

on Saturday, at 3 o'clock. Admiral Sir G. P. Sartorius will preside.

PROF. W. K. PARKER, F.R.S., and Mr. G. T. Bettany, B.A., of Caius College, Cambridge, are preparing a work on the Morphology of the Skull, in which for the first time will be brought together for comparison descriptions of the remarkable succession of modification through which the skull passes in development in the principal types of vertebrated animals; the forms illustrated will be the sharks and rays, the salmon, the axolotl, the frog, the snake, the fowl, and the pig. A special value will attach to the work inasmuch as it will record many corrections of facts and important modifications of view since the publication of Prof. Parker's elaborate papers in the *Transactions* of various societies, and will also include many observations yet unpublished. A simple description of each form at successive stages will be followed by a chapter dealing with theoretical questions, and summarising the results of study. The work will be illustrated by a large number of woodcuts, and will be published by Messrs. Macmillan.

THE scintillation of stars, and its close connection with changes of weather, has, as is known, much interested Humboldt, Arago, Kaemtz, Secchi, and many others; and recently [it has also been the subject of valuable spectroscopic researches by M. Respighi. M. Montigny, who some time ago investigated scintillation in relation to the special characteristics of the light of different stars, publishes in the *Bulletin* of the Belgian Academy, 1876, No. 8, an elaborate report upon his researches into the connection existing between scintillation and various meteorological elements. The chief results arrived at after a discussion of 1,820 observations made on 230 days on 70 different stars, are as follow:—The intensity of scintillation (measured by a special apparatus, the scintillomètre) increases invariably with the occurrence or approach of rainy weather, and with the increase of tension of vapour in the air on one side, and the increase of pressure and decrease of temperature on the other; the influence of the two former factors being far more sensible than the combined influence of the two latter. The scintillation, which is on an average stronger during winter than during summer, increases with the arrival of moist weather at all seasons. It increases also not only on rainy days, but one or two days before, decreasing immediately after the rain has ceased. Moreover, the intensity of scintillation increases during strong winds, and with the approach of barometric depressions, or *bourrasques*, the increase being most pronounced when the depression passes near to the observer. It then largely exceeds the average increase corresponding to rainy days, and the influence of great movements in the atmosphere totally counteracts the contrary influence of a lowering of pressure. M. Montigny is thus correct in saying that a continued investigation of scintillation would be of great service, not only for the prevision of weather, but also for the general study of meteorology, affording a very useful means for the exploration of the higher regions of the atmosphere.

The additions to the Zoological Society's Gardens during the past week include a Chacma Baboon (*Cynocephalus porcarus*) from South Africa, presented by Mr. Henry S. Wright; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mr. H. Jones; a Little Grebe (*Podiceps minor*), European, presented by Mrs. Johnson; two Snowy Owls (*Nyctea nivea*), European, presented by Mr. L. W. Gardiner; nine Red-bellied Newts (*Triton alpestris*) from Tyrol, presented by Mr. P. L. Sclater, F.R.S.; a Tamandua Ant-eater (*Tamandua tetradactyla*) from South America, purchased as an Ocelot (*Felis pardalis*) from America, two Indian Cobras (*Naja tripudians*) from India, deposited; a Geoffroy's Dove (*Peristera geoffroyi*) bred in the Gardens.

SCIENTIFIC SERIALS

Journal of the Chemical Society, July, 1876.—Mr. Thomas Carnelley, B.Sc., communicates the results of investigations recently made by him, on the action of water and of various saline solutions on copper. Mr. Carnelley has found that distilled water dissolves an appreciable amount of copper, on standing in contact with the metal even for the comparatively short space of an hour.—Mr. M. M. Pattison Muir, F.R.S.E., gives the second part of a paper on certain bismuth compounds. There are also two communications from Dr. Thudicum's Physiological Laboratory. The first is by Dr. Thudicum and C. T. Kingzett, on glycerophosphoric acid and its salts, as obtained from the phosphorised constituents of the brain. The second is by Dr. Thudicum, on some reactions of biliverdin. There are besides a note on the occurrence of benzene in rosin light oils, by Mr. Watson Smith, F.C.S., and a second paper by the same gentleman on a new method of preparing diphenyl and isodiphenyl, and on the action at a high temperature, of metallic chlorides on certain hydrocarbons.

