netic disturbances in Rome, and the aurora borealis at Upsala. To the magnetic disturbance on the 24th at Melbourne correspond the great magnetic disturbances at Rome, and the very fine auroræ boreales on the same day in Germany, Russia, England, Turkey, Greece, and Sicily.

November.—The aurora australis of November 9 at Melbourne, lasting from midnight till the morning twilight, corresponds to an hour to the aurora borealis which was seen at clear full moon on the evening of the 8th in Schleswig, and to the magnetic disturbances at Rome on the 8th and 9th. To the auroræ australes on the 15th, 17th, and 18th at Melbourne correspond the auroræ boreales on the 14th, 17th, and 18th in England. To the great aurora australis on the 19th at Melbourne corresponds the contemporary aurora borealis at Münster, Niederorschel, Peckeloh, Schleswig, also at Upsala and in England. To the aurora on the 23rd in Melbourne corresponds the aurora borealis in England of the 22nd and 23rd. To the aurora australis of the 24th corresponds the aurora borealis at Upsala of the 24th and in England. The magnetic disturbances at Rome on the 19th, 20th, 23rd 24th, 25th, and 29th coincide with the aurora australis, on the same days, and the magnetic disturbances at Rome on the 10th, 22nd, and 27th, with the disturbances at Melbourne on the same days.* Besides the aurora borealis on the 22nd in England, and on the 27th in Brünn coincide with the contemporary magnetic disturbances at Melbourne.

December.—To the aurora australis on the 6th and 17th at Melbourne corresponds the aurora borealis at Peckeloh, Keitum, and in England. To the aurora on the 17th at Melbourne corresponds the contemporary aurora borealis at Münster, Schleswig, Breslau, Keitum, and in England. The magnetic disturbance on the 22nd at Melbourne coincides with the aurora borealis on the 22nd in Schleswig.

January 1871.—To the aurora australis on the 3rd and 13th at Melbourne correspond the magnetic disturbances at Rome on the same day, and to the aurora australis of the 13th corresponds the aurora borealis on the same day at Münster, Breslau, Cologne, Schleswig. To the aurora on the 15th at Melbourne corresponds the aurora borealis at Breslau and Schleswig on the 15th. To the aurora on the 20th at Melbourne corresponds the aurora borealis on the 19th at Thurso.

February.—To the aurora australis on the 12th at Melbourne corresponds the aurora borealis on the 12th at Münster and Niederorschel, Peckeloh, Wolgart, Moncalieri, Coeslin, Breslau, the pharos of the Weser, on the west coast of England, Eger, Datschitz, Florence, Rome, Volpeglino, and the aurora borealis on the 13th at 3 A.M. at Rome. The magnetic disturbances on the 4th at Melbourne correspond to the magnetic disturbances at Rome on the same day. To the magnetic disturbances on the 5th at Melbourne corresponds the aurora borealis at Breslau. To the magnetic disturbances on the 9th at Melbourne corresponds the aurora borealis at Cleve and Thurso.

EDWARD HEIS

Münster, Westphalia, June 30

SOCIETIES AND ACADEMIES

LONDON

Entomological Society, July 3.—A. R. Wallace, president, in the chair. Prof. Westwood exhibited the minute-book of proceedings of an Entomological Society existing in London in 1780, but which appeared to have been dissolved after about a year. The members seemed to have consisted of Messrs. Drury, Honey, Swift, Francillon, Jones, and Bentley; the meetings being held weekly.—Mr. S. Stevens exhibited a collection of Coleoptera recently made in Ireland, the most interesting species being *Chlæmius holosericeus* from near Killaloe. Mr. Champion exhibited an example of *Emus hirtus* recently captured by him in the New Forest; also rare British Hemiptera. Mr. Blackmore exhibited a collection of insects of all orders from Tangiers; locusts were extremely destructive there, and on the shore the pedestrian is often up to his ankles in the dead and dying accumulations of these insects.—Mr. Dunning read a letter from the Rev. Mr. Wayne, of Much Wenlock, calling attention to the damage done to his strawberries in consequence of a Myriopod effecting an entrance into the interior of the ripe fruit; also complaining that his young carrots were destroyed by a dipterous larva, probably that of *Psila rosæ*, which bored into the root.—Mr. Druce exhibited a collection of rare Diurnal Lepidoptera, including species of *Papilio, Euryades, Heliconia, Eresia, Catagramma, Agrias. Paphia,* &c.—Mr. Stainton exhibited an example of *Botys fuscalis* captured by the Rev. R. P. Murray in the Isle of Man, to the head of which a portion of the puparium still adhered; the insect was flying briskly when taken, notwithstanding that it must have been nearly blind. Mr. Albert Müller exhibited a leaf from a vine growing at Basle showing the damage done by *Phytoptus vitis.*—Mr. Riley, State Entomologist for Missouri, exhibited a collection of American insects with their transformations.—Prof. Westwood read a paper on new species of exotic *Papilionidæ.* Mr. S. S. Saunders read a monograph of the Strepsiptera, describing twenty-one species; he considered the group as undoubtedly pertaining to the Coleoptera, in the vicinity of *Rhipiphorus.* Mr. C. O. Waterhouse read a memoir on some species of *Cantharis.* The Baron de Selys Longchamps communicated a statistical sketch of the *Odonata;* the number of species of dragon flies now known he estimated at 1,344.

