

denied a similar privilege, when their governing bodies unite with the London County Council in the petition which this memorial sets forth?

Seeing, then, that our position has now grown to be one of such well-nigh irresistible strength, I think you will all agree with me in holding that a policy which has gained such results during the past fifteen years of our existence as a Society ought to be the policy which we shall continue to follow. Having achieved this large measure of success by our quiet persistence in the way of enlightening public opinion, and patient gaining of all the strategic points of importance which we now hold, I, for one, would strongly deprecate the more noisy methods of popular agitation, with their Hyde Park processions, and so forth. But there is one piece of machinery which we have used with considerable effect on several occasions in the past; and with this piece of machinery we intend once more to put into motion.

Three times in the fifteen years of its existence the Sunday Society has convened a National Conference, and in the opinion of our Committee the time is ripe for the convening of another. Therefore arrangements have been made for this the fourth Conference to meet in London during the present year. I must express my gratification that the Committee have thought fit to elect me President of the Society in a year which is thus destined to be one of unusual prominence in its annals, and I may be permitted to record my thanks for the honour which has thus been conferred, even while expressing my regret that the duty of presiding over the coming Conference has not fallen into abler hands.

As you are probably well aware, the importance of these Conferences consists in their bringing together, and combining in a collective manner, representative opinions upon the Sunday question from all parts of the kingdom. Not only are invitations issued to institutions which are already opened on Sundays to send their delegates, but statements of opinion are solicited from eminent men in all departments of science, art, and letters, as well as of public life and social organization. In this way we are able to focus the best thought of our time upon the objects which we have in view, and to deliver the result in the form of printed papers to the public, and of weighty resolutions to the Government. Time does not admit of my dwelling as fully as I should have desired upon this the most important feature of our programme for the current year, and therefore I will ask you to read an instructive historical sketch which has already been published by our Hon. Secretary, touching the work that has been accomplished by the three previous Conferences. You will find this sketch in the *Sunday Review* for January of the present year, and in order to give you a general idea of its substance, I will conclude by making two short quotations. The first I give as a sample of the opinions obtained from eminent men, and the second I give as a brief epitome of the work that we hope to accomplish by means of the fourth Conference.

The sample of opinion which I select for quotation is taken from what was said by Sir Joseph Hooker at the last Conference; and I select this expression of opinion, not only because its author, like his illustrious ancestor, is proverbially gifted with one of the best judgments that has ever helped to raise a man to the highest rank of eminence, but also because his opinion is, in this case, founded upon a statement of the most cogent facts.

Speaking as Director of the Royal Gardens at Kew, Sir Joseph Hooker said:—

“If there is one matter that gratifies me more than another, in respect of the administration of the Kew Gardens and Museums by the Government, it is the opening them to the public on Sundays. On no day of the week have we more interested visitors, or more of that class which we should wish to see profiting by the instructive contents of this institution. The Museums especially are crowded, and, when it is considered that the exhibits in them are not of articles that strike the eye or gratify the senses of colour or form, the interest they excite is almost to be wondered at. The artisan classes are great frequenters of these Museums, with their wives and families, and it is pleasing to see the delight with which the children recognize such articles as the sugar-cane, the coffee-plant and its products, and the various implements used in their preparation, manufacture, &c. I should add that this interest in the instructive character of the Gardens is largely on the increase, and is manifest to the most careless observer. It is further accompanied by a marked improvement in the conduct of certain classes, which were formerly troublesome in many ways, and a nuisance to quiet visitors. It speaks volumes for the moral effect of

the Sunday opening when I add that such classes no longer exist at Kew. Whether it is that such no longer come, or that, coming, they now behave themselves, is immaterial—the moral gain is great. During the last two years we have had in each year a million and a quarter of visitors, of whom the greater proportion are Sunday afternoon arrivals from every quarter of the metropolis and its surroundings. Let the numbers speak for themselves:—1882, Sunday visitors, 606,935; week-days, 637,232. 1883, Sundays, 616,307; week-days, 624,182.”

The other quotation is taken from the close of our Hon. Secretary's paper on National Conferences, already alluded to:—

“Thus the Fourth National Conference will be able to point to the friendly action of the Government in providing funds for opening the British Museum to those who desire to visit it on week-day evenings; it will have a friendly Chancellor of the Exchequer to appeal to in Mr. Goschen, who is backed up by the vote of the London County Council, and meets Parliament with a surplus which, there is a general opinion, should in part be devoted to education.

“Could education be better or more equitably promoted than by furnishing the Trustees of the National Museums and Galleries in the Metropolis with the funds necessary for throwing open these avenues of culture and refinement to the millions of people surrounding them? The people have already not only the inclination to become better acquainted with the contents of these Museums and Galleries, but they have for the most part the necessary leisure for this purpose on the fifty-two Sundays throughout the year, when the Trustees are precluded from opening them solely from want of funds, which it is just as much the duty of the Government to provide in London as outside of it, and for those who wish to visit the Museums on Sundays as well as for those who wish to do so on week-day evenings. Should the Conference make a strong appeal to Mr. Goschen, and through him to the Government, to deal justly by London in this matter, the time cannot be far distant when the reproach to the nation of having all such institutions as the National Museums and Galleries in the Metropolis closed on Sundays will be removed.”

