BACTERIA.

ANY work with the name of Cornil and Babes upon the titlepage demands attention, and this beautiful and complete presentation of the subject of bacteria as related to disease, particularly. In the preface the authors grant that the subject is in so transitory a state that no work of permanent value can be written upon it. Their book, however, approaches as near as may be to such a standard, and is a complete presentation of the condition of bacteriology to-day. They say, with perfect truth, that bacteriology is now a natural science of sufficient importance and completeness to take its proper place in hygiene, etiology, and pathological anatomy, both in the theoretical discussions and practical applications of these branches of medicine.

With the object in view of presenting all the researches upon the bacteria in their proper light, the authors have produced a profusely illustrated book, containing all that is known in regard to these minute organisms at the present time. The contributions to the literature of the subject are so numerous, and of such varying degrees of worth, that a careful selection had to be made. This selection has been unsparing, and, in the main, judicious; so that the whole field of what has been done which is of interest to medical practitioners and hygienists is well placed before us. The work begins with an introduction to the study of the pathogenic bacteria; and a rapid summary of the beginning and progress of discovery in this direction is given. This is of especial value to the student because of the copious references to original monographs that are made.

The development of the microscope for work of this kind, the discussions as to the specific nature of infectious diseases, and the criticisms which bacteriology has undergone, are reviewed, and this is followed by the first part of the book proper. This part is devoted to a consideration of the Schizomycetes in general. The various forms of the organisms are given and illustrated, and their methods of growth are treated at length. Fermentations are defined as they should be, — as "chemical processes undergone by substances broken up under the influence of organisms without chlorophyl, which develop and live in the liquid which ferments."

A full account of all the instruments and materials necessary for work in the observation of bacteria, with the methods of employment, renders this part of the subject plain, while the discussion of the aniline colors conveys information not easy for the student to obtain elsewhere. The methods of culture are given in full; and Koch receives credit for the very great advances he has made in these methods.

The classifications of Cohn, Van Tieghem, and Rabenhorst are spoken of as the latest and best; and a complete list of all the pathogenic bacteria, with their main characteristics, follows.

That bone of contention, 'the attenuation of virus,' finds a place, and the various organisms with which experiments approaching success have been made are allowed to tell their story.

Then the lesions occurring with the presence of pathogenic bacteria occupy the authors' attention; and the modes of entrance, and disturbances of circulation and nutrition produced by them, are all placed before the reader in the plainest way.

A discussion of the 'experimental maladies' of Koch and others closes the first part of the work, which is followed by a complete bibliography of the important works upon bacteria in general.

The second portion of the book is devoted to the special infectious diseases; and a glance at the way in which the work has been done compels the highest praise. Beginning with chicken-cholera (*choléra des poules*), and ending with leprosy, the results of all the investigations upon any disease suspected to be due to a micro-organism are passed upon in the most impartial manner. This includes not only the diseases of man, but also those of animals concerning which any evidence of their bacterial origin has been offered. Space is wanting in which to give in full all the admirable characteristics of this book. The one criticism that might be made is, that it should be divided into two volumes, which would make it easier to handle. There is an atlas of twenty-seven plates, illustrating the various forms of bacteria, which is a valuable work by itself. Armed with the contents of the volume, any one would be competent to discuss the subject of bacteria in any presence; and a glance at the literature referred to in its pages will convince the most sceptical that there must be 'something in it.' We regret that we cannot discuss the contents more at length, but we can assure our readers who are interested in the subject of bacteriology that

Les bactéries, et leur rôle dans l'anatomie et l'histologie pathologiques des maladies infectieuses. Par A.-V. CORNIL et V. BABES. Paris, *Algan*, 1885. 8+696 p., illustr., 27 pl. 8°.

they will find here stated the present condition of all the questions under this head.

NOTES AND NEWS.

THE daily papers announce that the U. S. commissioner of agriculture has established as a part of Dr. Riley's division a branch of investigation relating to economic ornithology, and has appointed Dr. C. Hart Merriam, a well-known ornithologist, and secretary of the American ornithologists' union, a special agent to take charge of this part of the work. Dr. Merriam will make his headquarters at Sing Sing, N.Y., until Oct. 1, and after that at Washington. The scope of the investigation will cover the entire field of inter-relation of birds and agriculture, particularly from the entomologist's stand-point. The inquiry will relate primarily to the food and habits of birds, but will include also the collection of data bearing on the migration and geographical distribution of North-American species. In this last inquiry the department hopes to have the co-operation of the ornithologists' union, Dr. Merriam being at the head of the union's committee on migration.

