

repetition of organic and inorganic deposits, of the carboniferous formation, and the remarkable crust movements which enabled them to accumulate, are without subsequent examples.

In conclusion, I must remind you that the volumes of the "Geological Record" give the literature of the carboniferous formation year by year, and that lately a magnificent contribution to the subject has appeared in the memoirs of the Geological Survey of England and Wales in the form of a great volume on the geology of the Yorkshire coal fields, by Prof. Green, one of our vice-presidents, and Mr. Russell. A very concise and excellent geology of the West Riding has also recently been published by Mr. Davis, who is amongst us to-day, and Mr. Bauermann has contributed a capital article on coal to the "Encyclopædia Britannica."

THE FRENCH ASSOCIATION

Montpellier, Sunday

THE French Association for the Advancement of Science met at Montpellier on August 28. The president this year is M. Bardoux, the late Minister for Public Instruction, who has been succeeded by M. Ferry.

His address was devoted entirely to generalities on the necessity of providing a good education for the young. He did not touch upon the great question which agitates the public mind in France in connection with the Ferry Bill. It may be inferred from the strong encomiums passed on M. Jules Simon, that M. Bardoux must be ranked among the opponents to the Ferry Bill.

M. Laissac, mayor of Montpellier, and M. Cazelle, prefect of the Herault, replied to M. Bardoux. M. Saporta, the general secretary, gave an address summarising the results of the last year's meeting, and M. Georges Masson read a financial statement which showed that the capital of the Society amounts to about 300,000 francs. The subsidies paid for research last year amounted to 10,000 francs.

These addresses being the only ones which were given in the name of the Association, and as the presidents of sections gave no official addresses, it will be quite impossible to have any idea of the opinions of the meeting on the topics of the day.

Although but a small city, Montpellier is famous in the annals of science, and in former years its university was deemed a rival to Paris. But in latter years Montpellier has lost much of its prestige, although it had the honour to be the birthplace of Auguste Comte. The growing academy of Toulouse disputes with Montpellier the pre-eminence in south-eastern France. Meanwhile the impending meeting of *savants* at Perpignan on the occasion of the inauguration of Arago's statue at the end of September will throw the Montpellier meeting somewhat into the shade, and deprive it of a number of constant and influential members. The interest of the meeting will consist principally in excursions professing to promote ends of great moment for the welfare of the region, viz., the extinction of phylloxera, the construction of an irrigation canal from the Rhone, the local meteorology and botany, which are strongly represented by M. Charles Martius, a brilliant writer, and the director of the celebrated Montpellier plant-gardens. A specimen of the French Atlantic cable now in course of being placed, will be exhibited and explained by M. Gariel, the general secretary of the Council, and the scheme of the French Company explained for the first time. Experiments will be made on electric lighting and the telephone.

The French scientific caravan, officered by MM. Quatrefages, Mortillet, and Broca, to be sent to the Congress of Anthropology at Moscow, is to arrive in Montpellier before the end of the meeting. M. Bergeron, one of the French *savants*, who was present at the Sheffield meeting, has arrived in order to tell the French Association of what was done by her elder sister.

THE SWISS NATURALISTS

THE sixty-second annual meeting of the Swiss naturalists was opened on July 10 at St. Gall. The attendance was comparatively large, no less than two hundred Swiss and twenty-one foreign *savants* being present. Among the latter we notice Prof. Hébert (Paris), Mr. Forrer (San Francisco), Herr Nördlinger (Stuttgart), Dr. Richthofen, and many others.

