

or pleasure, and desire to have some knowledge of the principles underlying the design and working of the particular machines they employ. The steam turbine has been rather inadequately treated in comparison with the reciprocating steam engine, but perhaps this was inevitable in a book of this nature, as the latter is still practically unchallenged by its younger rival in many branches of work in which motive power is required.

This is a book which will probably stimulate many of its readers to widen their knowledge of the problems concerned with the generation of energy, and to devote themselves to a systematic study of the subject, and, if it fulfils this, it will have done useful work.
T. H. B.

Photomicrographs of Botanical Studies. Pp. 62. (Manchester: Flatters, Milborne and McKechnie, Ltd., n.d.) Price 2s. net.

THIS booklet contains about a hundred plates, which are photographic reproductions from the microscopical slides offered by the firm above-mentioned for the use of botanical students. The chief impression conveyed by the figures is the limitation imposed upon good microscopical preparations when referred to one focal plane as necessitated by photography. While the value of good slides for demonstration and examination by students is appreciable, one cannot attach much importance to figures which are primarily indices and convey in many cases only a portion of the information that can be derived from the preparations.

Illustrated Guide to the Museum of the Royal College of Surgeons, England. Pp. vi+132. By Prof. Arthur Keith. (London: Issued by order of the Council of the College, and sold by Taylor and Francis, 1910.) Price 6d.

FEW even of those who constantly make use of the College of Surgeons' Museum can be aware of the vast wealth of material stored there. For it contains not only the greatest anatomical collection in existence, representative of everything included under the term "anatomy" in its widest sense; but it also includes a unique pathological museum, and collections illustrating anthropology, teratology, odontology, and the anatomy of animals and plants, each of which, if standing alone, would make a famous museum. Nor does this exhaust its claims on our interest, for in it is housed the famous collection made by John Hunter, innumerable anatomical and pathological preparations that have served as material for the master-builders of the sciences of anatomy and pathology, and specimens illustrating the history of all that relates to the preservation of dead bodies (starting from the earliest known mummy), the evolution of surgical and dental instruments, and the manifold curiosities of medical science which at various times engaged the attention of the ever-inquisitive Hunter.

The council of the college has earned the gratitude of a very wide circle of students in issuing this "guide," which admirably serves its purpose of indicating what the museum contains and where the various specimens are to be found, and Prof. Keith deserves our heartiest congratulations on the manner in which he has accomplished his task. For he has done something more than merely direct the reader in his wanderings through the vast storehouse of treasures in his charge; out of the abundance of his knowledge and erudition he has crammed a vast amount of interesting and suggestive information into this small volume.

This is only one, and by no means the least, of the many great services which have already marked Dr. Keith's conservatorship of the college museum.

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The Photographic Annual, 1910-11, Incorporating the Figures, Facts, and Formulae of Photography. A Guide to their Practical Use. Edited by E. J. Wall. Sixth edition; extended, largely re-written, and revised. Pp. viii+287. (London: G. Routledge and Sons, Ltd.; Dawbarn and Ward, Ltd.; New York: Tennant and Ward; Melbourne: Baker and Rouse Proprietary, Ltd., 1910.) Price 1s. net.

EVERY photographer knows the value and utility of this annual issue, and that this is the sixth issue is sufficient testimony to its merits. There is no doubt that, in preparing such a work as this, and to keep the volume within a reasonable size, great difficulty must be experienced in determining what information to include or omit. The editor has used his discretion wisely, with the result that the present issue should meet with general approval among photographers.

The importance and recent advances made in screen-plate colour-photography is sufficient reason for the first forty pages being devoted to this subject, and here the reader will find a capital *résumé* of the state of affairs up to the present time. Stereoscopic work is next dealt with, and in the twenty-seven pages in which this subject is treated many useful hints will be found. Nearly the same amount of space is confined to some useful notes on development, including time, tank, and thermo methods. Practically the remainder of the book is taken up by the figures, facts, and formulæ, which always form the chief feature of this book.

Being well up-to-date and in a handy form the book should continue its useful career.

LETTERS TO THE EDITOR.

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The Ratio between Uranium and Radium in Minerals.

IN his interesting letter (NATURE, August 25) Mr. A. S. Russell describes the result of a determination of the amount of radium in a specimen of autunite from Autun, France, made by him in Prof. Marckwald's laboratory, which he found to be only 27 per cent. of the equilibrium amount. The ratio found by Mlle. Gleditsch in Mme. Curie's laboratory for the same mineral was 80 per cent., while Miss Pirret and I recently, for an autunite from Guarda, Portugal, found 44 per cent. Some results I have obtained since the paper with Miss Pirret was published appear to put a new complexion on the matter. Dual measurements of the radium ratio and of the helium content of several specimens of Portuguese autunite have shown that both vary considerably for different specimens of the same mineral. Prof. Piutti ("Helium in Recent Minerals," *Le Radium*, 1910, vii., 178) found that autunite was the only radio-active mineral in which helium could not be detected.

With a very delicate method, similar to that described for the detection of the helium produced from uranium and thorium (*Phil. Mag.*, August, 1908), I have only failed to find helium in one specimen of autunite, while in another the amount was such that Prof. Piutti would have detected it easily. The latter case refers to the specimen for which Miss Pirret and I found 44 per cent. for the radium ratio. The amount of helium was 3.3 cu. mm. per gram of uranium. On the assumptions, which certainly are not true but may not lead to an entirely false result, that the uranium was initially free from all products, and these have been all retained by the mineral, the age of the mineral would be 77,000 years and the period of average life of the parent of radium 132,000 years. The material was, however, not a single piece, a batch of