

paper on his beautiful diffraction of spectrum photographs, similar to the account of the same in NATURE some weeks ago.
Astronomische Nachrichten, No. 1,978.—M. M. Henry gives the elements of planet (126) Velléda, epoch 1874, January, 0° Greenwich M.T.

$$\begin{aligned} \text{Mo} &= 149^\circ 55' 51'' \cdot 1 \\ \Pi &= 347^\circ 49' 11'' \cdot 3 \\ \Omega &= 23^\circ 10' 12'' \cdot 8 \\ i &= 2^\circ 56' 10'' \cdot 6 \\ \phi &= 6^\circ 5' 31'' \cdot 4 \\ \mu &= 930'' \cdot 9792 \\ \log. a &= 0 \cdot 3873777 \end{aligned}$$

Leopold Schulhof gives the following elements of the comet discovered by Winnecke in February last :—

$$\begin{aligned} T &= 1874, \text{ March, } 9 \cdot 95342 \text{ Greenwich Time} \\ \Pi &= 300^\circ 36' 42'' \\ \Omega &= 31^\circ 31' 18'' \cdot 2 \\ i &= 58^\circ 17' 14'' \cdot 5 \\ \log. q &= 8 \cdot 642852 \end{aligned}$$

The star in Perseus RA $2^h 13^m 56^s$ Dec. + $58^\circ 1' 53'' \cdot 5$ has been observed by A. Krüger to have varied from 8·5 mag. to 10 mag. in November 1872, and to have increased to 8·5 again in January last.

SOCIETIES AND ACADEMIES

LONDON

Geological Society, March 25.—John Evans, F.R.S., president, in the chair.—The following communications were read :—On the Upper Coal-Formation of Eastern Nova Scotia and Prince Edward Island, in its relation to the Permian, by Principal Dawson, F.R.S. The author described the Carboniferous district of Pictou county as showing the whole thickness of the Carboniferous system arranged in three synclinals, the easternmost consisting of the Lower series up to the Middle Coal-formation, and including all the known workable Coal-measures in the district—the second towards the middle and the lower part of the Upper Coal-formation—and the third showing in its centre the newest beds of the latter. On the north the bounding anticlinal of the first depression brings up the New-Glasgow Conglomerate, which contains boulders 3 ft. in diameter, often belonging to Lower Carboniferous rocks, and represents the upper part of the Millstone-grit or the lower part of the Middle Coal-formation. The author regards this as representing an immense bar or beach, which protected the swamps in which the Pictou main coal was formed. The succession of the deposits above the Conglomerate was described in some detail as seen in natural sections. The Upper Coal-formation, as shown in the section west of Carribou Harbour, consists of—(1) Red and grey shales, and grey, red, and brown sandstones; and (2) Shales, generally of a deep red colour, alternating with grey, red, and brown sandstones, the red beds becoming more prevalent in the upper part of the section. In Prince Edward Island beds apparently corresponding to these are found, and also gradually become more red in ascending. These are overlain, apparently conformably, by the Trias. The author gave a tabular list of 47 species of plants found in the Upper Coal-formation of Nova Scotia and Prince Edward Island, and stated that all but about ten of these occur also in the Middle Coal-formation. The number of species decreases rapidly towards the upper part of the formation; and this is especially the case in Prince Edward Island, some of the beds in which are considered by the author to be newer than any of those in Nova Scotia. The plants contained in the upper deposits were compared with those of the European Permian, and a correlation was shown to exist between them, so that it becomes a question whether this series was not synchronous with the lower part of the Permian of Europe, although in this district there is no stratigraphical break to establish a boundary between Carboniferous and Permian. The author therefore proposes to name these beds Permo-Carboniferous, and regards them as to some extent bridging over the gap which in Eastern America separates the Carboniferous from the Trias.—Note on the Carboniferous Conglomerates of the Eastern Part of the Basin of the Eden, by J. G. Goodchild.—An Account of a Well-Section in the Chalk at the north end of Driffield, East Yorkshire, by R. Mortimer.—On Slickensides or Rock-Striations, particularly those of the Chalk, by Dr. Ogier Ward,