Gazzetta Chimica Italiana, Fasc. v. and vi.—The following papers comprise the contents of this number:—The inactive amylc alcohol of fermentation, by L. Balbiano.—An alkaloid which they found in spoiled Indian corn and in stale maize bread, by T. Brugnatelli and E. Zenoni. The authors consider this alkaloid to be the cause of "pellagra," a disease which commits great ravages in Lombardy.—Concerning a series of compounds derived from ammonaldehyde, by R. Schiff.—On gelatine, considered especially as regards its reducing agency, by G. Bizio.—On the emission of nascent hydrogen from vegetables, by G. Pollacci.—G. Scurati Manzoni contributes two papers; the first, on the action of certain reagents upon the principal organic colouring matters, is accompanied with extensive tables, which contain much valuable information; the second treats of the employment of sodic hydrosulphite as a reagent in the analysis of the colours fixed upon tissues.—On the natural poison of the human body, by A. Moriggia.—Concerning the methods of preparing the iodides of potassium and sodium, and of potassic bromide, by P. Chiappe and O. Malesci.—Observations on a process for obtaining iodic acid, by causing chlorine to act upon iodine suspended in water, by G. Sodini.—On the precipitate of sulphur, by M. Sansoni and G. Cappellini.—A method for detecting the adulteration of plumbic iodide, by L. Alessandri and C. Conti.—A new reagent for the investigation and estimation of glucose, by A. Soldaini.

Memoria della Società degli Spettroscopisti Italiani, May, 1876.—Prof. Tacchini gives the statistics of solar eruptions observed at Palermo in 1872. In 134 days of observation fifty-two eruptions were seen—twenty-four on the eastern limb and twenty-eight on the western, and none apparently occur within 40° of either pole. There also appears a detailed statement by Prof. Tacchini of the positions on which magnesium was seen on the limb during the months of August, September, and October, 1875.—Observations of the partial eclipse of the sun on September 29, 1875, made at Padua by Dr. Abetti.—Spots and faculae on the sun's limb, observed at Palermo; the lines seen bright in the spectrum of the jets are b^1 b^2 b^3 b^4 , 1474, 4923, 5017, and sodium lines. A sheet showing the chromosphere on each day in August, 1874, accompanies this number.

June, 1876.—Observations of spots and faculae made at Palermo in May, 1876, with a table showing the numbers of positions at which the b and 1874 line were visible at the limb.—Observations of solar protuberances from June 29 to December 11, 1875, showing the number in each 10° of the sun's circumference, their heights, and area.—A note by Father Secchi on the change of position of the lines in the spectra of stars caused by their movement in space. In his experiments the author placed the vacuum tube for comparison in front of the object-glass, and he and his assistants found the stellar and tube lines could be made to change places by the motion of the telescope, and that the results by this method are not trustworthy. The author then gives a list of stars with their motions as given by Huggins, Greenwich, Secchi, and Vogel, showing a great discrepancy between the observers.—On the observation of the zodiacal light, made by Rev. Geo. Jones, from April, 1853 to April, 1855, by A. Serpieri. About thirty-nine observations with the lat. and long. of the place of the observer appear, together with other tables of the positions of the light, and a lengthy paper of remarks on the same. Drawings of the chromosphere for September, October, and November, 1874, accompany the number.

July, 1876, commences with a continuation of A. Serpieri's paper on the observation of the zodiacal light, by G. Jones.—Father Secchi contributes a second note on the change of position of the lines in stellar spectra due to the motion of the stars. The author in this, as in the last note, throws doubt on the reliability of the method in practice.—Observations of solar protuberances made during the first half of the present year at Rome. This consists of a table showing the number of prominences seen on each 10° of solar circumference, the height, size, and area of the prominences, and the extension of faculæ.—Spectroscopic and direct observations made at Palermo in the months of June and July. This paper includes a table showing the number of spots and faculæ on each day, with notes of the positions in which the δ and 1474 lines were seen.