On Monday, the 11th, the first public meeting was opened at the Grossrathhaus, before a large audience of visitors and ladies, by Dr. Rechsteiner (St. Gall), who gave an address on the recent progress of science; also pointing out the importance of

the neighbourhood of St. Gall for the study of geology, and discussing the variety and importance of chemical processes in the life of nature. A second lecture was given by Prof. C. Vogt (Geneva) on the archæopteryx, the interesting reptile-bird which has provoked so animated a discussion among anatomists, and of which we possess only two specimens—that of the British Museum and that newly discovered at Solenhofen, Germany. According to the first, which was very incomplete, this Jurassic animal was considered as a bird, having a beak, nails, and feathers; while the Solenhofen specimen, quite complete, and of which Prof. Vogt exhibited very good photographs, proves undoubtedly that we have to do with a bird-like reptile of the size of a pigeon, which had both scales and feathers, a beak provided with teeth, armed wings, bird-like feet with nails, and a reptile tail consisting of twenty vertebrae. This discovery gave to Prof. Vogt the occasion to make a brilliant address on the origin of species, the adaptation of organisms to the medium they inhabit, and the way in which this adaptation goes on from the periphery to the centre.

Two other lectures were given by M. Victor Fatio, on the phylloxera, and by M. Raoul Pictet on the synthetical theory of calorific phenomena. The naturalists then went to the traditional breakfast served on paper table-cloths with paper napkins, in the beautiful hall of the Kornhalle, the walls of which are decorated with four pictures, by M. Kirchofer, which represent the country of St. Gall during the periods of the lignite (*Schieferkohle*), of the molasse, of the glacial epoch, and of prehistoric man. At two began the sittings of the sections. In the Section of Physics Prof. Hagenbach opened a very interesting philosophical discussion on "centrifugal force," in which discussion he was followed by Prof. Mousson (Zurich), who made a valuable communication on the structure of solid bodies, and on the molecular phenomena which produce the phenomenon of heat. Prof. Pictet (Geneva) explained his researches into the mechanical theory of heat. On the following day Professors Forel (Morges) and L. Soret (Geneva), the indefatigable students of the oscillations of the level of the Lake of Geneva, gave, in the Section of Physics, very interesting communications on that subject, and especially on the rhythmical oscillations described as *seiches*.—M. Dufour having communicated the results of his measurements on the glacier of the Rhone, according to which the lower extremity of this glacier has receded no less than eighty metres (260 feet) during the last two years, a long discussion on the causes of the oscillations of glaciers was engaged between MM. Dufour, Forel, Mousson, and Hagenbach. Finally we notice in the Section of Physics the communications, by M. H. Dufour, on the diffusion of gases; by Prof. Hagenbach on the forms of hail; and by Prof. Colladon (Geneva) on his theories on the optical properties of ice.

The sixty-third meeting will take place next year at Brieg, in the Valley of the Rhone.

SCIENTIFIC SERIALS

The Journal of Physiology (vol. ii, No. 2, issued July).—On the effect of the respiratory movements on the pulmonary circulation, by H. P. Bowditch and G. M. Garland.—On absorption without circulation, by B. F. Lautenbach.—On protogon, by Arthur Gamgee and Ernst Blankenhorn.—On a few further experiments with pituria, by Sydney Ringer and William Murrell.—On the antagonism between pilocarpine and extract of *Amonia muscaria*, by Sydney Ringer and William Murrell.—On some old and new experiments on the fibrin-ferment, by Arthur Gamgee.—On the effect of two succeeding stimuli upon muscular contraction, by Henry Sewall.—There is added a list of titles of books and papers of physiological interest published since December 31, 1878, to date.

Journal of the Royal Microscopical Society (August).—Transactions.—On a new species of excavating sponge (*Alectona millari*), and on a new species of Raphidotheca (*R. affinis*), by H. J. Carter, F.R.S.—On a new genus and species of foraminifera (*Aphrosina informis*), and on the spicules of an unknown sponge, by H. J. Carter, F.R.S.—On the theory of illuminating apparatus employed with the microscope, by Dr. H. E. Fripp.—Observations on *Notommata Werneckii* and its parasitism in the tubes of *Vaucheria*, by Prof. Balbiani; translated from the *Annales des Sciences Naturelles (Zoologie)*, 1878.—The record of current researches relating to invertebrata, cryptogamia, microscop, &c.