

hints in picture form of "how to do it," being a useful set of wrinkles for the beginner.

Space does not allow us to do more than name such useful items as the year's progress, working formulæ, tables of various kinds, &c., as are brought together in this storehouse of photographic information. Excellent indices make it quite easy to find anything contained in the volume, and the usual price of one shilling makes the issue available to everyone.

(2) The second book has for its object the presentation of a selection of articles on current photographic topics combined with reproductions of numerous specimens of photographic work.

The editor evidently had a very large amount of material to handle, and his selection contained in this volume should meet the requirements of most photographers. The list of contributors is quite large, and the subjects dealt with exceedingly varied, so that the volume forms a series of short essays on many very useful hints in different branches of the subject. The illustrations are good throughout, and the frontispiece is a fine reproduction on buff linen. The last portion of the book is devoted to a typical collection of formulæ and tables selected from the working methods of practical photographers.

#### OUR BOOKSHELF.

*Studies in Light Production.* By Dr. R. A. Houston. Pp. iii+115. (*The Electrician Series.*) (London: *The Electrician Printing and Publishing Co., Ltd.*, n.d.) Price 5s. net.

THE publication in one volume of Dr. Houston's papers on artificial illumination will be welcomed by all those interested in that subject. The collection consists of ten chapters which have appeared in *The Electrician*, together with two others. It may at once be said that the contents are not only extremely interesting, but will also serve as a useful and important handbook for lighting engineers.

The intention of the author has been to collect information respecting the various illuminants at present in use for purposes of comparison and with the view of suggesting the lines upon which future progress may be made. Thus we find following the first two chapters (which are devoted to the consideration of the energy spectrum and the black body) a chapter on each of the following light sources: flames, the Welsbach mantle, the carbon glow-lamp, the arc, the Nernst lamp, metallic filament lamps, and the mercury arc. Comparisons of the luminous and radiant efficiencies are given, showing how great improvements in these have been made in recent years. In chapter x. the author discusses the question of the light of the future particularly with reference to the possible use of vacuum tubes containing nitrogen, or, according to Claude, neon by preference. Some very striking figures are given which certainly seem to indicate the probability of great

saving of energy by this mode of lighting. Attention is also given to fluorescence, and, although the author advises caution in this case, this also may some day be used.

Chapter xi. is a reproduction of Dr. Houston's Royal Society paper on the absolute measurement of light, the proposal being to measure light by means of a thermopile which receives the energy surviving the passage through a suitable filter, i.e. one which cuts off the infrared and ultraviolet and is transparent to the various luminous radiations in proportion to their visibilities. Since, however, the data required for this can only be obtained by visual observation, this light measurer is not really independent of the human eye, and therefore scarcely surmounts the colour difficulties experienced in ordinary photometric measurements.

*Modern Mine Valuation.* By M. Howard Burnham. Pp. xi+160. (London: Charles Griffin and Co., Ltd., 1912.) Price 10s. 6d. net. (Griffin's Mining Series.)

IN this book the author discusses the fundamentals of mine valuation—a subject too seldom ventilated and too little introduced into the training of mining engineers.

The subject is treated mathematically. The less secure an investment, the greater the interest required; the less an ore-body is disclosed, the greater the insecurity and the greater the interest demanded. According to the author, every occurrence of ore, whether it be but an outcrop untouched or whether it be an underground block honeycombed with exposures, may, by the application of a "risk rate" especially applicable to its condition, be valued mathematically and logically. The descriptions of "positive," "probable," and "possible," as applied to statements of ore-reserve, disappear by this method; each block becomes rated at a present value corresponding to the rate of interest demanded by its sufficiency or insufficiency of exposure. Into this calculation, also, deferment is entered until the mathematical formulæ will overwhelm the mining engineer who took to mining under the idea that observation was the one important faculty to cultivate.

The procedure in calculating the results of sampling is also carefully discussed, and towards the end many useful tables of present values, at various rates of interest, are given. Most of the first portion of this book appeared in *The Mining Magazine* late last year, when its value was increased by the discussion forthcoming from various engineers.

Although some of the views expressed and the novel mathematical treatment may not command entire agreement from his colleagues, they are all assured that his work can only result in putting the purchase and sale of mines upon a more logical footing. A careful reading of this book, though it may be hard to many, will be of interest and benefit to mining engineers generally, each of whom, at some time or another, will find application for some of the points elaborated.

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