

*seiches* are not always associated, for in some cases the former have not been accompanied by the latter. The difficulty is undoubtedly a serious one, and it is thus met by Prof. Forel. In an earthquake the undulatory movement is variable in character. In some cases it affects a pendulum seismograph, in others it does not; much depending on the rate at which the shock travels. If this be quick, it will not produce a perceptible undulation to a mass of water; if it be slow, it will set up a very sensible movement. Thus an earthquake of the latter type will produce a *seiche*, but not one of the former. There is much to be said in favour of this hypothesis; but further seismographic observations are required to show that there is a real coincidence between the nature of the earthquakes and the occurrence of the *seiches*.

More than one point of interest is discussed in the section dealing with optical questions. The Swiss lakes, as is well known, vary in colour, some having a distinctly green tint, but others, and especially the Lake of Geneva, being noted for the exquisite blue of the water. To facilitate comparative observation, Prof. Forel has constructed a scale of colours, beginning with sulphate of copper, as the pure blue, and representing the effects of chromate of potash added in proportions commencing with 2 and ending with 65 per cent. After a careful study of the whole question, he comes to the conclusion that the colour of the water depends not merely on the quantity of minute mineral matter present in a state of suspension, but also on the amount present in solution.

The third point, the chemistry of the water, is also very interesting. The author has collected together a large number of analyses already published, has added some others, and discusses the whole. These exhibit differences more considerable than we might have expected; for instance, the residue after evaporation varies from 160 to 218 mgs. per litre. These differences, allowing for possible errors, are probably due primarily to the affluents of the lake, the waters of which are long in becoming completely mixed with the main mass. The principal constituents of this residue are carbonate of lime, sulphate of lime, and carbonate of magnesia, the amounts being variable. Evidently they depend partly upon the time of the year, for in two samples, drawn from the same locality in January and in May, the numbers in the one case were as 3·3 : 2·6 : 1, in the other 3·7 : 1·4 : 1.

The volume, in short, is full of valuable matter, and worthy of its predecessor. As we said of that, it is a little too diffuse for a scientific treatise, but it was necessary, as the author then explained, to write it so as to attract a larger circle of purchasers.

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#### OUR BOOK SHELF.

*A Catalogue of the Books and Pamphlets in the Library of the Manchester Museum.* By W. E. Hoyle, M.A., F.R.S.E., Keeper of the Museum. (Manchester: J. E. Cornish, 1895.)

THIS catalogue, of 292 pp., owes its appearance in print to private enterprise, and is noteworthy as being classified according to the "Dewey Decimal System," under which each digit composing the registration number of a book marks a distinct narrowing in its significance, and for the arrangement under each class by Cutter's "Decimal

Author Table," whereby each book receives a number which is virtually an abbreviation of its author's name. Thus, that "597·0941 Ya 21" denote the second, and "597·0941 Ya 2" the original edition of Yarrell's "History of British Fishes," may appear perplexing; but it is claimed by the advocates of the Dewey-Cutter systems that however much the library may grow, these numerical combinations will remain, and that they allow for maximum extension with minimum disturbance.

The classified catalogue upon which we have commented covers 230 pp., and is followed by a supplementary "author catalogue." The author modestly remarks in his preface, that the volume is "the work of one who is not a professional librarian." The labour of compilation has been great; and this catalogue, like all else that its author has put before the world, bears strongly the stamp of thoroughness and accuracy. We cordially recommend it to our university and public librarians, not, however, without a fear that they may adjudge it dangerous in its over-elaboration.

An index of subjects is appended, and Russian names have been transliterated according to the system advocated in our pages (NATURE, vol. xli. p. 396), and adopted in many of the principal scientific libraries.

*A Course of Elementary Practical Bacteriology, including Bacteriological Analysis and Chemistry.* By A. A. Kanthack, M.D., and J. H. Drysdale, M.B. (London: Macmillan, 1895.)

A LITTLE volume of 127 pages, primarily intended to carry candidates for diplomas in Public Health through a three months' course in bacteriology, and not pretending to be more than a laboratory guide. The instructions are extremely brief, and for the most part unaccompanied by any theoretical explanation. This entire divorce of theory and practice is, in our opinion, not unattended with danger, often leading the student to unintelligently cram the details of methods without having any proper understanding of the principles involved. It is frequently forgotten that the chief object of laboratory work should be to gain a living knowledge of a science, rather than the acquisition of mere dexterity in its practical technique. The exercises are, as we should anticipate from the experience and standing of the authors, well chosen, thoroughly representative, and cover a large amount of ground. On the other hand, some statements made without qualification may easily give rise to mistakes if accepted without reserve. Thus we are told that it is often possible to give a definite opinion in from eighteen to forty-eight hours, as to the presence or absence of cholera vibrios. Recent researches, however, go more and more to show that it is by no means so easy as was supposed to give a correct "definite opinion" as to the identity of this or any other particular micro-organism. We doubt whether bacteriology is sufficiently advanced to admit of treatment in quite such a final and hard and fast manner as it receives in this text-book; but we are told that these pages are not to supplant the demonstrator, and we would add that they should be carefully supplemented by the teacher. If thus employed, this work should prove a very valuable addition to the bacteriological literature of our country. Especially welcome is the inclusion of the principal methods for the detection of some of the chemical products of bacterial life.

*Primer of Navigation.* By A. T. Flagg. (London: Macmillan, 1894.)

MR. FLAGG'S little primer can be strongly recommended to all beginners; it is the A B C of the art of navigation. Every step is explained in the most simple and accurate manner; and for students depending upon self-instruction, a better or more clearly written primer would be difficult to imagine.