

only three small ponds have remained, the largest of them being hardly one mile and a half wide. The drying up has been going on with remarkable rapidity. Even twenty-five years ago there were several lakes ten and eight miles long and wide, where there are now but little ponds. Lake Tschabkly, which was represented in 1784 as an oval forty miles long and thirty miles wide, has an elongated irregular shape on the map of the beginning of our century; it measures, however, still forty miles in length, and its width varies from seven to twenty miles; while several small lakes to the east of it show its former extension. Thirty years later we find in the same place but a few small lakes, the largest of which hardly has a length and width of three miles; and now, three small ponds, the largest of them having a width of less than two miles, are all that remain of a lake which covered about 350 square miles a hundred years ago. The same process is going on throughout the lakes of West Siberia, and throughout the Aral-Caspian depression. No geologist doubted upon, but we cannot but heartily thank M. Yadrinseff for having published documents which permit to estimate the rapidity of the process. P. K.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

WE understand that Mr. Granville Cole has been appointed to the Professorship of Geology at the Bedford College, London, and Miss C. A. Raisin to the Demonstratorship in Botany at the same institution.

SCIENTIFIC SERIALS

The Journal of Botany.—The number for July commences with the first part of an important article (illustrated), by Messrs. Roy and Bisset, on Japanese Desmids, chiefly obtained from a lake in the Island of Yesso. The majority of the forms obtained are cosmopolitan, but some of them of great rarity in Europe. There are also some new species. Papers follow on British *Rubi*, on the *Rubi* of Somersetshire, and on the flora of St. Kilda.

American Journal of Science, July.—Memorial of Edward Tuckerman, by Asa Gray. This botanist, who was born in Boston, December 7, 1817, and died March 15, 1886, was distinguished especially in the field of lichenology, to which he devoted most of his life. He was the author of a "Synopsis of the Lichens of New England, the other Northern States, and British America," of "Lichenes Americæ Septentrionalis exsiccati" (3 vols.), and many other papers on this branch of botany, in which he has left behind him no superior.—Notes on American earthquakes (No. 15), by Prof. C. G. Rockwood, jun. This fifteenth paper of the series gives a summary of such information as the author has been able to gather on the earthquakes of North and South America during the year 1885. It tabulates seventy-one shocks, classed according to their intensity as very light, light, moderate, strong, severe, or destructive. Of these as many as thirty-four occurred on the Pacific coast of the United States, where the Bay of San Francisco appears to be a chief centre of seismic disturbance.—Observations on the Tertiary and Grand Gulf of Mississippi, by Dr. Otto Meyer. The author finds no place where Grand Gulf strata overlie the Marine Tertiary, although there are two districts where strata undistinguishable from unquestioned Grand Gulf are overlain by Marine Tertiary. The Grand Gulf is not, generally speaking, a marine formation, for it contains fresh-water shells. In Eastern Mississippi occurs a thick and extended marine green-sand formation parallel to the strata immediately below the Claiborne profile. Its fauna is Claibornian, but approaches the Jacksonian.—Notes on the volcanic rocks of the Republic of Salvador, Central America, by Arnold Hague and Joseph P. Iddings. This study is based on specimens gathered by Mr. W. A. Goodyear in the course of his explorations in Salvador. They are of a highly diversified character, ranging from very basic to highly acidic forms, from rocks rich in olivine to others abounding in quartz, and may be classified under the heads of basalt, pyroxene-andesite, hornblende-pyroxene-andesite, hornblende-mica-andesite, dacite, and possibly rhyolite, basalt and dacite being best represented. Nearly all have their counterpart in Nevada, although there occur many varieties in Nevada not found in the limited series from Salvador.—The genus *Strophochetus*: distribution and species, by Henry