August, 1876, contains three papers by Prof. Ricco, the first of considerable length, on the absorption spectrum of water, with a plate showing the method of experiment and the spectrum of sea-water seen; the second on the spectral study of the green of plants; and the third on a new form of direct-vision spectroscopy. In this new form the rays of light from the collimator pass through a prism of 60° in the ordinary way; they then fall on the side of a prism of 90°, having its base nearly in the same plane as that of the first; they are thus totally reflected internally from the base of the prism, and emerge from the other face parallel to their original position.

Reale Istituto Lombardo di Scienze e Lettere. Rendiconti. April—July.—A controversy which has been going on between M. Lombroso and a Committee of the Institute as to the poisonous properties of decayed maize and the disease of pellagra (in Northern Italy) is referred to here.—In the treatment of vines with sulphur for oidium, the destruction of the parasite has been shown to be due to formation of sulphydric acid. Whether the necessary hydrogen came from the oidium or from the grapes was uncertain, till it appeared that grapes that were quite free from the disease, gave sulphuretted hydrogen when sprinkled with sulphur. M. Selmi proved the development of nascent hydrogen from mould, and M. Polloni, having experimented on a number of plants, now sprinkled with sulphur, gave sulphydric acid. Most of it is produced in those parts in which the vegetation is most active (as the flowers and young buds). Plants with saccharine fruit (as the vine and mulberry) do not produce it in greater quantity than others. The author concludes from indirect experiments that all plants, in certain phases of their growth, and as the result of physiological acts, produce hydrogen in the nascent state.—A valuable paper of statistics and information regarding diphtheria in Milan, in the three years 1873, 1874, 1875, is contributed by Dr. Fellice Dell'Acqua. With reference to meteorological conditions, it is concluded that neither the maximum nor the minimum of air pressure, of temperature, of vapour tension and relative moisture, seemed to have the least influence in raising the number of cases of diphtheria. In winter and autumn the number of individuals taken ill was less, but the less number of deaths was in spring and summer.—M. Monteggia gives a careful analysis of the phenomena of expression of grief.—The course of storms is studied by M. Frisiani.—In biology we find notes on the nucleoli in the envelopes of some Protozoa, the mieline in Infusoria, the fresh-water Rhizopods of Lombardy.

Zeitschrift für Wissenschaftliche Zoologie, vol. xxvii., Part 2.—Prof. Selenka opens this number with a very interesting contribution to the embryology of the Holothurians, accompanied by beautiful figures. He describes the early stages of *Holothuria tubulosa* and *Cucumaria doliolum*. Among his conclusions may be mentioned the following:—The mesoderm arises entirely out of the entoderm; the mesoderm gives off motile cells from which the subcutaneous circular muscles, the primary alimentary canal, and parts of the internal skeleton are formed; the first-named species undergoes complete, the second incomplete metamorphosis; the transformation of Echinoderm larvæ can only be regarded as metamorphosis, not as alternation of generations.—Prof. Salsensky, of Kasan, contributes a monograph of the development of *Salpa democratica*, from fecundation to the establishment of all the organs. At the conclusion of his paper he discusses the evidence which embryology affords as to the true position of the Salpæ. He shows that they lack the provisional organs as well as the mantle and foot, found in all mollusca. The cellulose test is in no way homologous with the molluscan mantle. The respiratory cavity is simply a differentiated part of the alimentary canal. The author considers the Vermes also to be nearer the Mollusca

than the Salpæ, by reason of the provisional organs of many of their embryos. He emphasises the differences between the development of the Salpæ and the Ascidians, and, allowing that the viviparous reproduction of the Salpæ may account for much, he thinks that we are still considerably in the dark on the matter. He makes no allusion to the hypothesis that the Lunicata may be degenerate Vertebrates.—Ernst Zeller gives an account of the anatomy and life history of *Polystomum integerrimum*, a Nematode worm which inhabits the urinary bladder of frogs in its adult condition, and is found in the respiratory cavity of tadpoles during its larval state. Migration takes place through the alimentary canal of the host when the frog has undergone its metamorphosis; some individuals become sexual while in the respiratory cavity; these do not migrate, are short-lived, and do not appear to mature their eggs.

