an examination of the physical properties of the vapour. A wire was stretched through the tube, along its axis, and heated by a current. The vapour was observed to be much less dense around the heated wire. The observations were made by looking through the tube either at a sodium flame, or a lamp behind bluish-green glass (for which light the vapour was very opaque). On heating the wire a clear space appeared around it. If I remember rightly, I never published this result, as the experiment was one of a series which has not, even yet, been completed.

In a sodium dispersion tube the density of the vapour