M. Seely. Since reporting last year the presence of the fossil sponge, *Strophochetus ocellatus*, at one or two places in Vermont and New York, the author has traced it to many other districts in those States. To the type of the genus, *S. ocellatus*, he now also adds three new species—*S. brainerdi*, *S. atratus*, and *S. richmondensis*.—Preliminary report on the geology of the Cobscook Bay district, Maine, by N. S. Shaler. This paper, published by permission of the Director of the U.S. Geological Survey, gives a portion of the general results of two months' exploring work on the shore-line of Cobscook Bay during the summer of 1884. The fossiliferous strata have a special interest as throwing light on the position of the shore-line in past times. A conglomerate apparently of the Clinton or Niagara age on the west side of South Bay seems to show that the shore in this district was not far away during a portion of the time when the Cobscook series was forming. In the age of the Perry section there is also evidence that the coast was near its present position and that the rocks exposed to erosion were chiefly of the Laurentian epoch.—On the well-spherometer, by Alfred M. Meyer. The instrument here described, with numerous illustrations, has for the last ten years been used by the author in his laboratory for the purpose of measuring the radius of curvature of a lens of any linear aperture.—On some general terms applied to metamorphism and to the porphyritic structure of rocks, by James D. Dana. The three recognised forms of metamorphism are described and characterised as: (1) crystalline; (2) paramorphic; (3) metachemic. A full terminology of porphyritic varieties is given, based in plan on such terms as *orthophyre*, *augitophyre*, &c.

Bulletin de l'Académie Royale de Belgique, May.—On the transparency of platina, by Ed. van Aubel. After ascertaining by experiment that a sheet of cobalt, iron, or nickel obtained by electrolysis on a transparent sheet of silver, is not really transparent, as is now generally assumed, the author here endeavours to settle the question as regards mirrors of platina chemically produced, that is, by a deposit of platina on a sheet of glass, and the transparency of which is admitted by Kundt. Working with a large mirror supplied by Paul Lohmann of Berlin, from whom Kundt also obtained those used by him, M. van Aubel found, by means of spectroscopic observations, that the metal of these mirrors is not really transparent, the light merely filtering through the interstices left between the particles of platina deposited on the surface.—A contribution to the study of the salts of platina, by M. Eugène Prost. The author deals especially with the action of nitric acid and of perchloric acid on platinic hydrate, and with the action of nitric acid on the precipitated bisulphuret of platina, his object being to form the so-called normal platinic nitrates, perchlorates, and sulphates. Failing to obtain these substances, he endeavoured to get double salts of normal composition by combining them with alkaline salts having corresponding acids. The results show that all the compounds thus obtained still correspond with basic platinic salts, so that it would so far appear that a normal platinic nitrate cannot be obtained.—On the unstable equilibrium of the surface-layer of a fluid, by G. van der Mensbrugge. The absolute instability of surface-layers exposed to the free action of the atmosphere is demonstrated on theoretical grounds. From this theory the author proposes in another paper to deduce the existence of superficial tension on the free surface of a fluid, or on the surface common to two fluids, or to a fluid and solid, thence deriving a rational explanation of the phenomenon of evaporation.—On the heat of the alloys of lead and tin, by W. Spring. Continuing the researches of Ermann, Rudberg, Regnault, Wiedemann, and others, the author seeks to determine for restricted intervals of temperature the total heat of these alloys relatively to that of their constituents. Further light is thus thrown both on the constitution of these bodies, and on the question why their point of fusion is lower than that of their constituents.

Rendiconti del Reale Istituto Lombardo, June.—On some unconscious intervals in a co-ordinate series of psychic acts, by Tito Vignoli. The object of this essay is to ascertain experimentally whether in the co-ordinate exercise, or logical sequence, of thought, it sometimes happens that some of the connecting links of the argument are supplied unconsciously. Several instances are quoted, together with the author's personal experience, showing that this really is the case. It is incidentally argued that, in its complexity, the brain is a large organ of compensation, so that, if any of its parts in which special functions are localised become disturbed or injured, these may, within

certain limits, be replaced by others, immediately if the lesion be slight, gradually if serious.—A contribution to the theory of quadratic forms, by G. Morera.

July.—A case of extraordinary hirsuteness, by Prof. Giovanni Zoja. The author refers briefly to a Spanish girl observed by him at Pavia in 1881, who was above the average height, yet whose hair, when unbound, swept the ground by several centimetres. Some of the tresses measured 180 to 187·3 centimetres.—Meteorological observations made at the Brera Observatory, Milan, during the month of June.

