eight-hour sleep, while his associates made the balloon and the instruments ready. He carried up a steel cylinder, filled with a thousand liters of oxygen, condensed to 200 atmospheres pressure; this to reinforce his breathing at great heights. Only once was he partly overcome with sleep; then he roused himself with a loud scolding. He made a full series of observations on the way up and down; and when nearing the ground this well-trained observer packed up his instruments, so that they should not be injured in case he alighted violently. (Dr. W. Köppen, in *Annalen der Hydrographie*, 1895, May, 179–185.)

W. M. DAVIS.

HARVARD UNIVERSITY.

SCIENTIFIC NOTES AND NEWS.

THE HUXLEY MEMORIAL.

THE movement inaugurated in England, in favor of the erection of a suitable memorial to the late Professor Huxley, by Lord Kelvin, Sir John Lubbock, Professor Michael Foster and others, is taking form rapidly. In conference with Lord Kelvin, a suggestion has been made by Dr. Thurston that the monument be made international, and it is expected that, on the convening of the British committee, in October, this extension of the plan may be given formal approval and a beginning of the work affected. Every member of the original provisional committee thus far consulted is reported to be favorably disposed, and the American promoter of the plan reports from Belgium an equally favorable inclination on the part of scientific men there; and it is expected that the same disposition will be manifested in Germany and in France. Meantime, the American subscription is already headed by Mr. Carnegie with $500 (and more, possibly, if needed), and is likely to reach a large sum. It is hoped that the American committee will be made up of leading men of science in the United States and the contribution be thus made a noteworthy one in other than a purely financial way. Scientific men and others interested in this great movement may, meanwhile, transmit their pledges and subscriptions either to SCIENCE or to Dr. Thurston, and they will be promptly entered upon the list, as received. The Huxley memorial cannot fail of being made worthy of that famous man and of the great nations taking part in its erection.

THE FRENCH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE Association met at Bordeaux on August 4th, at which place its first meeting was held twenty-three years before. The members were welcomed by the Mayor of Bordeaux, who called attention to the progress made by the city in educational, scientific and philanthropic institutions since the previous meeting of the Association. The number of elementary schools has been tripled, and there have been established faculties of science, letters, law and medicine, attended by more than 2,000 students. M. Émile Trélat, the President, chose as the subject of his address, *La Salubrité*, in which he traced the more important contributions of hygiene to science and human welfare. M. Livon, Secretary of the Association, gave an account of the preceding meeting at Caen and reported a necrology and the honors which had been conferred during the year on members of the Association. The Treasurer, M. Émile Galante, gave an account of the finances of the Association, from which it appears that the receipts for the year were over 86,000 fr. The capital of the Association is now over 1,000,000 fr. A large number of grants varying in amount from 200 to 1,500 fr. were made for the advancement of science in various directions. The Association met in four sections: Mathematics, physical and chemical science, natural science and

economic science, before each of which many papers (some 200 in all) were presented.

THE RELATIONS OF PHYSIOLOGICAL AND CLINICAL RESEARCH.

One of the most interesting addresses before the *British Medical Association* was the introductory address 'On The Relationship in which Physiological and Clinical Work Stand to One Another' with which Dr. Ferrier opened the section of physiology. According to the official report in the *British Medical Journal*, Dr. Ferrier pointed out, by taking specific examples, how largely recent progress had been affected by a thorough and accurate combination of results attained by the two methods. Thus he mentioned how experimenting on animals, and from a physiological standpoint Professor Sherrington had succeeded in mapping out a whole series of skin areas in relation to segmental regions of the spinal cord. Further, from the clinical side Dr. Head had attained great success by a thorough study of herpetic areas and areas of referred pain in showing the relationship of thoracic and abdominal viscera to spinal segments. Dr. Ferrier pointed out how great were the difficulties encountered by the clinical worker, as the cases he had to unravel were so complex and at first sight contradictory; yet in so many instances, so soon as physiological work could be brought to bear upon them, order soon appeared among the mass of facts which had been accumulated. Moreover, that working under the comparatively simple conditions produced by experiment, physiologists were in a far better position to criticise and throw light upon the obscurer facts of clinical work. To many physiological problems, however, an answer could only be finally obtained as a result of clinical study, and he therefore particularly emphasized the necessity of a worker in either branch being at the same time thoroughly trained in the other.

GENERAL.

The second annual meeting of the Society for the Promotion of Engineering Education will be held in connection with the A. A. A. S. at Springfield, on September 2d, 3d and 4th. It is proposed that all papers presented before the metting shall be tributary to the subjects announced on the program. Each paper will be limited to fifteen minutes, and an abstract of about 300 words will be printed before the meeting and distributed to the members. Five minutes will be allowed to anyone wishing to discuss the papers. There will be but one session daily for the reading of papers and for discussions.

