way, or we declare our inability of having an opinion of our own. How shall we form opinions of our own otherwise than by examining the facts in the case? and how can we learn these facts which are unchangeable, those facts over which man, with all his pride, can have no control?"

I have no hesitation in thus quoting Professor Agassiz, although he seems to be against me, judging from his reference to logic alone, because his remarks seem so applicable to what I am urging, in that they so strongly inculcate the necessity for logical training (and which the study of natural science gives) in what is certainly a convincing manner. Still, I am fully persuaded that he would not have spoken in this way about logic, if it had been understood that it was to be taught in the way he urged with natural history; viz., to take the objects or words and propositions in use every day, and apply these principles to them. It then becomes something very much higher than a mere feat of memory, and I fail to see why instruction in logic would be any waste of time, even when natural history was being studied, and where the kind of work to which Professor Agassiz refers is out of the question; and for the present this seems to be the case in all our grammar-schools. The great desideratum is the proper presentation and teaching of logic by those who really understand it themselves.

In conclusion I would say that it is very difficult for me to understand why, if logic is ever worthy of study, it is not more necessary in the beginning of an education than at its close. I will therefore hope that all who are engaged in the profession of teaching will give this subject their serious consideration, and perhaps trial. Let us not forget that logic teaches us to reason correctly; that good reasoning will give us more knowledge, and this will give us power; which, if combined with good character, cannot help making its possessor more valuable to himself and to his fellows.

S. J. BUMSTEAD.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

THE American Public Health Association held its fifteenth annual meeting at Memphis, Tenn., on Nov. 8, 9, 10, and 11. The attendance was good, among those present being many of the prominent sanitarians of the United States and Canada. At the first session ninety-four new members were elected. The annual address was delivered by the president, Dr. George M. Sternberg, U.S.A. The following is an abstract of the address:—

"It was due to the yellow-fever epidemic of 1878, in which Memphis was the chief sufferer, that steps were taken at our meeting of that year, in the city of Richmond, to urge upon Congress the importance of a national board of health. Recognizing the fact that epidemics do not respect State boundary-lines, and that an efficient sanitary service in times of emergency requires a liberal expenditure of money, and unity of action on the part of sanitary officials, we urged the formation of a central health board, and for a time it seemed as if our well-meant plans would be crowned with success. Indeed, they were crowned with partial success, for all must recognize that in the early days of its existence the National Board of Health accomplished much good. It is unnecessary for me to refer to the various circumstances which conspired to paralyze the effective energy of this board. Unhappily it is a thing of the past, and the hopes which we had founded upon this our bantling are but a memory of the past. But we should not be discouraged that our first effort has failed. A careful consideration of the circumstances which led to this failure may enable us to mature a better plan. Such a plan, indorsed by the judgment of the experienced sanitarians here assembled, and properly presented to our national legislators, could not fail to receive respectful attention.

"One thing appears to me to be thoroughly demonstrated by the experience of the past; namely, that a central health board, to be efficient, must be attached to one of the departments of the government now in existence, so that it may be under the protection of a cabinet officer. It would be useless to ask at the present time that the sanitary interests of the country may be represented by an additional cabinet officer, a minister of public health, although there can be no doubt that the interests involved are sufficiently important to justify such an innovation. But we may at least demand that the sanitary interests of the people of the United States shall receive the same consideration from the national government that is accorded to the educational interests, the agricultural interests, etc. We may at least ask for a bureau of public health, with a commissioner at its head, and with the necessary secretaries and clerical force to make it efficient; and attached to such a bureau should be a well-equipped laboratory, in which expert bacteriologists, chemists, and sanitary engineers should be employed in the experimental investigation of unsettled sanitary problems, such as the natural history of disease-germs, the best methods of destroying them, protective inoculations against infectious diseases, problems in sanitary engineering (such as the disposal of sewage, domestic sanitation, etc.), food-adulterations, and a variety of other questions of equal importance, which will readily occur to you. I do not approve of the plan of having a central board of health, composed of members located in various parts of the country. Such an organization is cumbersome, and it cannot be expected that a board which is only assembled at long intervals, and of which the members are occupied by various pursuits, which claim their time and best thought, will render the most efficient service. On the other hand, by diversity of opinions they may greatly embarrass their executive officer, who must necessarily be located in Washington. Nor, in my opinion, would a board composed of officials at the head of various departments in Washington, such as the surgeon-general of the army, the navy, and the marine-hospital service, as has been suggested, be much better. These officials are fully occupied with the duties pertaining to their office, or at least have not sufficient leisure to undertake the executive work of a central health bureau. I would therefore expect better results from the untrammelled action of a single commissioner, who would be responsible directly to the cabinet officer to whose department his bureau was attached, and who would necessarily be controlled by the law defining the nature of his duties. In this case it is evident that the good accomplished would depend largely upon the fitness of the man selected for the special duties intrusted to him, and that a political appointment in the first instance, or the removal of a suitable man for political reasons, would entirely defeat our object.