SOCIETIES AND ACADEMIES

SYDNEY

Royal Society of New South Wales, May 5.—Annual Meeting.—Prof. Liversidge, F.R.S., President, in the chair.—The President stated that 27 new Members had been elected during the year, and the total number on the roll April 30 was 492. The Clarke Medal for the year 1886 had been awarded to Prof. L. G. de Koninck, M.D., of Liège, in recognition of his distinguished scientific attainments, and more particularly of his valuable contributions to our knowledge of the Palæozoic fossils of New South Wales. During the year the Society held eight meetings, at which the following papers were read:—Presidential Address, by H. C. Russell, B.A., F.R.A.S.—Notes on flying-machines, by L. Hargrave.—On a system of accurate measurement by means of long steel ribands, by G. H. Knibbs.—Local variations and vibrations of the earth's surface, by H. C. Russell, B.A., F.R.A.S.—Some causes of the decay of the Australian forests, by Rev. P. MacPherson, M.A.—The history of floods in the Hawkesbury River, by J. P. Josephson, A.M.I.C.E.—The Ringal of the North-Western Himalaya, by Dr. Brandis, F.R.S. (communicated by Baron von F. Müller, K.C.M.G., F.R.S.).—Notes on experiments in mounting the *Amphipleura pellucida* in media having a higher refractive index than Canada balsam, by Dr. W. Morris, F.R.M.S.—Notes on the characters of the Adelong Reefs, by S. H. Cox, F.C.S., F.G.S.—Stone implements of the aborigines of Australia and some other countries, by Rev. P. MacPherson, M.A.—On a form of flying-machine, by L. Hargrave.—On a new form of anemometer, by H. C. Russell, B.A., F.R.A.S.—The Medical Section held eight meetings, at which eighteen papers were read, and the Microscopical Section eight, at which three papers were read. The number of donations received was 1420 volumes and pamphlets, and 310*l.* expended in the purchase of books, &c., for the library. The Society has issued the following list of subjects, with the offer of the Society's bronze medal and a prize of 25*l.* for each of the best researches if of sufficient merit:—Series vi. to be sent in not later than May 1, 1887; (No. 20) on the silver ore deposits of New South Wales; (No. 21) origin and mode of occurrence of gold-bearing veins and of the associated minerals; (No. 22) influence of the Australian climate in producing modifications of diseases; (No. 23) on the Infusoria peculiar to Australia. Series vii., to be sent in not later than May 1, 1888: (No. 24) anatomy and life-history of the Echidna and Platypus; (No. 25) anatomy and life-history of Mollusca peculiar to Australia; (No. 26) the chemical composition of the products from the so-called Kerosene Shale of New South Wales.—The following Officers and Council were elected for the ensuing year:—President: C. Rolleston, C.M.G.; Vice-Presidents: H. C. Russell, B.A., F.R.A.S.; Dr. Leibius, M.A.; Hon. Treasurer: R. Hunt, F.G.S.; Hon. Secs.: Prof. Liversidge, F.R.S.; F. B. Kyngdon, F.R.M.S.; Council: Hon. Dr. C. K. Mackellar, A.M., M.L.C.; C. Moore, F.L.S.; P. R. Pedley, Dr. J. Ashburton Thompson, C. S. Wilkinson, F.G.S.; Dr. H. G. A. Wright.