The question of an international bibliography of science appears to be receiving attention in all directions. An international bibliographical conference has been called to meet in Brussels, September 2–4, of this year. The programme includes the discussion of the following propositions: 1. The foundation of an international institute of bibliography. 2. The adoption of an international and universal classification of bibliography. 3. The publication of a universal bibliographical *Répertoire* by an international bureau which shall seek the cooperation of all existing bibliographical agencies. 4. Proposal to various governments to establish an international bibliographical union.

The *Berliner Akademie der Wissenschaften* has elected as corresponding members Prof. Wilhelm V. Gümbel (Münich), Prof. Albrecht v. Zittell (Münich), Prof. Albrecht Schrauf (Vienna), Prof. Alfonso Cossa (Turin), Prof. Alexander Agassiz (Cambridge), and Prof. Eleuthère Mascart (Paris).

Professor Bonnet, professor of anatomy in the University of Giessen, has received

a call to Greifswald, and Dr. M. Miyoshi has been appointed professor of botany in the University of Tokyo.

THE Paris Academy has elected Prof. Retsius and Dr. Bergh, of Copenhagen, as correspondents.

ACCORDING to the *British Medical Journal*, in the discussion on the revision of the *British Pharmacopœia*, at the annual meeting of the British Medical Association, Dr. Donald MacAlister announced on behalf of the editing committee that the metric system would be introduced into the forthcoming edition. To facilitate transition in the pharmacopœial article the official proportions will be given in the familiar British measures as well as metrically. In all gravimetric and analytical operations, however, the metric system alone will be made authoritative.

MR. W. NELSON GREENWOOD, of Glasson Dock, Lancaster, Eng., has addressed a circular letter to the shipmasters throughout Great Britain asking their opinions regarding the advisability of making a change in time reckoning. Mr. Greenwood, who publishes Tide-tables and a Nautical Almanac for the use of English seamen, is himself favorable to the unification of the civil, nautical and astronomical days.

THE papers by Mr. Borchgrevink before the *International Geographical Congress* attracted special interest. The Norwegian explorer described his voyage on the steam-whaler Antarctic during which he and his companions landed on Cape Adair, being the first to land on the Antarctic continent, which may be twice the size of Europe but of which we at present know nothing. The Congress unanimously passed the following resolution:

"The sixth Geographical Congress, assembled at London, 1895, with reference to the exploration of the Antarctic regions, expresses the opinion that this is the greatest piece of geographical exploration to be undertaken, and, in view of the additions to knowledge in almost every branch of science which would result from such scientific exploration, the congress recommends that the several scientific societies throughout the world should urge, in whatever way seems to them most effective, that this work should be undertaken before the close of this century."

MR. BINNIE, the engineer of the London County Council, has proposed a plan for a new water supply for London. It is proposed to bring the water from the valley of the Wye in two covered aqueducts, the largest in the world, the one 150, the other 176 miles in length. Each is to convey 200,000,000 gallons of water per day.

FOLLOWING the horseless carriage contest in France, one between Chicago and Milwaukee is proposed for which prizes amounting to $5,000 are offered.

IT is stated that astromonical observations on Mont Blanc will begin soon. The Polar 'siderostat," superseding the ordinary telescope, has reached Chamonix.

THE section of anatomy and histology at the recent meeting of the *British Medical Association* was of special interest, as it was the first time that a section for anatomy had been made at the meetings of the Association.

THE Indian Survey Department has sent out a scientific mission with the object of establishing a longitudinal rectification between India and Greenwich.

JOHN WILEY & SONS have published the first thousand of the fifth edition of Professor Mansfield Merriman's 'Treatise on Hydraulics,' which has been revised and enlarged by 43 pages, and a full alphabetical index has been added.

THE *American Antiquarian* states that M. Suares has given £40,000 to the French Archeological School at Cairo.

AT the recent meeting of the *International Geographical Congress* papers were

read by Professor Brückner and Mr. Frank Campbell on Geographical Bibliography, and a resolution was unanimously passed recommending that the permanent bureau should follow out the subject of geographical bibliography,and authorizing the bureau to associate with itself competent persons and give them the necessary power for prosecuting the inquiry.

Dr. P. Mansen presented a paper before the *British Medical Association* on the malaria parasite, dealing more especially with the life history of the parasite outside the human body. He showed from experiments made at his suggestion by Surgeon-Major Ross that it is probable that the intermediate host is the mosquito.

The apparatus used at the Pasteur Institute for the discovery and treatment of bacteria and bacilli will be exhibited at the Atlanta Exposition.

By act of the Legislature of the State of Ohio a clay-workers' school has been established at the Ohio State University, where the chemistry, mechanism and manual work of everything connected with clay industries is taught. Prof. Orton is the director of this school.

At a recent meeting of the Board of Scientific Directors of the New York Botanic Garden it was resolved to authorize a topographical survey of the 250 acres of land in Bronx Park which have been set aside for the uses of the garden. All the trees in the park are to be labelled, and new varieties of seeds desirable for cultivation are to be secured.

Mr. Marshall M. Tidd, a well known civil engineer, died in Woburn on August 20th, at the age of sixty-eight. Mr. Tidd was one of the oldest members of the Boston Society and the American Society of Civil Engineers.