These, as I have said, are the words of our Hon. Secretary. And I cannot refer to him from the chair which I have now the honour to occupy without asking you, in conclusion, to join with me in heartily recognizing the unique value of his indefatigable work in promoting the objects of this Society. For I know it is not too much to say, that at whatever time the reproach to the nation of which he speaks will eventually be removed, its removal will have been due much more largely to one Englishman than to any other, and that the name of this Englishman is Mr. Mark H. Judge.

### SCIENTIFIC SERIALS.

*Studies from the Biological Laboratory of the Johns Hopkins University, Baltimore*, vol. iv., Nos. 5 and 6.—No. 5 contains:—Some observations on the effect of light on the production of carbon dioxide gas by frogs, by H. Newell Martin and Julius Friedenwald. The influence exercised by light on the metabolisms of the animal body has been recognized for the last fifty years. Following up the researches of Moleschott, the authors experimentally proved that, in frogs deprived of their cerebral hemispheres, a greater quantity of carbon dioxide is given off in the light than in the dark; that, therefore, the influence of light in producing greater oxidations in normal frogs is simply reflex, and not due to greater bodily activity brought about by psychological conditions dependent on the light; that the cerebral hemispheres do not take any direct part in regulating the oxidations of the frog's body; and that this reflex action of the light, though mainly effected through the eyes, is produced partly also through the skin.—On the comparative physiological effects of certain members of the ethylic alcohol series ( $\text{CH}_3\text{O}$  to  $\text{C}_5\text{H}_9\text{O}$ ) on the isolated mammalian heart, by John C. Hemmeter.—On the ventricular epithelium of the frog's brain, by A. C. Wightman. The author concludes that the epithelial layer of the frog's brain and spinal cord forms a continuous lining to the central nervous system. It is everywhere a single layer thick. The epithelium of the ventricles forms a central zone of cells, about which the brain-cells are concentrically arranged. The cells of the epithelium and of the brain are connected by processes which extend from the tips of the former. The epithelial layer consists

of cells of several varieties—the columnar, the spindle, and intermediate forms; all are ciliated.—On the temperature limits of the vitality of the mammalian heart, by H. Newell Martin and E. C. Applegarth.

No. 6 contains:—On the morphology of the compound eyes of Arthropods, by S. Watase (plates 29 to 35). In studying the structure of the ommatidium of the compound eye of *Serolis* it was found that it might be reduced to a simple ectodermic invagination of the skin. Extending his researches over several other Arthropods, the author found that the same interpretation could without exception be applied, and he thinks this view of the ommatidium finds its strongest support in the fact that in *Limulus* the ommatidium is an open pit of the skin. If these views be correct, the unit of the compound eye of an Arthropod is not so complex as has generally been conceived, and the total result is but the vegetative repetition of a similar structure. In an appendix the author alludes to his investigations into the structure of the eye in Echinoderms, the result of which he hopes shortly to publish.—On the anatomy and histology of *Cymbulioopsis calceola*, Verrill (plates 36 to 39), by J. I. Peck. A few specimens of this rare Pteropod were found in the Gulf Stream, off Cape Charles.—On the amphibian blastopore, by T. H. Morgan (plates 40 to 42), concludes that in some forms it becomes altogether or in part the neurenteric canal; in some it becomes the anus; in some, again, it closes and a new anus is formed, while he believes that in *Amblyostoma* it becomes both the neurenteric canal and the anus.—On a new *Actinia*, by Dr. Henry V. Wilson (plate 43). This new form was found on the small reef which fringes the shore of No Name Key, Abaco, Bahamas. It was discovered in a perforation on the under surface of a porites-like asteroid coral, and, though constantly looked for, but the one specimen was found. It has been called *Hoplophoria coralligens*. Below the twelve long tentacles are cycles of smaller ones, and below these four remarkable large organs, which give the animal a most *bizarre* appearance; these are diverticula of the gastro-vascular cavity, and are stinging weapons. The genus is placed provisionally with the *Antheadæ*.

