

The book is provided with a large number of blocks in the text, nearly all maps, in which, with very few exceptions, but one method of representing relief is adopted—that of shaded areas bounded by contour lines. The method is valuable for some purposes, but as a means of representing the form of the ground is, in most cases, inferior to the much abused “caterpillar” method of delineation, and frequently conveys a misleading impression. The figure intended to represent the lower Brahmaputra valley and Gangetic delta is an instance of this, while that intended to represent the orography of the Hindu Kush looks more like an ink-maker’s advertisement. In the coloured maps the complete absence of hill shading gives to the Thibetan plateau an air of flatness which it is far from possessing in reality, yet it would be unfair to conclude this notice without a word in their praise. Mr. Bartholomew has accustomed us to a high standard of workmanship, but his map of India, reproduced in this book, has seldom been equalled for intricacy and accuracy of colour printing, and for success in showing the leading features of the relief of the land.

PHYSICAL AND PHYSIOLOGICAL ASPECTS OF LIGHT.

Light Energy; its Physics, Physiological Action, and Therapeutics. By Margaret A. Cleaves, M.D. Pp. xiv+827. (London: Rebman, Ltd., 1904.) Price 21s. net.

WHILE this book is written primarily to further our knowledge of the properties and uses of that form of energy called light, in the treatment of disease, yet it will be found of great interest to those whose study is mainly confined to the purely physical aspects of light phenomena. The subject is treated from the modern view of energy in the form of waves of a certain length and direction, but at the same time the emission theory is not entirely ignored on account of the peculiar behaviour of some of the recently discovered radio-active substances, notably radium. About 130 pages are devoted to a description of the various kinds of rays, their origin and physical properties. The part dealing with the electric arc is very complete and clear, and embraces all one could wish to know to ensure an intelligent application of the arc lamp in the treatment of disease.

Following this is a series of chapters dealing with the action of light on the various forms of life, from the most elementary to the highly complex human subject. In this section the action of light from both natural and artificial sources is treated very thoroughly. It is quite evident that the author has devoted herself to a large amount of painstaking experiment, the valuable results of which are recorded in the present volume. According to her, the mercury vapour lamp has not justified the expectations regarding it as a therapeutic agent.

The second half of the book is taken up with the therapeutic applications of the various forms of light. This part will be of special interest to medical men, especially those who are engaged in this line of work.

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Sun, arc, and incandescent light baths are treated most fully, together with their use in those diseases in which the author has found them respectively useful. The indications are, in every instance, based on spectroscopic analysis, and full details of the proper technique are given for every variety of application. Several forms of bath cabinet are described, as well as arc and other lamps for local treatment with concentrated light.

While the author is rather emphatic on the necessity for employing lamps of large amperage—quantity being as essential as quality—yet she speaks highly of certain small lamps the efficiency of which was such as to necessitate their replacement by lamps of greater power in the light department of the London Hospital. The reason for this praise is seen, later on, to be related to the comparative cost of the lamps—the smaller being sold and maintained at a fraction of the cost of the Finsen, and their efficiency is at least in proportion to this cost. According to the author, the great advantage of a lamp of high amperage, like the Finsen, is that we get not only the short and high frequencies of intense chemical activity, but also the frequencies of long wave-lengths having great amplitude and penetrability—a combination which is essential to ensure the best success. In the smaller lamps these long wave-lengths of great amplitude are not present in such abundance because of the lesser amperage and smaller carbons. The results which the author has obtained in many diseases not generally subjected to light treatment will come as a surprise to those who have not kept closely in touch with modern light therapeutics.

The applications of the various coloured lights, as also those of the invisible spectrum rays, are fully discussed. A short chapter is given to the consideration of *n*-Rays and one to the Alpha, Beta, and Gamma rays of radio-active substances, their physical properties, actions, and therapeutic uses. An interesting chapter is that on fluorescence, fluorescent stimulation, and sensitisation of tissues, and the book closes with a chapter on the pernicious effect of sunlight and the pathological effects of electric lighting. The book can be confidently recommended. It will be found of great interest to most students of natural science.

REGINALD MORTON.

A BOOK ON INK.

Inks: their Composition and Manufacture. By C. Ainsworth Mitchell, B.A. (Oxon.), F.I.C., and T. C. Hepworth. Pp. xiv+251; with 46 illustrations, including 4 plates. (London: Chas. Griffin and Co., Ltd., 1904.) Price 7s. 6d. net.

LITERA scripta manet; but the permanence of the writing depends upon the quality of the ink. Certain papyri of ancient Egypt, now deposited in the British Museum, contain the earliest ink-written records so far brought to light. A roll dating from 2500 B.C. still bears decipherable characters, and fragments of papyri have been found by Prof. Flinders Petrie in a tomb to which the date 3500 B.C. is ascribed. If the origin of the use of ink is lost in antiquity, at