The Commissioner of Patents, John S. Seymour, has submitted to the Secretary of the Interior a summary of his report for the year ending June 30th, 1895. 20,745 patents were granted during the year.

Col. Henry L. Abbot, of the Engineer Corps, has been placed on the retired list of the army.

The Russian National Health Society announces that it will celebrate, in May, 1896, the one hundredth anniversary of Jenner's first experiments in vaccination. To commemorate the event the Society proposes: (1) to offer four prizes for the best works upon vaccination; (2) to collect and publish materials for a history of the practice of vaccination in Russia, and also a short history of the same in western Europe; (3) to publish a Russian translation of Jenner's works, with his biography and portrait; (4) to organize an exhibition of objects connected with vaccination; and (5) to hold a commemorative meeting on the day of the centenary.

The French Société de Médicine Publique et d'Hygiène Professionnelle offers, according to the *Medical Record*, three prizes for the best *mémoire* on 'Preventable Diseases and the Preventive Measures to be Taken.' The first prize is 1200 fr., the second 800 fr. and the third 500 fr. The essay is not to exceed from twenty to thirty pages of 500 words each. The following points must be treated: How to prevent contagious diseases during the illness and after; private sanitation of patients and those who tend and treat them; house sanitation and disinfection, and general sanitation during illness.

One of the most interesting features of the meeting of the *British Medical Association* in the collection of medical antiquities found in Italy by Dr. Luigi Sambon and exhibited by Messrs. Oppenheimer at the Savoy Hotel. It consists of a number of surgical instruments and terra cotta models collected from ancient Roman and Etruscan

temples and tombs. The models are votive offerings (donaria) which used to be presented to the shrine of some deity by the common people, and their medical significance is Dr. Sambon's own discovery. Looking one day at the collection of these objects in the museum at Rome, he noticed that they were intended to represent portions of the human body, certain internal organs, and so forth, a fact which had completely escaped the eye of the lay antiquarian, who took them to represent fruits. This discovery aroused Dr. Sambon's interest, and he began to collect specimens from various places in Italy. He has now got together several hundreds, chiefly from the Temple of Maternity at Capua, the Temple of Minerva Medica in Rome, and from the Etruscan towns of Corneto, Civita Lavinia and Veii. These terra cotta figures were in some cases thankofferings, in others appeals for children, for relief from some disease or deformity, and so on. The model represents the part of the body affected—the face or part of the face, the ear, a limb, or some internal organ—and, though rough, they are fashioned with a considerable knowledge of anatomy.—*London Times.*

CORRESPONDENCE.

CONSCIOUSNESS AND EVOLUTION.

PROFESSOR BALDWIN'S article on 'Consciousness and Evolution' in the last number of this journal should be carefully read and considered. No student of evolution can ignore consciousness and its place in organic development, but clear ideas can only be obtained by serious psychological study. Thus Darwin in discussing 'sexual selection' continually passes from those secondary sexual characters which are useful to the male in conquering other males or in finding and securing the female, to those characters which are supposed to please or charm the female. He does not realize the great difference in the two problems. The former is simply a special case of 'natural selection.' The latter introduces entirely new factors. The taste in the female which prefers certain colors in the male is no less complex than the colors preferred. So long as it is not possible to assign any useful function to the female taste, nothing whatever is gained by assuming it to be the cause of the preservation of otherwise harmful characters in the male.*

Now as I understand Darwin in this instance and Professor Cope in those of his writings that I have read, consciousness *qua* consciousness, in interaction with the physical world, is used to explain the preservation (Darwin) and even the origin (Cope) of variations. Thus Mr. Cope remarks (SCIENCE N. S., Vol. II., p. 125):

"The cause of the movements of organic beings are various. The best known are conscious states, as hunger, cold, heat and various other sensations; some of them of higher mental grade, as fear, anger, etc. Movements by the lowest animals, as that drop of jelly, the amœba, appear to be the result of sensations. * * * * * The phenomenon of heliotropism, for instance, when these simple creatures leave the dark and crowd into light places, cannot be shown to be due to chemical or physical causes only. They seek oxygen, which is more abundant where sunlight penetrates, but they have to be aware that they need it, and must have some knowledge of the fact when they get it."

Probably most psychologists would say that the causes of the movements of organic beings are physical stimuli acting on a complex physical organism. If we can never explain the movements of protozoa toward the light by chemical or physical causes, then it must be by some form of energy analogous to these. When Mr. Baldwin writes, "I agree with Mr. Cope that most race habits are due to conscious function in the first place," he probably means that the habits are due to the cerebral concomitants of consciousness, but I understand that Mr. Cope would assume consciousness in causal interaction with the physical world.

Mr. Baldwin does well to call attention to the relation of the social environment to human ev-

*I should myself take it for granted that the female likes certain traits because they are present in the male, not that the traits are present in the male because the female likes them. I venture to suggest that the bright colors and useless appendages in the male develop an accompanying alertness that more than counterbalances their drawbacks.