

lish researches. Surely in the story of the metabolism of the carbohydrates room might have been found for the classic work of Brown and Morris, and Brown and Escombe on the physiology of the foliage leaf and of the germinating barley grain; in other places for the work of the Cambridge school on the enzymes, the phenomena of gaseous interchange, and the conditions of respiration; and for the researches of Chittenden, Vines, and others on the phenomena of proteolysis. The discovery of erepsin is not mentioned, though its importance in the metabolic phenomena of proteins is beyond dispute. The author is apparently satisfied with the researches of the German scientific world, which, from the point of view of the advancement of knowledge, can only be regretted.

J. R. G.

#### AGRICULTURAL ESSAYS.

*Lectures Agricoles.* By Prof. C. Seltensperger. Pp. 576. (Paris: J.-B. Baillière et Fils, 1911.) Price 5 francs.

“**L**y a trois manières d'enseigner: on peut instruire en amusant, instruire en ennuyant, et même ennuyer sans instruire.” The book before us opens with this incontestable statement, and when we reach the end we feel that the editor has kept well clear both of the second and third methods, and has succeeded in maintaining interest throughout.

The plan of the book is, we believe, entirely new in agriculture. It is not a text-book in the ordinary sense of the word. There is a scheme running through it, but the chapters are not written by one author, or even written expressly for the book, but are taken from the writings of the best known French agriculturists. Thus there is a lack of continuity and an absence of detail, but by way of compensation the reader gets a fine breadth of view, and he is introduced to the best agricultural experts in his country.

M. Schloesing writes on the soil, and succeeds in a very few pages in giving a picture that will carry the student a long way in his studies. M. Nivoit writes on railways and agriculture; he points out that France is not specially rich in minerals, but she has a good soil and an incomparable geographical position; thus a great variety of crops is possible, and good transport facilities become indispensable. Instances are given of what has already been accomplished: the Compagnie Paris-Lyon-Méditerranée carries fruit from Avignon to Paris in 24 hours, to London in 40 hours, to Hamburg and Berlin in 80 hours. The advantage to the grower is enormous, but the local consumer may suffer; where formerly he could often buy fruit at very low prices, he may now have to pay actually more than in some of the markets further off. This, however, is a detail that is easily remedied.

The applications of electricity in agriculture are dealt with by M. Petit. It is regarded only as a source of power, the direct effects of the discharge on plant-growth not being considered. As a driving power it has many advantages, and it is attracting attention in France; for us here, unfortunately, it is as yet inaccessible in country districts.

A number of chapters deal with the general economic

and social problems of agriculture. Where there are so many small holdings and so few hedges as in France, the question of boundary lines between one man's property and his neighbours' becomes a fruitful source of dispute and of vexatious litigation. M. Muret deals with this problem, and gives some very useful advice to the disputants.

There are a number of admirable illustrations throughout the volume, which, however, are not always connected with the text, and are sometimes not even explained. In several chapters, especially those dealing with insect and fungoid pests, the absence of detail is felt more than it is elsewhere. References are, however, always given to inexpensive text-books where the further information can be obtained. Considering the very wide range covered—practically the whole of the agriculture of France—and the very modest price of the book, it must be put down as one of the most generally useful of the admirable series to which it belongs.

#### MICROSCOPY FOR ZOOLOGISTS AND ANATOMISTS.

*Grundzüge der mikroskopischen Technik für Zoologen und Anatomen.* By A. B. Lee and P. Mayer. Vierte Auflage. Pp. vii+515. (Berlin: R. Friedlander and Son, 1910.)

**I**N this the fourth edition of an established publication the authors have not found it necessary to make any material alteration in the contents of the previous edition. They have added, however, much new substance derived mainly from various microscopical journals; medical periodicals, numerous though they be, having, to the authors' regret, been almost entirely unproductive. As will be gathered from the title the scope of the work is limited to anatomical and zoological microscopy. Such limitation is strictly observed. Even in the general paragraphs all temptation to wander off into by-paths is sternly resisted. Although the authors give freely of their own experience, they refer largely to the labours of others. The book is, in fact, crowded with condensed information, which has been industriously and exhaustively compiled during the last four years from suitable sources in many languages. References to these sources are always given. Nine chapters (131 pages) are devoted to the preliminary operations of killing, fixing, hardening, and imbedding. Seven chapters (94 pages) deal with staining; five (45 pages) with cements, varnishes, injections, and bleaching. Nine (140 pages) of the remaining ten chapters treat minutely the specific examination of the embryo and of various tissues and organs: one chapter (39 pages) is restricted to invertebrates. There is a copious index of no less than sixty-two pages, so that consultation of the contents is easily made.

A glance at any chapter, or group of chapters, readily reveals the thoroughness of compilation and the judgment of the authors. Thus, the essential process of imbedding is introduced by a general chapter (No. 6) on the subject. This chapter (*inter alia*) summarises the merits and demerits of the chief varieties of microtomes. It also summarises the ad-