"We may, however, ignore this possibility, and trust to the good judgment of the chief executive and the growing public sentiment in favor of retaining efficient bureau officers, without regard to party changes.

"In connection with a bureau of public health, it would certainly be desirable to have an advisory board of health, to which the commissioner could refer questions for consideration, or which could advise him of new measures, or desirable changes in his regulations, which, after full discussion, commended themselves to the judgment of the board. Such a board should have no executive power, and the members should receive no pay beyond their actual expenses in attending the appointed meetings. I would suggest that such a board should consist of the surgeons-general of the army, the navy, and the marine-hospital service, and of the presidents of State boards of health. One annual meeting in Washington would probably answer the purpose for which a board would be constituted, except in case of an actual or threatened epidemic, when it might be convened, at the suggestion of its president or of the commissioner of health.

"I request your careful consideration of the plan here suggested, and, if it meets your approval, would urge the importance of taking such action at the present meeting as will insure its being properly brought before the Congress of the United States."

Dr. Sternberg referred to the epidemic of yellow-fever at Memphis in 1878, and the sanitary improvements made in the city since that time, and then gave its inhabitants the following advice:—

"Do not allow yourselves to fall into a state of inaction and false security because for several years our foe has been kept at bay. Although it is now evident that yellow-fever is not epidemic in any portion of our land, and we have learned by recent experience that by proper measures it is possible to exclude it for a series of years, even from the city of New Orleans, yet there are so many possibilities of its introduction, in spite of the vigilance of those who have charge of the gateway of the Mississippi valley, that it would be folly to neglect those local measures of sanitation which remove the vulnerability of cities in the presence of the germs of pestilential diseases. Shutting the door is of prime importance, and while the keys are in the hands of our energetic and able colleague, Dr. Holt,

we may feel comparatively safe. But the efficient president of the Louisiana State Board of Health cannot guarantee that all avenues of approach are securely guarded, inasmuch as some of these avenues are quite beyond his control. This is exemplified by the Biloxi epidemic of 1886. Local outbreaks, such as that at Biloxi, and the epidemic at Key West and at Tampa during the present year, show that the conditions upon our Gulf coast are no less favorable to the presence of yellow-fever than they were in former years, and that our immunity depends solely upon the exclusion of an exotic germ. Unfortunately, also, the Biloxi epidemic illustrates the very greatest liability of physicians to fall into error with reference to the diagnosis, when yellow-fever unexpectedly makes its appearance outside of its habitual range. History repeats itself in this particular. The early cases in an epidemic, which are often mild, are pronounced to be malarial-fever; and this diagnosis is often sustained by those who have committed themselves to it, when no reasonable doubt remains in the minds of unprejudiced physicians as to the true nature of the malady.

"The question whether it is practicable to make a city, which lies in the area subject to invasion, proof against epidemics of yellow-fever and cholera, is one of very great importance. At the International Sanitary Conference at Rome the delegates from England and from India opposed all quarantine restrictions as unnecessary, and pointed to the fact that for years there has been constant and free communication between cholera-infested ports in India and the seaport cities of England, but that cholera has not effected a lodgement in that country. Dr. Thorne Thorne, of the local government board, a delegate to the conference, ascribed this immunity to the sanitary improvements which have been carried out in England during the past ten or twelve years. He stated, that, during the period included between the years 1875 and 1884, an amount exceeding six and one-quarter millions sterling per annum had been expended in England 'under private and public acts mainly of a sanitary character.' Dr. Thorne Thorne, in his report of the proceedings of the conference referred to, says, —

"'Lastly, I would note that I took occasion to explain to the technical commission that expenditures such as I have referred to are, with only very trivial exceptions, voluntarily incurred in the interests of public health.

