

sources, such as the Finkler-Prior spirillum and the cheese spirillum of Deneke, which closely resemble it.

"Lustig, director of the cholera hospitals at Trieste, examined the dejecta in one hundred and seventy cases of cholera, and found the spirillum of Koch in every case: on the other hand, the bacillus of Emerich was only found in forty out of the whole number of cases examined. Tizzoni and Cattani also found Koch's spirillum in the contents of the intestine in twenty-four cases examined by them during the epidemic at Bologna in 1886. At Padua, also, researches made by Canestrini and Morpurgo gave the same result: the spirillum was constantly found in the dejecta in recent cases. These observers state that the cholera spirillum retains its motility and reproductive power for a considerable time in sterilized distilled water. They were able to obtain cultures after two months from such water. This important fact has been verified by Pfeiffer, who found, however, that in the presence of common saprophytic bacteria the cholera microbe soon died out. Hueppe has shown that the cholera spirillum forms reproductive elements, which he calls arthrospores. These are not so readily destroyed by desiccation as are the fresh bacilli, but they have nothing like the resisting power to heat and chemical agents which characterizes the endogenous spores of the bacilli. The exact proportion in which various disinfecting agents are destructive of the vitality of the cholera spirilla has now been determined with great precision, and will be stated in detail in the report of the committee on disinfectants for the present year. This committee has also made extended experiments of the same kind, in which the typhoid bacillus and various other pathogenic organisms have served as the test of germicide power. The chemical products developed in cultures as a result of the vital activity of the cholera spirillum have been studied by Bitter, Buchner, and Contani. The last-named author claims to have demonstrated the presence of a poisonous ptomaine in cholera cultures, which, when injected into the peritoneal cavity of dogs, gives rise to symptoms resembling those of cholera. A recent observation of value is that of Bujwid, who finds that bouillon cultures of the cholera spirillum have a peculiar chemical re-action by which they may be distinguished. According to this author, the addition of a 5-10-per-cent solution of hydrochloric acid to such a culture gives rise, within a few minutes, to a rose-violet color, which subsequently, when exposed to light, changes to a brownish shade. The re-action does not occur in impure cultures. The Finkler-Prior spirillum is said to give a similar re-action after a longer time, but the color first developed is of a more brownish hue."

The etiological rôle and biological character of the typhoid bacillus, discovered by Eberth in 1880, were fully discussed. Dr. Sternberg says that there is very little doubt that this organism is the cause of typhoid fever, although no satisfactory proof by inoculation in lower animals has as yet been found. This, however, he does not regard as surprising, inasmuch as we have no evidence that any of the animals experimented upon are liable to contract the disease, as man does, by drinking contaminated water. In speaking of malaria and its causative micro-organism, he said, —

"Among the most important investigations of the past year are those of Councilman of Baltimore, and Osler of Philadelphia, with reference to the presence of micro-organisms in the blood of malarial-fever patients. Both of these observers confirm the discovery of Laveran, who in 1880 announced, as the result of extended researches made in Algeria, that blood drawn from the finger of such patients during a febrile paroxysm contains a parasitic infusorium, which presents itself in different phases of development, and which in a certain proportion of the cases was observed as an actively motile flagellate organism. Osler and Councilman have found all of the forms described by Laveran; and the last-named observer reports that in recent researches in which blood was obtained directly from the spleen, the flagellate form was almost constantly found. Whether the amoeboid 'plasmodium' found by Marchiafava and Celli, of Rome, represents an early stage in the development of this organism, or whether it simply represents a change in the red-blood corpuscles, which occurs also in other diseases, as is claimed by Mosso, has not yet been definitely determined. It is somewhat curious that just when we are receiving satisfactory evidence of the parasite of Laveran in the blood of malarial-fever patients, the

bacillus of Klebs and Tomassi-Crudelli, which appeared to be dead and buried, has again been introduced to our notice by the distinguished German botanist Ferdinand Cohn. In his paper, published in June last, he gives an account of the researches of a young physician named Schiavuzzi, who has made researches in the vicinity of Pola, a malarial region in Istria. The method followed was that of Klebs and Tomassi-Crudelli; viz., examination of the air and water in malarial localities, and inoculation experiments in rabbits.

"The bacillus was constantly found in the air, and the rabbits inoculated presented symptoms and pathological lesions believed to be identical with those of malarial-fever in man. I cannot at the present time go into a critical discussion of the evidence presented, but would refer you to an experimental research made by myself in New Orleans in the summer of 1880, in which I repeated the experiments of Klebs and Tomassi-Crudelli, and arrived at the following general conclusions:—

"Among the organisms found upon the surface of swamp mud, near New Orleans, in the gutters within the city limits, are some which closely resemble, and perhaps are identical with, the bacillus malariae of Klebs and Tomassi-Crudelli; but there is no satisfactory evidence that these, or any of the other bacterial organisms found in such situations, when injected beneath the skin of a rabbit, give rise to a malarial-fever corresponding with the ordinary paludal fevers to which man is subject.

