p. 38 we read, "The influence of sea air in causing anæmia is apparent on many parts of the coast," and on p. 47, "It may be stated that the infrequency of anæmia in the local inhabitants is no doubt due to their proximity to the Atlantic."

To instance the difficulty, which frequently presents itself, of arriving at just conclusions from the statistical information acquired by the committee, let us ask ourselves what inference may justly be drawn when the phthisis rate is high in certain health resorts. It is very properly pointed out that much of this excess is doubtless due to phthisical immigrants to a spot which is known to be congenial to phthisical patients. Quite true! But if we cannot ascertain *to what extent* the rate is influenced by phthisical immigration, how is one to know whether the local conditions, *per se*, are favourable or not to the disease in question? It is conceivable, in this relation, that certain limited areas of England with comparatively mild and equitable climates have now a native population strongly predisposed to phthisis, from the fact that their ancestors were originally phthisical immigrants attracted to the spot; so that even if it were practicable that the vital statistics of visitors could be separately compiled, the local and climatic advantages or disadvantages of the area in respect of this disease could never be put upon a scientific basis from vital returns alone. It is well known, moreover, that deductions drawn from meteorological data on the score of the suitability of the various areas for the residence of those suffering from different diseases, must be made with many reservations, that the subject does not admit of generalisations; for, *inter alia*, the suitability of the climates of certain health resorts for different patients is governed to such an extent by that wonderful personal factor that makes the same spot bracing to one and relaxing to another, benevolent to a certain disease in one and malignant to that disease in another, that frequently the individual can only arrive at the conclusion as to which area suits him best by an actual personal experiment. And thus it comes about that perhaps, after all, the surest lines upon which a physician can act, are in the main empirical as to his patient. We have lived long enough in these islands to know by experience which are the warmest, driest, and most sheltered spots, which are the dampest, and which are the most bracing and relaxing, and it is quite a question whether meteorological data will help the physician much farther. He will generally select for his patient what has been proved by the experience of many generations to be a congenial site, and nothing short of a cautious experiment with the patient himself will suffice to tell him which of several alternative sites suits his patient best; but to this end the experiences and views of other practising physicians would be of immense value, and one is tempted to ask whether a work embodying and summarising as many as possible of these experiences would not serve even a more useful purpose than the first 500 pages of this book.

The chapters dealing with the medicinal waters of Great Britain are well written, useful, concise and impartial.

The committee hopes to deal in a further report with the climatology of the remaining districts, and with those mineral springs which are not included in the present volume.

OUR BOOK SHELF.

Abbrégé de la Théorie des Fonctions Elliptiques. Par Charles Henry. 124 pp. (Paris: Nony, 1895.)

AN introductory course of elliptic functions, intended for those who have a fair acquaintance with integral calculus, should consist of three stages. In the first stage the subject would be approached as a development of integral calculus, the addition theorem and periodicity obtained, and a large number of applications made to problems whose solutions can be expressed in the notation of elliptic functions. Difficulties of the multiple interpretation of the square roots of variable functions would be pointed out, and left. In the second stage an elementary introduction to the modern descriptive theory of functions of a complex variable would be furnished, containing a fairly full account of the theory of doubly periodic functions, illustrated at every stage by examples from the functions whose existence has been foreshadowed in the first stage. The third stage would be a systematic development of the elliptic functions, with the help of the elementary theory of functions, finishing, not beginning, with the differential equation and the applications to integral calculus. Such a course would require at least twenty-five hour-lectures, and the unfamiliar character of the second and third stages would make a careful revision necessary.

The present little volume is concerned with the third stage; on the whole, there can be no doubt that it is the most suitable handbook which has yet appeared for the use of teachers engaged in such a course as sketched above. The elliptic functions are obtained by the infinite double series for $\wp(u)$; and certainly the idea is the right one, though it is easier to begin with the series for $\wp'(u)$. The differential equation is hence obtained, and the following chapter attempts to establish the functions on that basis. It seems preferable that this should be postponed, and treated only by Riemann's methods. Chapters iii. and iv. introduce the functions ζu and σu , as is quite proper; but it would seem much better that the addition equation, obtained in chapter v., should be obtained independently of the σ functions, and by Abel's method, with the help of a plane cubic curve. The functions $\sigma_1(u)$, $\sigma_2(u)$, $\sigma_3(u)$, are then obtained, and hence it is proved that the functions $\sqrt{\wp u - e_1}, \dots$ are single-valued functions of u . It is a distinct step in the right direction to make the statement that these functions $\sqrt{\wp u - e_1}, \dots$ are single-valued; but the fact ought to be obtained before, and independently of, the investigation of their actual values. The same remark holds in regard to the functions $cn u$, $dn u$; if $x = sn u$, it ought to be shown that $\sqrt{1-x^2}$ is single-valued before its actual value is obtained, and the remark emphasised by proving that such a function as $\sqrt{(1-sn u)(1-k sn u)}$ is equally a single-valued function of u . The fact, which is obtained, that all doubly periodic functions are rationally expressible by $\wp u$ and $\wp' u$, ought to be compared with the fact that all doubly periodic functions are rationally expressible by $sn u$ and $cn u dn u$; and it ought to be clearly seen that when we are dealing with Jacobi's functions, $cn u$ is no more a function of the same kind as $sn u$ than is $\sqrt{\wp u - e_1}$ of the same kind as $\wp u$ when we are dealing with Weierstrass's functions. In these two cases respectively, $cn u$ and $\sqrt{\wp u - e_1}$ are *factorial* functions, which ought to be carefully distinguished from the two fundamental functions whereby the algebraical irrationality under consideration is resolved.

With these criticisms, and the remark that the accounts of the transformation and of Jacobi's θ functions are not so full as one desires, we may conclude, strongly recommending all who desire a useful class book, to which, however, many explanations and illustrative examples must be supplied, to adopt the book. H. F. BAKER.