*Bulletin de la Société d'Anthropologie de Paris*, tome xii. (série 3), fasc. 4, 1889.—Continuation of M. Variot's paper on pigmentation of the skin in the region of cicatrized lesions in the negro.—Descriptive ethnographic summary of the course of distribution of different races in Europe, by M. Lombard. Starting from the Neanderthal race as the only one referable to the Quaternary period, the author attempts to show that as early as the age of their descendants—the Cro-Magnon men—various alien races had already appeared contemporaneously with the latter in Central Europe. From this point, M. Lombard undertakes, on very vague premises, to trace the advance westward of successive and intersecting streams of brachycephalic and dolichocephalic peoples bringing with them their own special civilization of the dolmen, polished stone, or other, period. His view that the Pamir plateau is the cradle of the Aryans, and that they belonged primarily to the blonde races, is strongly combated by Mme. Clémence Royer, whose able refutation of his somewhat crude opinions gives to his paper its sole claim to notice.—Communications on the silex of Breonio, near Verona, and on spurious French and Italian flint implements, by M. de Mortillet, who shows the extent to which the manufacture of so-called paleontological objects is carried on.—On a case in which the gray commissure of the third ventricle was absent; and on the concomitant psychic characteristics of this anomalous condition, by Dr. F. de Marcedo.—On the mummified brain of an ancient cranium found in Venezuela, by M. Chudzinski.—On venous circulation in stumps, by Dr. Lejars.—On a rabbit with only one ear, by M. Chervin.—On the effects of the artificial deformity of the skull in a Bolivian infant, by M. Manouvrier.—On various prehistoric stations in the Department of Seine-et-Oise, by M. Vauvillé. The finds at Crespières included three implements of a sandstone not found in the district, the remainder being of cut flint. At Grancières evidence exists of the extensive manufacture of extremely small flint implements similar to those found in India, and in the neighbourhood of Tunis and Algiers, as well as in parts of South-Western Europe. The objects generally would seem to belong to the Palæolithic and Neolithic ages.—On the skeletons found at Castenedolo in Lombardy, and assumed by M. de Marcedo to be of Tertiary origin, by M. de Mortillet.—On the utility of family burying-places in reference to the study of the influence of heredity on anatomical characteristics, by Mme. Clémence Royer.—On the

megalithic remains of the Department of La Somme, by M. Pouchon. The author points out the inaccuracy of the official lists published for the district, and describes a number of interesting, so-called polishing stones, and other monoliths, which demand immediate protection from the Government to save them from wanton destruction.—On the distribution of muscular force in the hand and foot, observed by means of a new form of dynamometer, by M. Féré.—Final Report of the Eighth Congress of Orientalists at Stockholm, by M. O. Beaugard.—The prehistoric stations of Coucuteni, Roumania, by M. Dimandi. The finds here are of special interest, as showing the advanced civilization of a people, probably of Greek origin, who as early as the fourth or fifth century B.C. occupied this region. The enormous number of idols, chiefly female, was a marked characteristic of the station. Besides anthropomorphic idols, a few animals, as cows and bulls, were used to represent some forms of divinities.—On the various forms of projectiles of the Neolithic age, by Dr. Capitán.—On bronze objects found in the bed of the Marne, by M. P. Masson.—On the flint knives and arrows of the Department of Aisne, by M. Vauvillé.—On the prehistoric station of Lengyel, in Hungary, by M. Nadaillac.—On a case of a pseudo-male hermaphrodite, by Dr. Pozzi.—On artificially induced deformity of the head as still practised in the Haute Garonne, and other parts of France, by Dr. Delisle (with illustrations).—Report of the Sixth Broca Conference.—On the erroneous establishment of a distinct order of true *Bimana*, by M. Hervé. The object of the essay is to prove that the Simians have, like man, two hands and two feet, and cannot therefore be classified as true *Quadrupana*, or true *Bimana*.

#### SOCIETIES AND ACADEMIES.

##### LONDON.

Royal Society, June 5.—“On the Passive State of Iron and Steel. Part I.” By Thomas Andrews, F.R.S., M.Inst.C.E.

The passive state of iron appears first to have been observed just a century ago by Keir, and brought before the notice of the Royal Society in 1790 (*Phil. Trans.*, 1790, p. 379); he observed that strong nitric acid had no action on iron when the metal was placed therein. Since then, Bergmann, Schonlein, Faraday, Herschel, and others, have conducted investigations in relation to this phenomenon. In the present paper are presented the results of a study of certain magnetic, temperature, and other conditions which the author found to affect the passive state of iron and steel. The experiments of Part I. are classified under the following heads:—

Series I., containing the results of observations on the influence of magnetization on the passive state of steel in cold nitric acid, specific gravity 1.42.

Series II., treating of the influence of magnetization on the passive state of steel in warm nitric acid, specific gravity 1.42, the experiments showing that magnetized steel bars were less passive in warm nitric acid than unmagnetized ones.

The chemical composition and physical properties of the steel used are given in detail in the paper, together with the methods employed in the investigation, and detailed illustrations of the various apparatus used in course of the research. The results of the investigation are given in detail in Tables I. and II. The whole of the results on Table I. afford an indication that magnetization of comparatively low intensity, acting during considerable periods of time, exerts only a limited modifying influence on the passivity of iron or steel in the cold, though the influence is discernible when employing a delicate galvanometer. Magnetization, with the nitric acid at a higher temperature, produces a quicker effect (see results in Series II., Table II.). In a recent research by the author “On Electro-chemical Effects on Magnetizing Iron, Part II.” (*Roy. Soc. Proc.*, vol. xlv. p. 152), it was noticed that local currents were set up between the polar terminals and central portions of steel magnets exposed as electrolytes; and this class of local action, together with the slight alteration of the physical structure of the magnet bars consequent on their magnetization, may possibly be involved in producing the effects due to magnetism on passive steel or iron in conc. nitric acid.

“Observations on Pure Ice, Part II.” By Thomas Andrews, F.R.S., M.Inst.C.E.

The experiments contained in the paper form a continuation of a previous research by the author. The experiments were