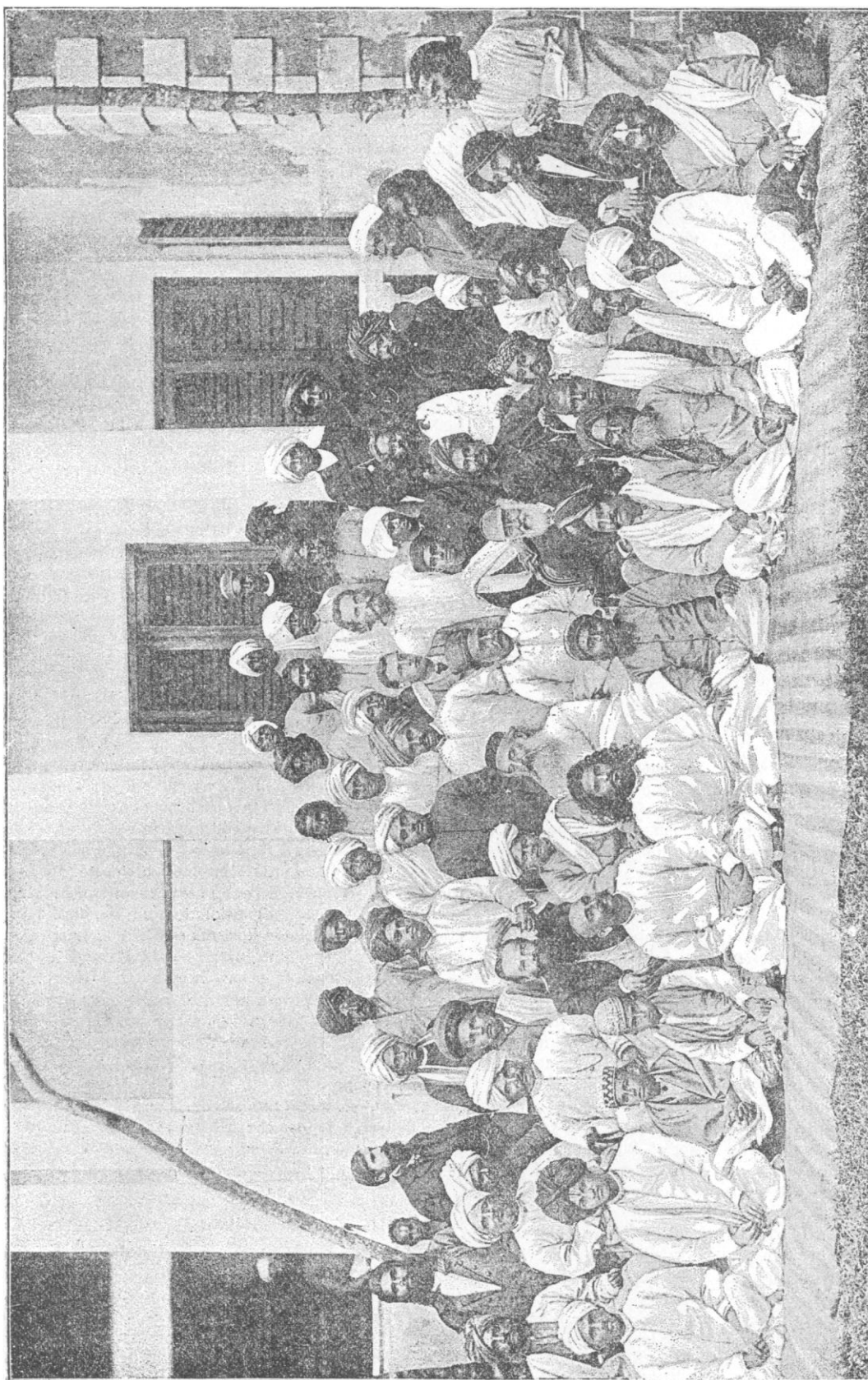
"I see no reason to modify the opinion here expressed, notwithstanding the indorsement given by Cohn to the results announced by Schiavuzzi. These researches relating to organisms in the air and water, and experiments on rabbits, especially in the hands of an inexperienced investigator, cannot have any great scientific value in the elucidation of an etiological problem. The sources of possible error are too numerous, and the method is in any case inadequate for the complete solution of the problem. It is essential that the infectious agent, especially one so easily demonstrated as this bacillus, be proved to be present in the blood or tissues of malarial-fever patients; and in the absence of such proof, experiments on rabbits, and researches in the air of malarial regions, can have but little weight. It may well be that in the swampy districts of warm climates, where malarial-fevers prevail, one or more species of bacillus will be found in the air or in the water, which are absent from the drier air and running waters of non-malarious uplands; but this is simply an interesting fact in natural history, relating to the distribution of organisms of this class, and by itself cannot be accorded any value in a consideration of the important question of etiology. The method of research pursued by Laveran, by Marchiafava and Celli, by Councilman and by Osler, is the true one, and none of these gentlemen have encountered the bacillus of Klebs and Tomassi-Crudelli in their extended researches. On the other hand, they are in accord as to the presence in the blood of a flagellate organism, and of certain spherical and crescentic bodies, which are believed to represent different stages in the life-history of this infusorium."

