

College of Agriculture at Cornell University exists for the benefit of the farmers. It is a college of *agriculture*, it is not an institution of general education.

The New York State College of Agriculture has stood in the forefront among the agricultural colleges of America. Its work, however, has only just begun and vast possibilities are opening up for the future. The extent to which the college can realize these possibilities and the rate at which it can continue to progress will depend largely on how adequately its growing needs are met by appropriations from the state of New York.—President J. G. Schurman in his Annual Report.

SCIENTIFIC BOOKS

Catalogue of the Fresh-water Fishes of Africa in the British Museum. Vol. IV. By G. A. BOULENGER. London, British Museum (Natural History).

The fourth volume completes the account of the fresh-water fishes of Africa, based on a collection of over 15,000 specimens, and including 1,425 species. In addition to the enormous collection of the British Museum, on which the work is primarily based, the author examined many specimens belonging to other museums, and did everything possible to make a complete survey of the subject on the lines laid down. Like other British Museum "Catalogues," this is in reality a monographic revision of the whole group of animals discussed.

When noticing a former volume, we had occasion to refer to the magnitude and importance of Mr. Boulenger's labors in this field. It may perhaps be opportune to call attention to the extraordinary value of such a worker to any museum or country. We are not only amazed at the amount of work which may be accomplished by a single man, but we observe how he secures the cooperation of collectors, men who can not themselves do technical work in zoology, but are more than glad to furnish materials to those who can make such good use of them. Collecting in tropical Africa is always difficult and often hazardous, but many enthusiasts have searched the rivers and lakes of that continent for Mr. Boulenger,

proud to be partners in so great an undertaking. The aid thus rendered has been fully and exactly recognized in publication, following the excellent methods long ago established by the British Museum. In our own National Museum the staff in certain departments has always been inadequate, while the possibilities of development have never been appreciated by Congress. Curatorial work on the collections is, of course, the first necessity; but it is not realized that it would be a splendid investment to secure experts to take charge of those divisions of zoology and botany which have been least developed, and which superficially appear to stand least in need of attention. The Museum, employing one man, really secures the services of many, who become collaborators and contributors of specimens from all over the world. In 1870, only 255 species of fresh-water fishes were known from Africa; who could have guessed what intensive work would bring forth? The materials gathered together can not be sold; it is impossible to accurately define their value in money, but it ought to be sufficiently apparent that the work pays, whether we regard the tangible or intangible results.

The volume under review begins with the Carangidæ, and includes the more specialized or higher families of fishes. More than half, however, is occupied with "Addenda," descriptions of the numerous species discovered during the publication of the work. The additional species belong mainly to the Cyprinidæ, Siluridæ and Characinidæ, as might have been expected. The already enormous genus *Barbus* receives very many additions. The plan of the work does not permit any reference to the proposals by C. Tate Regan and others to break up the so-called family Characinidæ; nor does it allow the inclusion of those illuminating discussions of the geographical distribution of the various families which the author himself has published elsewhere. Although scales are used continually in the keys and descriptions, there is no reference to the microscopical characters they present and no word or line indicates that they have ever received anything but the most superficial at-

tention. This is not a matter of lack of space; it results from rigidly following a predetermined plan, and ignoring everything which does not fall within the artificially limited scope of the enquiry. It was the same attitude which caused Sir Geo. F. Hampson, in the great catalogue of moths published by the British Museum, to refuse to recognize or mention the genitalic characters of the segregates of *Apamea nictitans*, although the facts, accompanied by prepared slides, were freely offered for his use. This extreme rigidity of method has certain advantages; it permits consistency of treatment, and allows the author to base the whole classification on characters which he thoroughly understands and is accustomed to use. It may also be urged with reason that it is impossible to study or describe *all* the structures of animals, and consequently it is necessary to make a selection. Still another argument may be based on the fact which modern comparative morphology is daily making more apparent, that the minute study of almost any important structure in a long series of species will afford a fairly sound basis for classification. Thus Dr. Asa C. Chandler, in his remarkable account of the microscopical features of feathers, lately published by the University of California, shows that if we possessed *only* feathers, the birds otherwise being wholly unknown to us, we could construct from them a rational classification of the class Aves. Similarly, Dr. Edna Mosher, in a study of the Lepidopterous pupa published this year by the Illinois State Laboratory of Natural History, is able to construct a classification of moths and butterflies on the pupæ alone. It is noteworthy, however, that while the feathers of birds and the pupæ of moths essentially confirm existing systems of classification, they afford some discordant facts, which at least suggest the propriety of certain modifications. Precisely the same thing is true of the scales of fishes. The development of organs and characters in animals does not present an even front; evolution within the limits of the organism is unequal in degree and rapidity, and hence each set of structures teaches some lessons which the others do not supply. No single

worker, dealing with a large group, can take the time to search for all these illuminating footnotes to the book of nature. It is the work of the comparative morphologist to uncover them; and while the professional taxonomist may properly express an opinion whether in this or that case they are significant for his purposes, he can not safely look the other way, pretending that they do not exist.

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J. L. Pagel's Einführung in die Geschichte der Medizin in 25 akademischen Vorlesungen. Zweite Auflage. Durchgesehen, teilweise umgearbeitet und auf den heutigen Stand gebracht von KARL SUDHOFF in Leipzig. Berlin, 1915, in 8°. Verlag von S. Karger, pp. i-xv + 1-616.

Within the past twenty years there has been developed, especially in Germany, an interesting subject—the history of medicine. There has been great progress in the development of this subject in all of its phases and much light has been thrown on many new lines of intellectual endeavor. There are two journals which are devoted exclusively to the history of medicine and related subjects. These are: "*Archiv für die Geschichte der Medizin*," edited by Karl Sudhoff, in Leipzig, of which eight volumes have appeared, and the "*Zoologische Annalen, Geschichte der Zoologie*," edited by Max Braun, 1905 to date, of which likewise eight volumes have appeared.

The two men involved in the production of the book the title of which is given above have been largely concerned in the development of the history of medicine, together with their co-workers Puschmann, Neuburger, Töply, M. Holl and others. It is an important event when the editor of the "*Archiv für die Geschichte der Medizin*" issues a second edition of Pagel's *Einführung*. After a lapse of seventeen years this important work is issued in a second edition, which is increased in scope and brought down to date by Karl Sudhoff. The work was first issued by Pagel in 1898 as Part I. of a two-volume work; the second part being: "*Historisch-medicinische Bibliographie*