"'I then went on to show, in connection with this expenditure, that the average annual mortality for England and Wales was now only 19 as opposed to 22 per 1,000 in the decennial period 1861–70, and this notwithstanding increase in population of some 5,000,000; and taking the continued fever mortality of this country as that which, in point of causation, most nearly resembled cholera, I pointed out, that whereas, in the five years 1865–69, this mortality was at the rate of 934 per 1,000,000 living, it had steadily fallen to 428 per 1,000,000 during the period 1880–82, and that it is now only 307 per 1,000,000.'

"In a later communication, published in the *Practitioner* for October, 1887, Dr. Thorne Thorne gives fuller details of the English system of protection against cholera as follows: 'Having deliberately abandoned the system of quarantine, we began many years ago to organize the system of medical inspection with isolation. The medical inspection comes first into operation on our coasts. The customs officers board the vessel coming into our port, and they at once communicate to the sanitary authority the occurrence of any case of cholera, choleraic diarrhœa, or suspected cholera. A vessel so affected is detained until the medical officer of health has examined every member of the crew and passengers. Those actually sick of cholera or choleraic diarrhœa are at once removed to the port sanitary hospital, and any person certified to be suffering from any illness which that officer suspects may prove to be the cholera is detained for a true period of observation not exceeding two days. The medical inspection is thus followed by isolation of the sick. Unlike a quarantine system, this process does not interfere with the healthy, or expose them to risk by herding them together with the sick; but the names of the healthy, and the places of their destination, are taken down, and the medical officers of health of the districts in question are informed of the impending arrivals. This part of our system has been named our first line of defence, but it would be of little value if we stopped there. Our main trust is in the promotion of such local sanitary administration in every part of the country as shall rid us of the conditions under which alone cholera can spread. In periods of emergency, as during the past three years, a special medical survey of such districts as are most exposed to risk is organized under the supervision of the medical officer of the local government board, and, where needed, the sanitary authorities are urged to action. Important as have been the results of the recent survey, they would go for little were it not for the steadily maintained work of the sanitary authorities and their officers throughout the kingdom; and we who have been taunted abroad for opposing quarantine, because its restrictions touched our commercial interests and pockets, may justly feel proud that in England and Wales alone the people have, during the past ten years, of their own accord, and apart from government dictation, spent, by way of loan or in current expenditures, over £80,000,000 sterling for purposes mainly of a sanitary character. And we may fairly ask whether any corresponding expenditure has in other countries given evidence of real faith in a quarantine system.'

"Without denying the value of the sanitary improvements which have been carried out in England, and the possibility that her immunity from cholera is largely due to them, the delegates from more exposed countries, such as France and Italy, demanded a quarantine station upon the Suez Canal, and pointed out the fact that their seaport cities were not in such a sanitary condition that they could hope to escape the ravages of the pestilence, in case of its introduction, and that to place them in such a state of defence would require time and the expenditure of large sums of money. It was noticeable that those countries (such as Turkey, Egypt, and Spain) where sanitary improvements have made the least progress were the most exacting with reference to quarantine restrictions. They evidently looked upon these as their only hope, and were advocates of the old-fashioned time-quarantine, which, as carried out in these countries, has often been attended with barbarities which are intolerable for civilized nations. Self-preservation is, indeed, the first law of nature; but it is barbarous to sacrifice the life of another to save our own, and, in guarding the lives of a community, we are bound to show due consideration for the health and comfort of those who are believed to be the possible bearers of disease-germs.

