ter devoted to methods of burial—not, however, giving us such valuable information in this regard as we obtain from Peet.

The author is concerned in the main with description, there being no less than 74 full-page plates in addition to the 174 figures. These excellent illustrations greatly enhance the value of the volume. We may regret that the author has not brought the problems out more sharply. The more important of his solutions of the problematic are probably these:

Pithecanthropus erectus represents a type, not necessarily intermediate between man and the monkeys, but one in which the erect posture had been assumed though the head-form of *Homo sapiens* had not completely evolved—"the seeming difference being due to the different standpoints from which the phenomena are contemplated." A *hiatus* between the paleolithic and neolithic in England must be assumed, the so-called mesolithic forms being incomplete neoliths; it is probably to be accounted for on the assumption that paleolithic man was driven out by the cold and the glaciers, to take refuge with the cave-men of France with whom he could easily communicate over the land now covered by the English Channel. Likewise, paleolithic man of Jersey could so communicate. The dual cultures found in the eastern and western parts of the Po Valley, respectively, are explained on the supposition that "the terramaricoli in their migration southwards took possession of these native villages, and lived in their hut-habitations, finding them as comfortable as their own pile-structures. If there was an emigration of terramara folk from Emilia to south Italy, who ultimately became the actual founders of Rome, surely they must have left some traces of their journey behind them. If so, what are these traces? To me the answer is not far to seek: they are scattered along the Adriatic slopes in the numerous hut-villages and cave-dwellings, which are described as containing unquestioned remains of terramara civilization." To this the classical archeologist will retort: *If there was such an emigration.*

The chapter describing Structures Analogous to Terramare in Other European Countries is most welcome, for we do not have a substitute in English.

The volume will appeal both to specialists, who will find it valuable for references, illustrations and descriptive material, and to the lay reader who wishes to have in easy, comprehensive form the latest results in European prehistoric archeology.

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The Cotton Plant in Egypt. By W. Lawrence Balls. Macmillan & Co. 1912. 202 pages, 1 plate and 71 text figures.

The purpose of this book, as announced in the preface, is to abstract "the results of a series of researches made upon cotton plants in Egypt, which investigations, though diverse, were connected by the desire to know all that could be learned about the plant itself." The subject matter covers a wider range than is usual in books concerning cultivated plants. Morphology, physiology and genetics are treated in turn and the bearing upon agricultural practise of each phase of the investigations is constantly emphasized.

An "historical" chapter deals with the perplexing problem of the origin of the Egyptian type of cotton. Professor Balls champions the view that the existing varieties are "more or less heterogeneous complexes of heterozygotes." They are, it would appear, descended from fortuitous crosses of a brown-linted tree cotton of the Peruvian type, long existent in Egypt, with other varieties, among them probably American Sea Island, which was introduced there during the first half of the last century.

Brief accounts are given of the process of fertilization, of the development of the embryo and of the cytology of the fiber. One of the most interesting portions of the work deals with the influence of physical factors, especially temperature, light and soil moisture, upon growth and development. The author distinguishes two periods in the ontogeny of the cotton plant, the first beginning with

germination and the second with the appearance of the first flower. He believes that development is controlled during the earlier period mainly by air conditions, especially temperature, and during the second period mainly by soil conditions, especially water content. He regards as the limiting factor for growth what he terms "thermotoxy"—the supposed accumulation of injurious products of metabolism caused by high temperatures and aggravated by a deficient water supply. Varietal differences in length of the growth period would indicate corresponding differences in resistance to "thermotoxy." Experiments are described which deal with the effect of a high water table in checking root development and in inducing shedding of the flower buds. This subject is at present much discussed in Egypt in connection with the recognized deterioration of the cotton crop.

In the field of genetics fluctuation, natural crossing and heredity are treated. Much space is devoted to the application of Mendelian and post-Mendelian principles to cotton hybrids. This discussion, interesting and suggestive though it be, will scarcely inspire the cotton breeder with confidence that his practical problems will be speedily solved by the Mendelists.

By way of criticism, attention may be called to a certain lack of balance in the space devoted to different phases of the subject. Thus the morphology of the vegetative organs, which is of great interest agriculturally as well as botanically, receives but scant notice. One reads with astonishment that there is "apparent identity of all the modern varieties of Egyptian cotton in external appearance—for, even when grown side by side, they are scarcely distinguishable." Several of the varieties, when grown in Arizona from imported seed, have proven readily distinguishable by the characters of the leaves, bracts and bolls. There is also a tendency to put forth rather sweeping generalizations. Such are the assumptions, regarding fluctuation, that in a pure strain it "is the result of slight irregularities in a normally uniform environment" (p. 89) and that "physiology explains it" (p. 90). It is also not very clear to the uninitiated why transmitting power "is not a mysterious vital function" merely because it "can be reduced to formulæ." Several of the text figures are left without satisfactory explanation, either in the legends or in the text, and the reader would be saved time and trouble if the pages were cited in referring to the figures.

Nevertheless this little volume can not fail to be helpful and suggestive to all investigators of the cotton plant and not its least valuable mission is to show some of the ways by which scientific investigation of a crop plant may be brought to bear in improving agricultural practise.

T. H. K.

Naturwissenschaftliche Studien am Toten Meer und im Jordantal. Von Professor Dr. MAX BLANCKENHORN. Berlin. 478 pages with geographical map and table.

Students of the geology of Palestine probably owe more to Dr. Max Blanckenhorn than to any other one author. The present volume is an account of his last expedition undertaken in 1908 at the request of the Turkish government. The ex-sultan, Abdul Hamid II., apparently desired to discover mineral wealth in the valley of the Jordan River and Dead Sea, which is his private property. Dr. Blackenhorn, however, wisely insisted that the expedition should be primarily scientific, and not economic. The results justify his position, for Palestine is very poor in mineral wealth. Pure science, however, did not satisfy the Turkish government which still, in spite of repeated promises, owes Dr. Blanckenhorn twenty-five hundred dollars for expenses incurred at their request.

Dr. Blanckenhorn's work divides itself into three closely related parts, economic, geologic and physiographic. In respect to the first two we accept his results without question, but as to the third there is some doubt. Inasmuch as the geological formations of Palestine are almost entirely cretaceous, little mineral wealth is to be expected. The salt deposits of Jebel Usdum at the south end of the Dead