Royal Horticultural Society, April 1.—Scientific Committee.—Dr. Hooker, C.B., Pres. R.S., in the chair.—Prof. Thistelton Dyer exhibited seeds of the plant called in gardens *Theophrasta imperialis*, sent from Rio Janeiro by Dr. Glaziou. From the evidence now forthcoming it appears that the plant belongs to a different family, *Sapotaceae*.—Dr. Hooker showed a photograph from Mr. Russell, of Falkirk, of a fruiting specimen of *Encephalartos villosus*, sometimes called in gardens *Zamia Mackenii*. The plant is a native of Natal, and a similar species has been discovered on the Niger by Barter, and a third in Zanzibar, by Kirk. A plant discovered by Schweinfurth in Central Africa is probably the same as that mentioned by Kirk.—Dr. Masters presented a classified list with notes of species of *Passiflora* and *Tacsonia* cultivated in European gardens.—Mr. Renny made some observations on the drawing, by Montagne, of *Artotrogus*, exhibited at the last meeting, which together with the original specimens, Mr. Berkeley had been kind enough to allow him to examine leisurely. He was able to clear up a mistake which De Bary seems to have fallen into in his description of *Peronospora infestans* (Ann. des Sc. Nat., 4^e sér., t. xx. p. 105, 1863). De Bary had not met with the resting spore of that species, but suggested that Montagne's *Artotrogus hydnocarpus* might be the desired organ; but he had doubts on the point, as Montagne had written to him that he found it also on Turnip. The facts are, that Mr. Broome found a mould on decaying Turnip, which he sent to Montagne, who pronounced it to be a species of his genus *Artotrogus*, though he does not appear at any time to have supplied a specific name. He doubtless announced to De Bary that *Artotrogus* was to be met with on Turnip, and it was De Bary's assumption that *A. hydnocarpus*, the only published species, was the one spoken of. De Bary, having a confident belief that the various species of *Peronospora* are parasitic each only on the plants of one genus, or at most of one family, seems to have been thus led to the doubt he has expressed.

General Meeting.—H. Little in the chair.—Prof. Thistelton Dyer commented on the interesting plants exhibited. Amongst these were the two forms of *Primula verticillata*, one from Sinai the other from Abyssinia; *Boronia megastigma*, a new Australian plant with a very agreeable smell; the stem and foliage of the splendid Bamboo *Dendrocalamus giganteus*, in cultivation at Sion House; and cut blooms of *Sterculia nobilis* from the same collection.

Entomological Society, April 6.—Sir Sidney S. Saunders, president, in the chair.—Mr. Frederick Smith made some interesting observations relative to the habits of the bee-parasites belonging to the genus *Stylops*.—Major Parry communicated a paper entitled Further Descriptions of Lucanoid Coleoptera; and Mr. Smith read descriptions of the *Tenthredinidae* and *Ichneumonidae* of Japan, from the collections of Mr. George Lewis.—Further notes were read from Mr. Gooch, of Natal, respecting the destruction of the coffee plantations there, by Longicorn Beetles.

Royal Astronomical Society, April 10.—Prof. Adams, president, in the chair.—Mr. De la Rue gave a verbal description of a piece of apparatus which he had devised for carrying out M. Janssen's method of photographing Venus near to ingress and egress upon the sun's disc. The instrument is intended to be attached to the photo-heliographs and weighs less than 11 lbs., inclusive of a small driving clock, which carries a revolving plate of about 10 in. in diameter, on which small photographs of Venus and the sun's limb are to be taken in rapid succession. Lord Lindsay also described the form of instrument which he had devised for the same purpose; it appeared to be very similar to that described by Mr. De la Rue, except that it is mounted on a separate pillar from the telescope in order to avoid tremors.—Lord Lindsay also read a paper On a Method of Determining the Solar Parallax, from observations to be made at the next opposition of Juno, which occurs in November of this year. He proposes, while in the Mauritius, to make a series of heliometric measures of the distance of Juno from the nearest fixed stars; and by comparisons of the measures taken soon after Juno has risen above the eastern horizon with those taken before it sets at the western to determine the terrestrial parallax. By this method he will be able to make his measures during all the clear nights of the month or six weeks before and after opposition. And although the parallax will be considerably less than in the case of Venus, he considered that he had reason to hope that the probable error of the result would, owing to the number of the

measurements and the ease of dealing with points of light instead of discs, be less than either in the case of the transit of Venus or the opposition of Mars.