Gegenbaurs' *Morphologisches Jahrbuch*, vol. ii., Part 1.—Dr. von Ihering, of Göttingen, has an important article on Gasteropods, expounding the structure of the opisthobranchiate *Tethys leporina*, and making deductions equally unfavourable to the views of Prof. Huxley on morphology, and of Haeckel on phylogeny. He sees no ground for believing that the larval velum is the fore part of the epipodium, and expresses his astonishment that Prof. Huxley's paper on the morphology of the cephalous mollusca should be deemed authoritative. Haeckel's dogmatic system of phylogeny is stated to be not in accord with facts as regards the mollusca. The author believes that the prosobranchiate Gasteropods are derived from segmented worms, the opisthobranchiates from flat worms.—R. Hertwig endeavours to unify the differences in the structure, behaviour, and mode of formation of nuclei.—A brief contribution on the Coelenterata, by G. v. Koch, is noticeable as describing a mesoderm in *Hali-sarca*.—Dr. W. Rolph has a long account of *Amphioxus*, increasing its abundant literature by nearly eighty pages, illustrated by three plates. He claims to have made it clear that its "body cavity," formed by the downgrowth of lateral lobes, is a respiratory cavity, homologous with the perivisceral chamber of ascidians, with the respiratory cavity of the tadpole, and the gill-cavity of sibranchii. He strongly objects to the identification of this chamber with the proper body-cavity of Vertebrata.

SOCIETIES AND ACADEMIES

LONDON

Entomological Society, October 4.—Sir Sidney Smith Saunders, C.M.G., vice-president, in the chair.—M. Alfred Preudhomme de Borre, secretary of the Belgian Entomological Society, was elected a foreign member.—Mr. Bond exhibited varieties of *Hepialus humuli* and *Epunda lunulenta*, and also specimens of the new Tortrix (*Sericoris irriguana*), all taken near Loch Laggan by Mr. N. Cooke.—Mr. Forbes exhibited a weevil (evidently not indigenous to Britain) taken alive among some orchids at Highgate. Mr. Pascoe pronounced it to be a species of *Cholus*, a South American genus, for which he proposed the name of *C. Forbesii*.—Mr. W. Cole exhibited numerous bred specimens of *Eunomos angularia*, showing differences in coloration according as the larvæ had been fed on oak, hawthorn, lime, or lilac.—Mr. Enock exhibited microscopic slides containing some beautiful preparations of minute species of *Hymenoptera*.—Mr. Frederick Smith communicated "Descriptions of new species of Cryptoceridæ belonging to the genera *Cryptocerus*, *Meranoplus*, and *Cataulacus*," accompanied by figures of the several species. The author gave some interesting particulars relative to the habits of these insects, especially of *Meranoplus intrudens*, which constructs its fornicarium in the thorns of a species of *Acacia*. These thorns were some 4 or 5 inches in length, and at a distance of about half an inch from the pointed end, a small round hole was made for ingress and egress to and from the nest. The thorns contained a kind of spongy pith in which the channels and chambers of the nest were constructed.—A catalogue of the British Hemiptera (Heteroptera and Homoptera) compiled by Messrs. J. W. Douglas and John Scott, published by the Society, was on the table.

MANCHESTER

Literary and Philosophical Society, October 3.—Rev. William Gaskell in the chair.—On the action of water and saline solutions upon lead, Part 2, by M. M. Pattison Muir, F.R.S.E., Assistant Lecturer on Chemistry, Owens College. It appears