Society of Biblical Archæology, July 4.—Samuel Birch, LL.D., F.S.A., in the chair. The Rev. F. K. Cheyne, M.A., was duly elected a member of the society. The Rev. B. T. Lowne, M.R.C.S., read a paper "On the Flora of Palestine." He considered that it comprised eight distinct elements, four of the dominant existing floras of Southern Europe, Russian Asia, North Africa, and that of Arabia and North Western India. Each of these floras was stated to occupy a distinct region of the country. Interspersed with these are found numerous examples of plants belonging to palæarctic Europe, constituting its fifth element. The Arctic flora of Hermon and Lebanon constitutes the sixth. Mr. Lowne thought further that the cedars of the Lebanon, and the papyrus of the Jordan lakes were the remnants of two ancient and almost extinct floras belonging to two distinct geological periods.—James Collins read a paper "On the Gums, Perfumes, and Resins mentioned in the Bible," particularly pointing out the fact that few of them were indigenous to Palestine, and that many have been wrongly named by the Greek and later botanists. In the course of his observations Mr. Collins detailed the characteristic differences between the true and false Balm of Gilead, ladanum, sandal wood, &c., and the greater or less efficacy of their medicinal properties. Mr. Lowne and Mr. Collins brought for exhibition a large number of mounted specimens, and a complete collection of gums, perfumes, &c., to illustrate their respective papers.

PARIS

Académie des Sciences, June 28.—M. Claude Bernard in the chair. M. Robin presented a new edition of his great work on the Microscope.—M. Elie de Beaumont presented a most valuable book by M. Rivat, who died recently, and who was one of the chief engineers in the mining service, containing a new method of extracting silver from sulphuric ores, with the assistance of super-heated steam. The quantity of steam required was originally very great, and is now reduced to $\frac{1}{60}$th of what it was when the first experiments were tried. This process of quantitative analysis is largely used in the Laboratory of the Ecole des Mines, at Paris.—Father Secchi sent a memoir on a supposed relation between protuberances, sun-spots, and "faculæ," as discovered by him.—M. Struve and others sent a letter on behalf of the German astronomers, who will meet at Vienna, and asking for the presence of French astronomers. Some instruments destroyed by the Communists were intended for that meeting.—M. Delaunay has circulated amongst the members a small notice relating to an intended meteorological atlas of France, and presented the volume of meteorological observations made at the National Observatory, which he calls the "Observatory of Paris." M. Charles Sainte-Claire Deville rose immediately in order to present the French Academy with the

* Bulletino Meteorologico del Collegia Romano, dell' Osservatorio di Palermo edel Collegio Carlo Alberto a Moncalieri.

observations made at the observatory of Montsouris. The two observatories are at a distance of something less than a mile, and a deadly feud appears to exist between them.—M. Ch. Sainte-Claire Deville then read a paper relating to the part taken by him in the projecting of the meteorological atlas of France in 1847.—M. de Falen and Fisher described bathymetrical observations and researches executed on the coasts of France, in 1847, in depths varying up to 250 fathoms. The submarine fauna has no peculiarity worth mentioning. M. Gustave Tissandier, one of the postal aeronauts, presented a *résumé* of the results obtained by the sixty-four postal aeronautical expeditions during the siege of Paris. He merely gives however the number of letters and pigeons sent, but not the number of pigeons returned to Paris, and of letters duly posted in the post-offices of the French postal service delegated in the provinces.