The address, taken as a whole, is one of the best which has ever been delivered before the association, and will doubtless excite great interest among sanitarians. We shall take occasion to refer hereafter to some of the recommendations made by Dr. Sternberg.

THE THEOSOPHICAL MOVEMENT IN INDIA.

ERNST VON WEBER prints in *Ueber Land und Meer* an interesting paper on the theosophists of India, and accompanies it with the illustration which is reproduced on p. 262. He calls attention to the fact that students of *Völkerpsychologie* cannot fail to be impressed by India's awakening from her long intellectual sleep. To-day the new and fresh intellectual life may be observed from the Himalayas to Ceylon, and from the Indus to the fruitful lands of Burmah. This movement owes as much to the spread of the English language as to any other one cause. It is now customary for all educated Hindus to be able to speak the English language fluently, and the British Government has helped this on by its system of schools.

The Aryan Hindu is naturally of a metaphysical and speculative turn of mind, and it is therefore not to be wondered at that the



Mr. Cooper.

E. v. Weher.

Subbia Rad. Colonel Olcott.
Bavanishangar.Mr. Leadbeter.
General Morgan.

Prince Harisinghshee.

ANNUAL CONGRESS OF THE THEOSOPHICAL BROTHERS AT ADYAR.

newly aroused intellectual activity should have found expression in the so-called theosophical movement. The first impulse to this idealistic development did not come, however, from India itself, but from abroad. It came from the land which, as the writer cynically expresses it, is the most unfruitful soil for idealistic fruit, the United States of America. It was in New York, as long ago as 1875, that Colonel Olcott laid the corner-stone of the theosophical structure which was soon to exercise so wide-spread an influence. The principles of the cosmopolitan brotherhood of theosophists, which in certain particulars resemble those of the Freemasons or those of the Jewish sect of the Essenes, rapidly spread through other countries. The indefatigable apostle of the new society did his work so well, that the number of associate societies, which in 1879 was only two, increased in 1883 to ninety-three, and in 1886 to one hundred and thirty-two. Of this last number, 107 are in India, 8 in Europe, 15 in America, 1 in Africa, and 1 in Australia. The headquarters and administrative centre of all these societies is Adyar, a rural capital in Madras, where Colonel Olcott dwells, on the banks of a river in a paradise of palms and flowers. His villa also serves as the gathering-place where each year in Christmas week more or fewer of the delegates of the theosophical societies throughout India assemble in convention. Colonel Olcott has managed to imbue thousands of men of the higher circles of India with his ideas. He is greatly honored by his fellow-theosophists, and is loved as a father and benefactor. His occasional journeys through the country are like triumphal processions, and his influence over the cultured classes of the Hindus throughout India is extraordinary.

Some idea of the objects and aims of the Theosophical Society may be gathered from the following selection from the declaration of principles adopted at the annual assembly of the delegates in 1886. The objects of the society are there set forth as, (1) to lay the foundation for a universal brotherhood of man, without distinction of race, religion, or color; (2) to promote the study of the Aryan and other Oriental literatures, religions, and sciences; (3) to investigate hitherto unknown natural forces and the psychical powers of man (which is pursued by a part of the brotherhood only). The brotherhood invites to membership all those who love their fellow-men, and who believe the divisions following from differences of race, religion, and color, to be an evil; all students and scholars; all earnest seekers after truth; all philosophers in the East as well as in the West; all those who love India and desire the return of its former spiritual greatness; and, finally, all those who are striving after permanent good, and not mere passing pleasures and the interests of a wordly life, and who are ready to make personal sacrifices in order to attain to knowledge of the highest good. The society professes no special religion, and has in no wise the character of a sect, for it includes followers of all religions. It demands of all its members only such tolerance of other faiths as each man asks for his own. The society interferes in no way with the Indian laws of caste, nor with any other social customs and usages.

