

cytologist is of great interest. His conclusion, from numerous converging lines of evidence, that "the primary basis of the egg organisation lies in the ground-substance or hyaloplasm," coincides with that of most workers in the field of experimental embryology. (Why does no one invent a single word to do duty in English for *Entwicklungsmechanik*?) On the other hand, his confession of complete ignorance as regards the nature or essence of this primary organisation of the egg is curious, coming as it does from a fellow-countryman of Child's, whose theory of axial gradients seems to many competent workers to throw a real light on the question. In point of fact, there is actually no reference, either in the text or the literature list, to Child's name or work. Is there a feud between Chicago and New York?

There is, however, so much of fact and of idea within these fifty pages that it would be ungracious to carp at omissions. This little book will make every biologist hope with all his heart that its author's long-promised revision of his classic work on the cell will not be long delayed.

*Varnishes and their Components.* By Dr. R. S. Morrell. (Oxford Technical Publications.) Pp. xii + 361. (London: Henry Frowde and Hodder and Stoughton, 1923.) 25s. net.

WITH few exceptions, books on varnish have been of the type of the craftsman's handbook. Empiricism ruled because the industry was more or less secretly pursued and many of the recipes had been adopted from practical experience, often without any insight into the fundamental changes involved. To understand the nature of varnishes, a knowledge of the properties of colloids, especially in non-aqueous media, is required. With the modern development of this branch of physical chemistry the art and craft of the varnish-maker is certain to be influenced.

Dr. Morrell is not only intimately connected with the industry, but, as the records of the literature show, he has also for more than twenty years been an active investigator of the subject. He has broken away completely from the traditional outlook and has not been satisfied with a mere sorting of the literature. He has produced a stimulating and suggestive thesis of outstanding merit which must be of great value to the technologist and research worker.

The first section, which follows a short historical introduction, deals in a thorough manner with the components of varnish and their preparation and properties. The second section embraces the different types of varnish, their manufacture and application. Special attention might be directed to two extremely useful chapters on properties and defects of varnish and on insulating varnishes. In this section is also included a chapter on analytical methods. The book, which is excellently printed and illustrated, is provided with a long list of references, a bibliography, and a subject and name index.

JOS. REILLY.

*Galvanomagnetic and Thermomagnetic Effects: the Hall and Allied Phenomena.* By Prof. L. L. Campbell. (Monographs on Physics.) Pp. xii + 311. (London: Longmans, Green and Co., 1923.) 16s. net.

THE phenomenon of the Hall effect and the allied galvanomagnetic and thermomagnetic effects have for many years been studied closely by physicists, who

have hitherto failed to give any satisfactory explanation of the fact that the several effects have different signs in different metals. It seems probable that no satisfactory explanation of these phenomena can be given until the internal structure of the atom and the interaction of atom and electron are better understood. It would be necessary also to have a common electron theory for heat, electricity, and magnetism. To the serious research student this book will prove of great value.

There are 618 entries given in the bibliography at the end of the volume, and their number is extending daily. Some of these papers describe novel experimental effects and others discuss elaborate theories. A clear compilation of these results has been made.

In his latest theory (Proc. Nat. Acad. Science, 9, p. 41, 1923), Hall postulates the presence of two transverse streams of electrons in a metal plate placed in a magnetic field. One of the streams consisting of free electrons gives rise to a negative Hall effect; the other consisting of associated electrons gives rise to a positive Hall effect. One or other of these effects will generally predominate, according to the kind of metal, its physical condition and temperature, and the strength of the magnetic field.

*The Foundations of Indian Agriculture* (formerly "The Bases of Agricultural Practice and Economics in the United Provinces, India"). By Dr. H. Martin Leake. Second edition. Pp. viii + 277. (Cambridge: W. Heffer and Sons, Ltd., 1923.) 7s. 6d. net.

DR. MARTIN LEAKE'S book is written primarily for the needs of the Indian student. It covers a wide field, as it deals with historical development, agricultural science, and agricultural economics. The latter section will prove of most interest to the English reader, who has already available extensive literature dealing in detail with both agricultural history and science. Dr. Leake discusses lucidly a fundamental problem in Indian rural life—the system of inheritance which in both Hindu and Mohammedan law recognises equality of right between the children. The inevitable result is a progressive division and subdivision of holdings to an uneconomic size, and since the good and the bad land must be fairly divided, the problem is further complicated. Nor do the difficulties end here. The cultivation operations essential for the full growth of crops cannot be carried out owing to the lack of sufficient sturdy cattle. Religious difficulties are serious but not insurmountable, and the solution appears to be that in use in Egypt, where cattle are stall-fed largely on fodder grown in rotation with maize, cotton, wheat, and other crops. The final sections dealing with the development of co-operation, and the replacement of the village money-lenders' activities, are of considerable interest.

B. A. K.

*Osmics, the Science of Smell.* No. 2. By John H. Kenneth. Pp. 43-79. (Edinburgh: Oliver and Boyd; London: Gurney and Jackson, 1924.) 2s.

THIS book contains a further list of 500 references to original papers dealing immediately or remotely on the sense of smell. It should prove useful to those engaged in original work on the subject.