

should have in its hands the essential conduct of the institution, as at present. Only one power which it now has it should not have: the direct power of appointing or of removing a "professor." For the professoriate should be composed just of the men bearing the title "professor," whose rights should be: (1) Appointment only on election by the professoriate, according to its own rules of election. (2) Removal only after trial by the professoriate, according to its own rules. (3) Assurance of a certain minimum salary—determined by the custom of the institution—so long as the title of "professor" remain unrecalled; and (4) assurance of the right to teach the subject defined by his complete title, during the like period.

Under such a division any administration could impeach any professor, demanding his trial by the professoriate, but it could not remove him until this trial had resulted in the revocation of his title. On the other hand, no professor would be allowed administrative control of any department or school except on appointment to such work by the administration. Further, there should be allowed various titles, such as "assistant" or "associate professor," to be given by the administration to men to whom it wished to encharge work newly introduced as well as by the younger men who might be regarded as candidates for the rank and position of "professor." These men, in each institution, would be serving a probation, preliminary to their final election to the body of the professoriate. There should be nothing to prevent the administration from paying such men even higher salaries than the professorial minimum, and indeed nothing to prevent any advance in salary to a "professor" above this minimum. Of course any "professor" should be eligible to any administrative office without sacrificing his professorial rank and rights.

This scheme, viewed *a priori*, ought to be easy to introduce and maintain. A charter body of professors should be selected from the staff already in service by the administration of each university and college, and contractually endowed with the rights named. Presum-

ably, the body so selected would represent the present sentiment and ideals of the institution, while the natural conservatism of a self-perpetuating body would ensure a reasonable constancy in its character. Young men would be tried out before being elected to the body; while the administration would retain ample power to guide the general development of the institution.

Our present plan, in which the head of the institution is, internally to it, the benevolent autocrat, and, externally to it, the responsible politician, is an ugly makeshift. The plan here proposed ought to lighten the cares of such a head by lessening his responsibilities, while at the same time it would relieve the professorial profession of the stigma of servility, and it would give the supporting public a less flickering consciousness of the fact that in calling a man to the thankless task of thinking they are incurring obligations as well as receiving benefits.

H. B. ALEXANDER

UNIVERSITY OF NEBRASKA

SCIENTIFIC BOOKS

The Antiquity of Man in Europe, being the Munro Lectures, 1913. By JAMES GEIKIE, LL.D., F.R.S. Pp. xx + 328, 9 text illust., xxi pl. and 4 maps.

This is a series of lectures upon a subject with which Professor Geikie's name has been associated for more than a third of a century. His "Prehistoric Europe" appeared in 1881 and the matter received more than incidental consideration in the third edition of his "Great Ice Age." The work is an argument from the geologist's standpoint, the most important of all, since geology is the final court of appeal.

The subject is outlined in the first lecture. The general features of Pleistocene climate and its extreme variations are shown in a discussion of the several faunas and floras, which affords opportunity for comparison with present conditions in Asia and North America. He is led to believe that, while there is ample proof that man existed early in the Pleistocene, there is thus far no positive evidence of his

existence during the Tertiary. Having outlined his plan, he examines the kinds of evidence. Two lectures are devoted to the testimony of caves, in which the investigations are summed up with critical notes upon the reported observations. He indicates clearly the gaps in the record, but he emphasizes the association of paleolithic man with an extinct fauna and flora, the definite proof of successive extreme variations in the continental climate, the differing types of men during the several stages and their notable gradation in civilization as proving the great length of time which has elapsed since the first cave man appeared in Europe. The testimony of river drift deposits, especially those of Great Britain and France, is the topic of another lecture. The complex problem involves the deepening of valleys by river-cutting, the deposition of gravels, the origin of loess. The difficulties here are conceded frankly, but the deficiencies in this record do not coincide with those in that of the caves; the two records are supplementary.

The testimony of glaciers, as one would expect, is discussed in abundant detail. In this portion, composing nearly one half of the volume, the wholly new material derived from the author's later studies in many regions is very great. The movements of glaciers, their scouring and eroding power, their extent, the nature and distribution of moraines, the truncated valleys of the Alps are discussed in the light of recent determinations by the author and others. All go to show the immensity of the period during which man has been on this globe. The comprehensive study of local and general features, which is presented in these four lectures, contains much that can not fail to interest American glacialists, for some of the phenomena cited from Great Britain and the Continent are familiar topics in our literature.

Having laid his foundation, the author, in his closing lectures, sums up Pleistocene history as relating to man. The terms for the epochs differ in several cases from those given in the Great Ice Age, some changes having been made in the interest of accuracy and

euphony. The epochs as defined in this volume are these:

First Glacial epoch, the Scanian of northern Europe, the Günzian of the Alps; First Interglacial epoch, the Norfolkian; Second Glacial epoch, Saxonian of northern Europe, Mundelian of the Alps; Second Interglacial epoch, the Tyrolian (replacing Helvetian); Third Glacial epoch, Polonian (replacing Polandian) of northern Europe, Rissian of the Alps; Third Interglacial epoch, the Dürntenian (replacing Neudeckian); Fourth Glacial epoch, Mecklenburgian of northern Europe, Würmian of the Alps; Fourth Interglacial epoch, the Lower Forestian; Fifth Glacial epoch, the Lower Turbarian; Fifth Interglacial epoch, the Upper Forestian; Sixth Glacial epoch, the Upper Turbarian.

