

branch attack on the theory of genetic evolution are as brightly and easily written as the rest; their matter, however, will be entirely unconvincing to those who know the facts. The author has got up his case as a clever advocate might get up his address to a jury; but the cross-examination of witnesses would put a very different complexion on the whole business. Father Gerard seeks to prove too much. His plea amounts to an allegation in the name of science that a science of life is non-existent.

F. A. D.

*Occurrence of Aluminium in Vegetable Products, &c.*

By C. F. Langworthy, Ph.D., and P. T. Austen, Ph.D. Pp. v+168. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1904.) Price 8s. 6d. net.

AFTER a careful perusal of this book we have been unable to arrive at any conclusion as to why it was written. The authors presumably had some reason for compiling a bibliography of the analytical work done on aluminium and its occurrence in plants, animals, and waters, but they give no idea as to their object in their preface.

The book, as already stated, consists of a compilation of work dealing with the occurrence of aluminium in vegetable products, animal products, and in natural waters. In the preface it is stated that "no attempt has been made to comment on the value of individual analyses cited." Now by omitting to do this the book loses any value it might have had, because the references given are so extremely scanty. One or two examples taken at random will give an idea of the style of compilation, e.g. on p. 9 we find:—

"Coppola, M. (*Gaz. Chim. Ital.*, 10, p. 9: *Jour. Chem. Soc.* London, 37 (1880), p. 382), found 11.16 per cent. ash in *Stereocaulon vesuvianum*. Of this 1.13 per cent. was  $Al_2O_3$ ."

Again, on p. 73:—

"Finckh, C. (*Neue Jahrb. Pharm.*, 34, p. 13; *Chem. Centbl.*, 1870, p. 615; *Jahresb. Chem. Naumann*, 1870, p. 1382), notes traces of aluminium in Ochsenhausen mineral water from Bieberach, Germany."

Both these illuminating passages are taken from the middle of the respective pages. On p. 73 there are seven and a half such references, and on p. 9 eight.

The contents of the book are not arranged in any order, except that the authors' names are placed alphabetically. Consequently, if one looks up tea in the index in order to ascertain whether it contains aluminium, one is referred to p. 32; after a lot of hunting we find tea under the name of Schriddl, P. (*Arch. Pharm.*, 1873, p. 375). . . . Again, if we wish to know the aluminium content of mushrooms, we are referred to p. 15, where we can find nothing about mushrooms, unless *Boletus edulis* is a mushroom; or is poke-weed the American name for mushroom?

In desperation we look up primrose, and are referred to p. 42, and at last we are satisfied; the root of the primrose contains 1.617 per cent., and the flower heads 1.145 per cent., of aluminium oxide.

Works of compilation are often of great value, but they can only be of value when the contents are systematically arranged. To arrange a dictionary such as this according to the names of the authors is absurd. The pitiable thing about the whole matter is that the authors must have wasted a great deal of valuable time, because a compilation of this kind is extremely tiresome and laborious.

*Practical Chemistry.* By P. A. E. Richards, F.I.C. Pp. viii+136. (London: Baillière, Tindall and Cox, 1904.) Price 3s. net.

So long as examinations in practical chemistry of the test-tube order are encouraged by examining bodies,

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there will be a steady consumption of chemical cram books. The peculiarities of such books are that the student is never allowed to step outside the limits of his syllabus without due warning, and his weary brain is not perplexed with explanations. Like the cattle in the large tinned meat factories, he is driven along a narrow gangway in which he cannot turn round, until he is delivered into the hands of the slaughterer.

Fortunately the more intelligent examining bodies are beginning to realise that the analysis of simple salts does not furnish scientific pabulum of a very nourishing kind; so preparations of a few inorganic compounds and a little volumetric analysis have been added to the syllabus.

The present volume has been prepared to meet the special requirements of the syllabuses of the conjoint board and the preliminary scientific examination of the London University.

It is only necessary to state that the author has completed his task in a thoroughly business-like manner. A student who worked through the book conscientiously might with confidence defy the conjoint examiner to do his worst.

J. B. C.

*Calculations used in Cane-Sugar Factories.*

By Irving H. Morse, B.S. Pp. viii+74. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1904.) Price 6s. 6d. net.

THIS collection of tables was primarily made for the use of the sugar chemists of Louisiana, but it is equally applicable to the operations of every manufacturer of cane-sugar. The work may be recommended to all who seek to use the laboratory as a control of the working of the sugar-house. In every well regulated factory the manager is dependent upon the chemist for information as to the amount of sucrose in the raw juice, the yield of sugar, the losses in manufacture, and whether or not all the available sugar is being extracted from the cane, and the efficiency and value of the laboratory largely depend upon the rapidity and accuracy with which this information can be furnished. The work is thoroughly practical, and is evidently the outcome of many years' experience of sugar testing.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

Colours due to Intermittent Illumination.

MR. C. T. WHITMELL (*NATURE*, September 1, p. 424) describes a method of producing coloured patches by means of a rotating disc, furnished with a ring of holes. It will be found that the phenomenon can also be produced by intermittent reflection. In the year 1881 I described in *NATURE* (vol. xxiv, p. 140) a method whereby colour patches of great brilliancy, due to intermittent illumination, were easily produced by viewing sun-light reflected from the polished spokes of a cycle wheel. The relationship between the colour given and the velocity of rotation was clearly marked, and the effects can be easily reproduced by means of the simple apparatus described. In these experiments, a counter was attached to the axle of the rotating wheel, so that the rate of rotation could be accurately determined at the time of observation. The rotation of the cycle wheel was maintained by means of a motor the speed of which could be easily varied. In connection with the phenomenon of the change of colour due to intermittent illumination, several papers of much interest have been published since the year 1882 by Dr. G. Burch, F.R.S.

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Trinity College, Oxford, September 13.