To exemplify these tolerant principles, the assembly hall at Adyar contains life-size portraits of the representatives and founders of all the great religions. One of the matters in which the society is busily engaged is the collecting of rare books of the old Indian literature, written often on palm-leaves. The value of this Sanscrit library increases daily, and it is hoped to make it in time the most complete in the world.

The illustration on p. 262 shows the delegates who assembled at Adyar in 1885. The beautiful Indian costumes, with their bright colors, and the high turbans often sewn with gold and silver threads, made the group peculiarly artistic and pleasing. Among the distinguished theosophists shown are President Olcott, Prince Harisinghshee, the English general Morgan, the theosophist evangelist Leadbeater (formerly an Anglican clergyman), the Sanscrit scholar Bavanishangar, Mr. Cooper Oakley, an American and the editor of the *Theosophist*, and the Hindu philosopher Subba Rad. At these assemblies it is noticed by visitors that the delegates confine themselves to a vegetarian diet, and do not partake of any liquor whatsoever. The assembly closed with a brilliant garden-party, at which old Sanscrit songs were sung to Indian music, and the delegates were sprinkled with rose-water and bedecked with flowers.

BOOK-REVIEWS.

The Education of Man. By FRIEDRICH FROEBEL. Tr. by W. N. HAILMANN. New York, Appleton. 12°.

Elementary Psychology and Education. By J. BALDWIN. New York, Appleton. 12°.

DR. HARRIS is issuing the volumes of his International Education Series with great promptness. Volume V. in the series is Froebel's classic work translated. Since this was written, now more than sixty years ago, its readers have increased in number year by year. Inaccessibility and bad translations have hindered its progress in this country, but both these obstacles are now overcome, and no teacher who is imbued with the spirit of his profession will fail to have the 'Education of Man' by him for careful study and constant reference. We believe that posterity will award to Froebel the highest place among modern educators. He was infinitely more practical than the authors of 'Emile' and 'Levana,' and infinitely more profound and philosophical than Pestalozzi. The spirit of the kindergarten is Froebel's greatest achievement: the kindergarten itself is a mere detail. The spirit runs through all sound education, and the great manual-training movement, now the distinguishing feature of our educational development, is but another manifestation of it. The present translation of Froebel is a very good one, and leaves little to be desired. We regret that the translator has disfigured the text and broken the continuity by interjecting observations of his own.

Volume VI. is Baldwin's 'Elementary Psychology and Education.' Of it we cannot conscientiously say any thing complimentary, and we confess our surprise at its finding a place in the series. We do not object to making psychology as elementary as one pleases, but we do object to making it pre-Kantian. The present author may have heard of the *Kritik der reinen Vernunft*, but he certainly has never read it. We agree most heartily with Dr. Harris, that a teacher should know something of psychology, and we would go considerably further than he does in emphasizing the fact. But we submit that to teach psychology that is positively wrong and unscientific under the pretence that it is elementary, is worse than to teach nothing of it at all. Illustrations of loose statement and positive error abound in this book. We read, for example, of "sense-perception, conscious perception, and noumenal perception." The 'enduring self,' matter, mind, space, causation, right, beauty, and the like, are included under 'noumena.' We are told also that "choice is uncaused cause," and the fact that "literature represents man as free and responsible" is cited as an argument for freedom of the will. It is not profitable to multiply the evidences of the author's incapacity to write the book. It is in no respect worthy of a place in this series.

NOTES AND NEWS.

ANOTHER important acquisition to our store of knowledge has recently been made, says *Nature*. Glucose, commonly called grape-sugar, has been artificially prepared by Drs. Emil Fischer and Julius Tafel in the chemical laboratory of the University of Würzburg. This happy achievement, which is announced in the number of the *Berichte* just received, is one which has long been looked forward to, and which cannot fail to give deep satisfaction in chemical circles all over the world. As is generally the case in syntheses of this description, not only has the sugar itself been actually prepared, but, what is at least quite as important, considerable light has been thrown upon that much-discussed question, the constitution of sugars. A most remarkable, and yet only to be expected, attribute of this artificial sugar is that it is found to be entirely incapable of rotating a beam of polarized light. As is well known, there are several naturally occurring varieties of glucose, all of which may be expressed by the same empirical constitution, and all possessing the power of rotating the plane of polarization: dextrose, or grape-sugar, the best-known of these varieties, as its name implies, deviates the plane of polarization to the right, as do several other less important varieties; while lævulose, or fruit-sugar, rotates the plane to the left. But in artificially preparing a glucose there is just as much tendency for one kind to be formed as another, and the probability is that both dextro and lævo are simultaneously formed, and thus neutralize each other, producing a totally inactive mixture. It may be that, as in the case of racemic acid,