July 3.—M. Claude Bernard in the chair.—M. Delaunay read a letter from M. Marie Davy, in answer to M. Ch. Sainte-Claire Deville's communication on the Physical Atlas of France. The learned astronomer, supporting M. Marie Davy, admits that the idea of constructing a physical atlas belongs to M. Ch. Sainte Claire Deville, who originated it in 1847; but he contends that in 1868 he tried to start it, since nothing had been done during twenty-one years. M. Delaunay contends moreover that it is a duty for the National Observatory to undertake such a publication. It is to be hoped that M. Delaunay's exertions will not interfere with M. Sainte-Claire Deville's own publications, and at all events, that we shall have at least an atlas worthy of the French reputation in meteorological matters. But the safer way for both contending parties should be to agree in a common work. Such a resolution would diminish the expenses to the Republic, and enlarge the chances of common success. M. Sainte-Claire Deville's brother, the chemist, was not returned a member for Paris, although he received more than 50,000 votes.—M. Delaunay presented for M. Latterade a most extraordinary memoir on "The Theory of two Suns." M. Latterade contends that the warm period which is demonstrated by the presence of tropical fossils in Sweden and Norway was produced by the proximity of a very powerful star which had given to the earth an immense quantity of heat, and which from that time has receded into the abysses of celestial space. M. Latterade contends that the *supplementary sun* has not disturbed the elements of the planets, because its attractive power was smaller than its warming power. He states, moreover, that the warming power does not vary according to the mass, like the attractive power. This communication was referred gravely to a committee composed of three members.—M. Champion sent a new memoir on nitro-glycerine, which he has studied with so much care during the investment of Paris. It is not only a very dangerous study, but also a very painful labour, as violent headaches are experienced by persons engaged in such operations. The whole of the memoir is worthy of being read attentively by working chemists. We will not try to analyse it, but merely mention two facts. Electricity is without action on glycerine as proved by Ruhmkorff, and explosion does not take place at 360° Fah. as supposed, but at 540° only.—M. Quatrefages presented an interesting memoir from M. Dareste, who is pursuing with constant success his studies on artificial monstrosities, produced by different operations on eggs during incubation. The learned physiologist examines the alterations produced in the blood, and finds the number of corpuscles is very small indeed under special circumstances.—Father Denza sent from Italy an account of the aurora borealis observed in Italy on the evenings of April 9, 10, 18, and 23. Father Denza mentions other auroræ boreales on the 7th, 12th, and 18th of June. This last display was very brilliant, and was accompanied with very great magnetical disturbances. It coincided, moreover, with great storms observed in England and other countries.—Baron Larey announced that Dr. Castano is just leaving France for a climatological and medical inspection of Denmark, Sweden, Norway, and perhaps Iceland, as well as the Faroe Islands.—In its secret sitting the Academy is discussing the titles of several candidates to fill the room of M. Lamé, who was mostly engaged in abstruse researches on the application of high mathematics to molecular physics during his whole lifetime. M. Puiteux was chosen as candidate in the first line. He will be certainly returned on the 10th. M. Lamé cannot have any fitter or more qualified successor.—M. Delaunay has published the result of observations for the month of June. The greatest excess of black bulb thermometer *in vacuo* exposed to the sun over the ordinary thermometer in the shade was $35\frac{1}{2}°$ Fah. on June 1, and the smallest on the 5th, when it was only 4°.

VIENNA

Imperial Academy of Sciences, May 11.—Dr. Neilreich communicated a critical revision of the species, forms, and hybrid forms of the genus *Hieracium* hitherto observed in Austria and Hungary. The author remarked upon the peculiar difficulty of deciding what constitutes a species among the Hawkweeds, and pointed that by one course, the number of species is inordinately increased, whilst the other diminishes it to an unnatural minimum. In his treatment of the Hawkweeds of Austria and Hungary he has adopted a middle course, namely, the establishment of what he calls "artificial species." — Prof. E. Linnemann transmitted a memoir on the simultaneous formation of propylic aldehyde, acetone, and allylic alcohol with acroleine, by the desiccating action of chloride of calcium upon glycerine.—Prof. F. Simony presented the conclusion of his memoir upon the glaciers of the Dachsteingebirge.—Prof. V. von Lang communicated a paper on the dioptrics of a system of centred spherical surfaces.—Prof. C. Jelinek communicated a note by Prof. Handl containing corections of errors in Kunzek's meteorological observations made at Lemberg.—Dr. von Monckhoven exhibited a blowpipe constructed by him for the production of the Drummond light, which permits the use of hydrogen, common gas, or alcohol as the combustible material. He also discussed some of the incandescent materials which may be employed, of which he seems to prefer white marble. Prof. Brühl transmitted three plates of the anatomy of the lice, intended for early publication, for the purpose of claiming priority in case of his results being hit upon by Dr. v. Graber, in his memoir on the same subject lately communicated to the Academy of Sciences.

May 16.— The following memoirs were communicated:—"Graphical determination of the stereographic and allied projections of the lines of the geographical sphere," by Prof. J. O. Streissler; "The pressure of water as a motor," by M. F. Schindler.—Director C. von Littrow presented a report upon the determination of the latitude and azimuth effected by Prof. E. Weiss at Dablitz.—M. F. Unferdinger communicated two mathematical papers, one upon four integrals, the other upon the theory of that spherical triangle in which one angle is equal to the sum of the other two.

BOOKS RECEIVED

ENGLISH.—Mycological Illustrations: W. W. Saunders, W. G Smith, A. W. Bennett, part 1 (Van Voorst).—Darwinism Refuted: S. H. Laing (E. Stock).—A Treatise on Asiatic Cholera: C. Macnamara (Churchill).—A History of British Birds: W. Yarrell, edited by A. Newton, part 1 (Van Voorst).—The Census of England and Wales for 1871, Preliminary Report.

AMERICAN.—A Treatise on Diseases of the Nervous System: W. A. Hammond (New York, Appleton).

FOREIGN.—Das Leben der Erde: N. Humnel (Leipzig, Fleischer).—Die Grundsätze graphischen Rechnens, part 1: K. Von Ott (Prag, Calve).

CONTENTS