

## OUR BOOK SHELF.

*The World's Exchanges in 1898: a Reckoner of Foreign and Colonial Exchanges.* By John Henry Norman. Pp. 54. (London: Sampson Low, Marston, and Co.)

ONE of the main objects of this pamphlet is to show how, by the use of the Chain Rule, the principles and practice of foreign exchanges can be brought down to the understanding of pupils of secondary and continuation schools. The author's purpose is "to prove by very simple arithmetical formula (*sic*) (1) that if the world possessed but one substance as its measure of value and equivalent in exchange, the world's interchanges of things could be effected on the conditions of barter. (2) That there are in the trading world at the present time seven different monetary and currency intermediaries, five of which are of a vastly different nature. (3) That these seven different intermediaries produce forty-two different prices of intermediaries, some of which either confer a bounty or impose a tax in international or intercolonial exchanges of things, resulting in the unfair encouragement of production of things in some countries and the handicapping of industries in other districts to an extent which can be measured by heavy percentages."

Heads of English business firms have lately received some pretty strong hints in the public press that they are losing trade all over the world because their foreign representatives will not give quotations in the currencies and weights and measures which are understood in the country they are trading with. A perusal of the present pamphlet should suffice with a little practice to enable any clerk to make the necessary calculations. But if the multiplications and divisions required in using the Chain Rule are not to be made the subject of pages of long strings of meaningless figures, often ending in answers ten times too great or ten times too small, far more attention must be given to approximate methods of working with decimals than is afforded at most of our schools. In this respect our foreign competitors score, as the metric system provides for them an easy introduction to decimals, which latter they can master in far less time than is taken by our schoolboys in floundering through the British labyrinth of perches, kilderkins, nails, fathoms, and pennyweights. G. H. B.

*Lecture Notes on the Theory of Electrical Measurements.* By Prof. W. A. Anthony. Pp. 90. (New York: John Wiley and Sons. London: Chapman and Hall, Ltd., 1898.)

IN the few pages of open print which go to make up this little work, Prof. Anthony gives a sketch of his course of lectures on elementary measurements in electricity and magnetism, in which, while enlarging upon the theoretical part, he merely indicates the experimental and practical part by a number of disjointed notes.

This irregular treatment of subject-matter is quite intentional, the aim of the book being simply that of enabling the careful student to illuminate those passages of his lecture notes which are likely to be obscure. But the irregularity naturally makes the book unsatisfactory both for perusal and for reference. For while such a work may be beneficial to a certain type of student, and would doubtless be of value to students of Prof. Anthony's classes; yet it may be questioned whether works of this kind can with advantage be recommended to beginners, or whether these would take kindly to a book in which all superficially interesting matter is avoided, and the uninteresting alone retained.

The book is by no means free from misprints and other slips; as "ratios" for "ratio" on p. 36;  $x$  for  $X$  in the equation on p. 53; again, the statement on p. 61 that "the potential difference between the ends of a potentiometer slide-wire may be varied by shunting a part of its

current away," seems to us misleading if not inaccurate. The diagrams also, though few in number, are somewhat open to criticism; thus we think the forces in Fig. 3 should be so drawn as to represent a state of equilibrium, while the figure on the succeeding page is almost unintelligible owing to the deflecting force not being drawn at right angles to the needle.

Apart, however, from such blemishes, and putting aside questions of general utility, it must be conceded that the matter in this little book is well arranged, and the new conceptions admirably introduced; while the deductions of well-known formulæ are in many cases very neatly given. D. K. M.

*The Micro-organism of Faulty Rum.* By V. H. Veley, M.A., F.R.S., and Lilian J. Veley (*née* Gould). Pp. 64. (London: Henry Frowde, 1898.)

BACTERIAL idiosyncrasies are now so familiar and so numerous, that it is difficult for us to be taken unawares any more by the whims and peculiarities of these groups of lowly organisms. Mr. and Mrs. Veley have, however, succeeded in discovering an oddity which, even in this remarkable community, stands out in relief. Whilst studying the causes of faulty rum, these investigators have come upon an organism which, in its lust for sugar, will brave the untoward surroundings of a liquid containing over 70 per cent. of alcohol. This is an unheard-of feat amongst these low forms of life. To enable it to indulge in sugar in such environment, this organism surrounds itself with a gelatinous envelope which, whilst permitting it to obtain its favourite food-stuff, protects it from the deleterious effect of the alcohol, and these characteristics have been embodied in the name *Coleothrix methystes* for it by its discoverers—*Κολέως*, a sheath, *μεθυστής*, a drunkard. Unfortunately for spirit distillers, this organism elects to dwell in rum, producing, according to Mr. and Mrs. Veley, a change in the spirit which, under the title of "faulty rum," occasions losses of some thousands of pounds annually to manufacturers. The life-history of this said *Coleothrix methystes* is by no means an easy one to trace; in fact, the various phases through which it is said to pass embracing such transformations as coccus to rod, coccus to filament, and filament to coccus forms, leave its identity still open to speculation and further inquiry; indeed, as the authors themselves modestly remark, "a subject of legitimate controversy." Whatever may be the results of such legitimate controversy, only praise is due to the authors for the conscientious care and the great labour they have bestowed upon this most difficult piece of work; and, doubtless, now investigators have been started in this direction, many will be stimulated to travel over the same ground, and further extend our knowledge on such an interesting and novel subject as the possibilities of life in liquids containing such a high percentage of alcohol. G. C. FRANKLAND.

*Les Recettes du Distillateur.* By Ed. Fierz. Pp. 149. (Paris: Gauthier-Villars, 1899.)

THIS book contains an exposition of an art peculiarly French—the preparation of liqueurs, recipes being given for upwards of 150 essences. Stress is laid upon the necessity for using absolutely pure materials, the quality of the alcohol employed being of especial importance, and tests are given for empyreumatic oils, the presence of which would be particularly injurious. The alcohol is aromatised by distillation or digestion with suitable plants or roots, the alcohols used in the preparation of some of the liqueurs requiring the addition of upwards of twenty ingredients in this preliminary operation, and this is then mixed with sugar syrup, pure alcohol, colouring materials and essences to form the liqueur. The instructions are both detailed and precise.