PARIS

Academy of Sciences, July 26.—M. Jurien de la Gravière, President, in the chair.—On the quantitative analysis of ammonia, by M. Th. Schlosing. The author's process of analysis, based on distillation in presence of magnesia, having been questioned by M. Berthelot and others, he has made some fresh experiments, here described, which fully confirm the accuracy of the results already obtained.—Observations on the oldest sedimentary groups in the north-west of France, by M. Hébert. The region here dealt with is the northern section of Brittany and Normandy, where the most ancient sedimentary

rocks are the clay-slates of Saint-Lô and the widely diffused purple conglomerates. The former, which are quite distinct from the mica-schists, gneiss, and other primitive crystalline schists, form the fundamental feature throughout the department of La Manche, stretching far eastwards into Calvados, and westwards into Brittany. They assume almost everywhere a vertical or nearly vertical disposition, and are remarkably homogeneous, being almost totally destitute of any organic remains. The whole system seems to be posterior to the granitic pudding of Granville.—On the meteorological station of l'Aigoual, by M. F. Perrier. Since the beginning of July this station has been in full activity, and has been furnished by M. Houdaille, of Montpellier, with maxima and minima thermometers, a psychrometer, an evaporimeter, and a registering hygrometer. In the neighbourhood other instruments have been fitted up, including Tonnellot and Richard barometers, a large pluviometer, and a Campbell heliograph. Regular observations have already begun to be taken on this peak, which stands at an altitude of 1567 metres above sea-level, on the water-parting between the Atlantic and Mediterranean basins. The present temporary erections will soon be replaced by a solid structure, for which a grant of 4800*l.* has been made by the Minister of Agriculture.—Remarks accompanying the presentation of vol. xii. of the "Mémoires du Dépôt de la Guerre," by Col. F. Perrier. The first part of this volume describes the instruments and apparatus employed in the various geodetic operations connected with the new measurement of the meridian of Paris, with an exposition of the methods of observation. In the second are embodied all the observations taken from 1871 to 1884 between Perpignan and Paris by MM. Perrier, Bassot, and Defforges, at seventy-two stations belonging to the meridian of France.—Note on Gen. Meusnier's projected aërostatic machine, by M. Létonné. The album here referred to is a photographic reproduction of an atlas now in the military aërostatic establishment of Chalais (Meudon), and containing sixteen plates of designs relative to a projected aërostatic machine prepared by Gen. Meusnier between the years 1784 and 1789. Eight tables are added, giving the coefficients of resistance of various substances suited for the construction of this machine.—On the pressure that exists in the contracted section of a gaseous current, by M. Hugoniot. This paper is supplementary to that inserted in the *Comptes rendus* of June 28, showing that the results of M. Hirn's experiments on the flow of gases are in harmony with the laws of hydrodynamics and with the formula of Weisbach or Zeuner, which is a direct consequence of those laws. Some objections raised by M. Hirn himself are here disposed of, and the general conclusion confirmed by fresh argument.—On the velocity of light in the sulphuret of carbon, by M. Gouy. The experiments here described have been carried out with a revolving mirror analogous to that of Foucault, and capable of 800 revolutions per second by means of compressed air. The results correspond with those recently obtained by Mr. Michelson (*American Journal of Science*, and *NATURE*, March 11 and April 22, 1886).—Note on the construction of an absolute electrometer adapted for the measurement of very high potentials, by MM. E. Bichat and R. Blondlot. By an improvement introduced into the construction of their already described electrometer, the authors have produced an instrument possessing absolute sterility and capable of measuring potentials corresponding to explosive distances of 2·5 centimetres. A model of the apparatus has been constructed by M. D. Gaiffe, of Nancy.—On the slow decomposition of the chlorides in their extended dissolutions, by M. G. Fousereau. Further experiments with the chlorides of aluminium and magnesium, with the double chloride of rhodium and sodium, the bichloride of platina and the sesquichloride of gold show that the recently described phenomenon of decomposition probably extends to a numerous class of chlorides.—On the definition of the coefficient of self-induction in an electro-magnetic system, by M. G. Cabanellas.—On the numerical laws of chemical equilibria, by M. H. Le Chatelier. The formula for the numerical law of the chemical equilibrium of a gaseous system,

$$\log p^n p'^n \dots p''^n \dots - \frac{273}{0\cdot542} \int \frac{Q}{T^2} dT = \text{const.},$$

announced by the author in the *Comptes rendus* for November 16 and December 28, 1885, is here established by rigorous demonstration.—Fresh experiments on the decomposition of hydrofluoric acid by an electric current, by M. H. Moissan. These experiments show conclusively that the gas separated by electro-