"Recognizing this humane principle, a majority of the delegates to the sanitary conference of Rome were anxious to effect a compromise between the old-fashioned time-quarantine and the British practice, which they could not rely upon for the countries of southern Europe. It was believed that such a compromise was practicable, and that the plan agreed to by a majority of the delegates present was more reliable than a simple quarantine of detention. I must refer you to the published transactions for the details of this plan; but in brief it consisted of a sanitary supervision of ships at the port of departure, when this was an infected port or in communication with an infected locality; in the sanitary supervision of ship and passengers while in transit, by a properly qualified physician upon all passenger-ships; and in such detention at the port of arrival as might be necessary for the disinfection of the ship, the personal effects of the passengers, etc. If one or more cases of cholera should appear on board during the voyage, they were to be isolated, and rigid measures of disinfection carried out, and the action of the health authorities at the port of arrival was to depend upon how effectively this had been done. In short, the treatment of the vessel and its passengers was not to be determined in advance by arbitrary rules, but was to be governed by an intelligent consideration, by an expert, of all the circumstances relating to the sanitary history of the ship from the date of its departure from the infected port. This rational quarantine service, which is far less burdensome to the commerce of a country than the arbitrary time-quarantine of former days, has proved itself to be also more effectual in accomplishing the end in view. This is amply proved by recent experience in our own country, where, to a large extent, the principles indicated control the action of the health-officers of our principal seaports. Look at the city of New Orleans, where epidemics of yellow-fever were formerly so frequent as to lead to the belief that the disease was endemic, and a necessary evil appertaining to the situation of the Crescent City. Happily, under an efficient quarantine service, she has now a record of seven years' exemption from the dreaded pestilence."

In discussing cholera and its probable appearance in the United States, Dr. Sternberg said, —

"It is perhaps too soon to speak with confidence with reference to the action taken by the sanitary officials of the port of New York upon the recent arrival of two cholera-infected vessels from the Mediterranean; but we have good reason to hope that the measures taken will prove sufficient, and that this pestilential disease, which has for several years been threatening us from a distance, has not effected a lodgement upon our shores. Whether it would be practicable to put our seaports in such a state of sanitary defence that it would be safe to open the door and defy the foe, is extremely doubtful. I have never believed that yellow-fever was excluded from New Orleans in 1862 and 1863 by the sanitary regulations enforced by General Butler, as has been claimed. The exemption from this disease enjoyed by the unacclimated soldiers from the North, who filled the hospitals in that city at the time mentioned, was due, in my opinion, to the absence of commerce during the military occupation of the city, and to the rigid enforcement of quarantine restrictions.

"But I do believe that this and other cities similarly located can be preserved from such devastating epidemics as have too often occurred in the past, and that, by the carrying-out of needed sanitary improvements and the constant supervision of expert sanitary officials, supported by an enlightened public sentiment and sufficient appropriations, the ravages of pestilential diseases may be restricted within very narrow limits.

"As regards cholera, the system of local defence is even simpler than in the case of yellow-fever. Ample evidence demonstrates that the epidemic extension of this disease depends largely, if not exclusively, upon the water-supply. Where this is subject to contamination by the discharges of the sick, there cholera is liable to become epidemic. On the other hand, cities like Rome, in Italy, which have an ample supply of pure water, drawn from a source not likely to be contaminated, seem to be cholera-proof, notwithstanding the filth and squalor in which a considerable portion of the population live. The same thing is seen in Naples, which in 1884 suffered terribly, but which, since the completion of its new system of water-works in 1885, has enjoyed a comparative immunity, notwithstanding the fact that cholera still prevails in Italy, and that we have evidence of its presence in a malignant form in the city referred to. When I was in Naples, in 1885, the mayor of the city invited a number of the delegates to the sanitary conference to the municipal palace for the purpose of conferring with them with reference to projected sanitary improvements, and especially with reference to the best system of sewerage for the city, which, up to the present time, remains destitute of sewers, and which, I may add, is a noted stronghold of typhoid-fever. In the course of the conversation, I suggested to the mayor Colonel Waring's American system, which has been tested with such favorable results in this city. My recommendation was sustained by the distinguished German bacteriologist, Dr. Robert Koch, who was one of the delegates present. I may remark that I have recently received a letter from Dr. Koch, asking me to give him full particulars with reference to the details of this system as carried out in the city of Memphis."