The oldest human remains are assigned to the first interglacial epoch; the Chellean and Acheulian stages to second; the Mousterian stage began during the third glacial and ended during the third interglacial; while the Aurignacian, the Solutréan and Magdalenian stages were within the fourth glacial. Paleolithic man's disappearance was abrupt and with him the associated fauna passed away. Neolithic man's appearance seemed to be equally abrupt and the modern fauna accompanied him. A partial bridge over the gap is afforded by the Azilian stage of southern France and Germany, which belongs very near the Lower Forestian or fourth interglacial epoch; at that time, Neolithic man was in Scotland.

Professor Geikie's work does not lend itself readily to review for it is a model of directness and compactness in statement. The discussion is judicial; facts are presented so skillfully that they appear to form a consistent argument and when the conclusions are reached, they have been anticipated by the reader as the only ones possible. Among glacialists there are those who will continue to dissent from the author's subdivision of the Pleistocene and from the extreme length of time which he assigns to that period; but all must agree with his final statement that when one considers that man has seen all those changes of climate, which caused repeated succession

of steppes, tundras and forests in the same region, he must recognize that the time has been very long—so long, that the few thousands of years since history began seem insignificant in comparison.

JOHN J. STEVENSON

The Psychology of Management. By L. M. GILBERT, M.L., New York, Sturgis and Walton. 1914. Pp. 344. \$2.00 net.

The gap between psychology and industry is being bridged both by psychologists, who write of industry, and by industrial engineers, who attempt to point out the psychological laws underlying the success of their practise. This book is of special interest since it is written by a woman worker in an industrial laboratory where the give and take of psychology and technology is being encouraged in many interesting ways.

The book aims "not so much to instruct as to arouse an interest in its subject and to point the way whence instruction comes." In the mind of the reviewer, these aims are fully realized. The main theme is that modern form of management generally known as the "Taylor system." In this book the art of management attempts to become conscious and to develop or borrow a vocabulary. Management is defined as "the art of directing activity," and by the psychology of management is meant "the effect of the mind that is directing work upon that work which is directed, and the effect of undirected and directed work upon the mind of the worker." Such topics as the following indicate the general scope of the various chapters: selection of individual workers; proper instructions; functionalization of tasks; definition of duties and qualifications; motion studies and time measurements; analysis and standardization of task, tools, methods and materials; records, routing and work programs; the rôle of the various types of direct and indirect incentives (punishment, reward, prizes, bonus, profit sharing, etc.); welfare work; attitudes of employer and employee and their effect on work; methods and measurement of teaching; aids in learning; effective distribution of effort. Cooperation is urged in the

accumulation of standardized industrial records for the purposes of psychological analysis.

As might be expected, the psychology of management, in its present state, shows several traits similar to those displayed by the science of education in its earlier days. In the present book, for instance, there is artificial systematization and an occasional lapse into discursive generality. There is a somewhat labored attempt to suggest forward movement in the thought by means of divisions and paragraph headings in the text; many paragraphs consist of a single sentence. There is an apparent attempt to give text-book form to a subject that is not yet ready for it.

In spite of these remediable features the book is a real contribution to applied psychology as well as to the work of the student of efficiency engineering. It well typifies the growing tendencies toward cooperation between science and practise and suggests a stimulating program for future work. Applied psychologists should not fail to make themselves acquainted with the Gilbreth laboratory.

H. L. HOLLINGWORTH

COLUMBIA UNIVERSITY

Monographien einheimischer Tiere. Bd. 5, Die Strudelwürmer (Turbellaria). Von PRIVAT-DOZENT DR. P. STEINMANN UND PROFESSOR DR. E. BRESSLAU. Pp. xi + 380, 2 pls., 156 figs. in text. Bd. 6, Tintenfische mit besonderer Berücksichtigung von *Sepia und Octopus*. Von DR. WERNER TH. MEYER. Pp. 148, 1 pl., 81 figs. in text (Klinkhardt, Leipzig).

The latest numbers in the admirable series of monographs prepared under the editorship of Professors H. E. Ziegler, of Stuttgart, and R. Woltereck, of Leipzig, both deal with animals widely used in experimental or in morphological work in the biological laboratories of our universities and colleges, and both are particularly welcome. The volume dealing with the turbellarians is doubly welcome, since no brief and comprehensive treatise has dealt with these easily obtained and widely utilized animals since Benham's (1901) short account in Lankester's "Treatise on Zoology." More-