

factorial effects thus illustrated is one that, we are sure, awaits us in many comparable instances. Obviously, such interference might operate either by reducing the number of the seeds or by reducing their size; and in some plants, doubtless, the one effect will be found, and in other cases the other. The discussion of this and various other examples of complex results is unconventional and always fruitful.

The book is one which well illustrates the mental attitude of the investigator to whom problems appeal chiefly by virtue of their difficulty. Had Mr. Balls stuck to any one of the lines he has begun, no doubt he could have gone much further along it; but so soon as anything like a solution is in sight he would rather start another chase. This is not unfriendly criticism: for many who can follow there are few who can begin, and others will some day make something of the various beginnings here left unfinished. The real objection to this book is that it is in outward form at least a *book*. The only thread of coherence running through it is that the miscellaneous embryo treatises it contains were begotten in Mr. Balls's mind by the cotton plant. So, in the same way, the common fowl has been the point of departure for lucubrations on the origin of the mesoblast, on poultry-breeding for the table, on coccidiosis, on the food-value of cereals, &c., but though it may be good for a man to keep all these topics dancing through his own head, no real purpose is served by amalgamating them into one volume. It was to meet such cases that publication in journals was invented. W. B.

THE ENERGY SIDE OF NUTRITION.

Nutritional Physiology. By Prof. P. G. Stiles. Pp. 271. (Philadelphia and London: W. B. Saunders Co., 1912.) Price 6s. net.

ALTHOUGH Prof. Stiles's little book is entitled "Nutritional Physiology," it is really an elementary treatise on the whole realm of physiology, though special attention is directed to digestion, absorption, and metabolism. Its keynote is the word "energy," and the living body is regarded from the point of view of an energy-transformer. The work is dedicated to Prof. Graham Lusk, of New York, and his influence can be easily traced in the chapters which deal with metabolism.

It is not possible to regard the book as a mere addition to the already numerous primers of physiology; it is something beyond this, although it makes no pretensions to being anything profound. It can be read with profit by the junior student, and still more by the senior student, and even the professed physiologist. Old truths are often put in new ways, and so fresh light is shed

upon familiar problems. The language is often quaint and original, and the numerous analogies selected for explaining physiological truths are apt and well selected. Take the following as an example:

"The regulating action of the liver and the muscles upon the carbohydrate distribution may be paralleled, in part at least, by an analogy. Let us compare the active tissues to a mill turned by the waters of a stream. The water supply to the mill is to be compared with the sugar supply to the cells, which derive their energy from it. A meal is to the body as a storm is to the mill-stream—it adds to the volume of the power-producing element. The dam by the mill is like the kidney in its relation to the accumulated store," and so the parable runs on; it is unnecessary to quote more of it here.

The book contains the inevitable chapter on alcohol; this is written in a moderate strain, and may, perhaps, be viewed with disfavour by the extreme teetotaler because it is not intemperate. As one reads it, one almost feels that its author was writing it because he had to, but was protesting all the time inwardly against the American law which excludes all physiological books from scholastic institutions which do not obey the tyrannical behests of the party in power.

W. D. H.

CHEMISTRY: PURE AND APPLIED.

- (1) *Fatty Foods, their Practical Examination.* A Handbook for the Use of Analytical and Technical Chemists. By E. R. Bolton and C. Revis. Pp. xii+371. (London: J. and A. Churchill, 1913.) Price 10s. 6d. net.
- (2) *Der Kautschuk.* Eine kolloidchemische Monographie. By Dr. R. Ditmar. Pp. viii+140. (Berlin: Julius Springer, 1912.) Price 6 marks.
- (3) *Modern Inorganic Chemistry.* By Dr. J. W. Mellor. Pp. xx+871. (London: Longmans, Green and Co., 1912.) Price 7s. 6d.
- (4) *A First Class-Book of Chemistry.* By E. Barrett and Dr. T. P. Nunn. Pp. iv+124. (London: A. and C. Black, 1912.) Price 1s. 6d.
- (5) *Elementary Applied Chemistry.* By L. B. Allyn. Pp. xi+127. (Boston and London: Ginn and Co., n.d.) Price 3s.
- (6) *Trattato di Chimico-Fisica.* Traduzione Italiana con note del Dott. M. Giua. By Prof. H. C. Jones. Pp. xx+611. (Milano: Ulrico Hoepli, 1913.) Price 12 lire.

(1) **T**HE analytical examination of edible fats and oils is increasing in importance and in difficulty day by day. At least sixteen natural oils must be taken into consideration, and, when mixtures of these are presented for examination,