In commenting upon quarantine as at present practised in this country, the president said that he considered it a wrong principle that commerce should be taxed for the support of quarantine establishments. In his judgment, the people who are protected should pay the cost of such protection. He was not so much concerned with the unjust tax laid upon ship-owners as with the gross injustice to passengers practised at many ports in various parts of the world where they are so unfortunate as to be detained at a quarantine station. He narrates the history of a case of this kind which fell under his own observation. He says, "When I left Brazil, in the month of August last, small-pox was epidemic both in Rio de Janeiro and at Para. Our ship touched at Para, and five days later at Barbadoes. A passenger for this port was not allowed to land, beeause of the prevalence of small-pox in Brazil. Proceeding to St. Thomas, less than two days' sail from Barbadoes, our passenger was again refused permission to land, except to go to the quarantine station for a certain number of days. This was all right, but the conditions upon which he would be received seemed to me to be all wrong. Either he himself or the ship must guarantee the payment of the quarantine fees, which would be three dollars a day for his board, and five dollars a day to the quarantine physician, if he were alone. If others were at the station at the same time, this fee would be divided between them. One can easily imagine what a hardship such a tax would be for a person of limited means, who had only provided himself with funds for the journey he had undertaken. The agent of the ship refused to take any responsibility, and our passenger had no resource but to submit to the imposition, or to come on to New York, paying his passage to that port."

Another illustration of the evils arising from the present system of supporting quarantine establishments was given by Dr. Sternberg, in his address, as being his own experience when he recently arrived at New York quarantine on his return from Brazil. "With the deputy health-officer, who boarded our ship, came a man with a jug. I was informed by one of the officers of the ship that he was to disinfect the vessel. Being somewhat curious to know the method of disinfection employed, I asked the ship's surgeon to go with me to inspect, when, after a detention of less than one hour, we had started from the quarantine station for our wharf. We found that the man with the jug had lowered a bucket by means of a rope through one of the hatches between decks. Upon pulling up this bucket, I found that it contained two or three pounds of some powder which had been wet, probably with acid solution, and which gave off an odor of chlorine. No doubt, when first lowered between decks, there had been a considerable evolution of chlorine; but, in the vast space to be disinfected, it was so diluted that at the end of an hour I did not detect the odor of chlorine-gas when I lifted the hatch, and it was only by approaching my nose to the bucket that I was able to ascertain what disinfectant had been used. The most curious part of the story is, that I was informed that the bucket had been lowered between decks to disinfect a quantity of hides which were stored in the hold. What was the object of this 'disinfection'? Evidently not to disinfect, for no one at the present day would think of maintaining that the hides in the hold had been disinfected by the procedure of the man with the jug. The only object that I can conceive of depends upon the fact that there is a fee for disinfecting, which must be paid by the agents of the ship; at least, I was so informed by one of the officers of the ship."

The president referred to the fact that while exotic pestilential diseases, such as yellow-fever and cholera, were the levers which move corporations to make necessary sanitary improvements, these are, as compared with certain indigenous or naturalized infectious diseases, of secondary importance. The chief aim of the American Public Health Association should be to ascertain what measures are most effectual for the restoration of their endemic maladies, such as typhoid-fever and the malarial fevers, and for the banishment of all diseases in which the contagion is given off from the persons of the sick, such as scarlet-fever and small-pox. So far as the diseases of the class last mentioned are concerned, we may safely say that we know how they may be banished from a community; viz., by isolation of the sick, and disinfection of all infectious material, and, in the case of small-pox, by vaccination. The main mission of the sanitarian, therefore, is to insist upon the thorough execution of these measures.

Other topics dealt with in the address were the necessity for instruction of the people in the principles of personal hygiene, in which labor Mr. Henry Lomb of Rochester had borne so noble and generous a part, by giving prizes for essays on the construction of the homes and the composition of the food of the working-man; the erection of laboratories, such as that at Johns Hopkins University, the Hoagland at Brooklyn, and others at New York, Philadelphia, Boston, and Ann Arbor; the infectious diseases of animals, — anthrax, swine-plague, hydrophobia, etc. With reference to the germ of cholera, Dr. Sternberg said, —

"With reference to cholera, I may say to you that recent researches give support to the conclusions of Koch as to the pathogenic *rôle* in this disease, of the spirillum discovered by him in the intestines of cholera patients. Its constant presence in this disease seems to be demonstrated, and it is now generally admitted by bacteriologists that there are definite characters by which it may be distinguished from similar organisms obtained from other

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 amœboid '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 malariæ 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