— The sixth annual meeting of the Society for the promotion of agricultural science will be held at Ann Arbor on Tuesday, Aug. 25. There will be public sessions in the forenoon and afternoon, and a business meeting in the evening. The entomological and botanical clubs of the association will also hold their meetings on Tuesday.

— The Western society for psychical research was organized at Chicago in May, and held its first meeting on Tuesday evening, June 3, at the Sherman house in that city. The president, Dr. A. Reeves Jackson, delivered an address, which has been published. Committees were appointed on thought-transference; hypnotism, clairvoyance, and somnambulance; apparitions and haunted houses; physical phenomena; and psychopathy, "under which head attention may be given to what is popularly known under the various names of 'mind-cure,' 'faith-cure,' 'metaphysical treatment,' 'magnetic healing,' etc." The officers of the society are, president, Dr. A. Reeves Jackson; vice-presidents, Rev. C. G. Trusdell and Professor Rodney Welch; secretary and treasurer, J. E. Woodhead.

— The section of mechanical science (and engineering) of the American association for the advancement of science promises to have interesting sessions at the Ann-Arbor meeting. The committee on the best method of teaching mechanical engineering — Prof. J. Burkitt Webb, Prof. George J. Alden, Dr. Calvin M. Woodward, and Professor Arthur Beardsley — request all who are interested to make sure of being present at the particular session to be devoted to this subject, and to come prepared to take an active part in the discussion of the same. The committee on the use and value of accurate standards, screws, surfaces, and gauges, and of systematic drawings in the modern machine-shop, — Prof. William A. Rogers, Mr. Oberlin Smith, and Prof. J. Burkitt Webb, — have arranged for a special session upon this subject; and they would urge those who feel its importance to present papers, and join in the discussion.

— In his annual address as president of the Royal geographical society, Lord Aberdare called particular attention to a report (which is soon to be printed), by Mr. Scott Keltie, on the state of geographical education in Great Britain. According to this, it appears that the books are poor, the instruction inadequate, and the encouragement wanting in almost all schools, and particularly in schools of high grade. Geography as a class subject is not recognized by professorship or readership in the universities. On the continent, and especially in Germany, the case is very different. Twelve professorships of geography may be found in the twenty-one universities of Germany, and most of the twelve have been founded within the last twelve years. The ideal aimed at is a continuous course of geographical instruction from the youngest school-year up to the university. Mr. Keltie gives examples of some of the lessons which he heard, indicative of a masterly as well as a practical treatment of the subjects in hand. Lord Aberdare commended heartily this new effort of the geographical society to secure better geographical education. Toward the close of his address, he referred to the past year as full of geographical researches. "Never has the ferment among nations been so wide-spread, or prophetic of such great consequences," he remarked with reference to the operations of the French in Asia and Africa; the Russians in central Asia; the English in Afghan, on more than one border of India, on all sides of Africa, and in Oceanica; the Germans on the African coasts; and the Italians on the Red Sea. These invading hosts, he continues, have had in their trains "naturalists, ethnologists, geologists, — men trained in all the sciences which illustrate geography; . . . knowledge and conquest thus march hand in hand; . . . out of the nettle danger, we pluck the flower knowledge; . . . however much we deplore the violence, we cannot be blind to the scientific results which followed upon the displacement of barbarous people by the civilized."

— It is suggested by the chairman of Section I of the American association for the advancement of science, that a subject, perhaps of principal investigation and discussion at the ensuing meeting, shall be, "The daily ration of the food of working-people in the different sections of the country. 1°. Of what does this ration now consist, and what does it cost? 2°. What proportion does the average cost of food bear to the total cost of living? 3°. What is a true or standard ration, measured by the relative proportions of proteine, fats, and carbohydrates? 4°. What are the kinds of food which contain proteine in largest proportion at the lowest relative cost? 5°. In what manner can a variety of daily rations be made up, each of which shall contain the requisite quantities of nutriment? 6°. Can a schedule of rations at low cost be presented, whereby much of the present waste of