Society of Biblical Archæology, April 7.—Dr. Birch, president, in the chair.—The following papers were read: On Four Songs contained in an Egyptian Papyrus in the British Museum. Translated with notes by C. W. Goodwin. Of these four songs three partook of the same nature, and were amatory compositions, written in a highly imaginative and poetical style with much voluptuousness of expression, having a very striking resemblance extending throughout whole passages, to the language of the Canticles. The fourth song or hymn is of a very different nature, and is evidently one of the solemn dirges used at festivals during the exhibition of the figures of Osiris, as related by Herodotus. This hymn is in the text ascribed to King Antuf, a monarch of the XIth dynasty.—Nimrod et les Ecritures Cuneiformes, by Joseph Grival (read in English). In this essay the author maintained that Merodach, under his Accadian name of "Amarud the eldest son of the Lord of Urhi," was identical with Nimrod the "géant chasseur" of the Septuagint.

EDINBURGH

Royal Physical Society, March 25.—On some Organisms found in the Stomach of the Herring, by F. W. Lyon.—Note on Entozoa, genus *Bothriocephalus*, found in the intestinal canal of a fish (*Cottus scorpius*), by James M'Bain.—On Recent Meteoric Chemistry, by Andrew Taylor. Mr. Taylor, in this paper, gave a résumé of the present state of our knowledge of the chemistry of meteorites.—On British Madreporiæ, by C. W. Peach, A.L.S. Mr. Peach read a paper on this subject, first stating that his attention had been drawn to the subject by a paper by Prof. P. Martin Duncan, on the Madreporiæ dredged by the explorers in the *Porcupine* in 1869 and 1870. He then exhibited a series of specimens he had collected in the seas of Shetland, Cornwall, &c., the most abundant being Caryophyllia, varieties *Smithii* and *Borealis*.—On the Fossil Plants of the Silurian Rocks of the Pentland Hills and of Sutherlandshire, by C. Wm. Peach, A.L.S. In this paper Mr. Peach showed that one of the large plants collected by Mr. Brown in the Upper Silurian rocks of the Pentlands was identically the same and in a similar matrix as the one collected by him in Sutherlandshire. This same plant had also been found in the Upper Silurian of the luapse sandstones in Canada. He further said that the rocks in Sutherlandshire were Lower Silurian, thus showing that land plants—and of a pretty high type—came in much earlier there than from either of the other localities.

PARIS

Academy of Sciences, April 6.—M. Bertrand in the chair.—The perpetual secretary announced to the Academy the loss which it had sustained in the person of M. P. A. Hansen, correspondent for the Astronomical section, who died at Gotha on March 28.—The following communications were read:—On Polygons inscribed in and circumscribing curves, by M. Chasles.—Solar Cyclones: conclusion of the reply to Dr. Reye, and observations concerning an article from the "Bibliothèque universelle" of Geneva, and a reclamation by M. Norman Lockyer, by M. Faye. The author has tabulated the dates, localities, times, velocities, &c. of thirty-one cyclones.—Earthquake shocks felt in Algeria on March 28, 1874; a letter from M. Ch. Sainte-Claire Deville to the perpetual secretary. The communication included a note from Captain Brocard, containing a seismo-graphic indication of the shocks.—Observations made at the Observatory of Toulouse during the months of February and March 1874, by M. F. Tisserand. The author communicated observations on the eclipses of Jupiter's satellites, and announced at the same time that regular observations of sun-spots had been organised with an equatorial of 0°108 m. aperture, after the method of Carrington.—Experimental researches on bi-hydrated sulphuric acid, by MM. Js. Pierre, and E. Puchot.—Scientific ascent to a great height made (in a balloon) on March 22, 1874, by MM. J. Crocé-Spinelli and Sivel. The authors had ascended 7,300 metres, the temperature at that elevation being -22°. The observations recorded in this communication are spectroscopic and physiological. Particular attention was given to the two obscure bands right and left of the double D line. At about 5,500 metres the right-hand band disappeared, and the band to the left vanished at about 7,000 metres, thus confirming M. Janssen's

idea of these bands being of terrestrial origin. The observers adopted M. Bert's suggestion of respiring oxygen to correct the effects of the rarefaction of the air. A carrier pigeon released at 5,000 metres tried at first to remount to its cage, but finally descended, describing curves of from 200 to 300 metres in diameter, with a velocity of translation of about 40 or 50 metres per second.—Action of electric fluid upon gases, third note, by M. Neyreneuf. The author promised from his observations a satisfactory explanation of the stratification of the electric light.—On a new process for the study and determination of the alcohol in wines, by M. Duclaux. The process depends upon the fact that mixtures of alcohol and water give for different compositions different numbers of drops when allowed to flow from a pipette of constant orifice. (The method is a practical application of Dr. Guthrie's researches upon drops to which no allusion was made.)—Note accompanying the presentation of new astronomical objectives of large dimensions, by M. Secretan. The largest was 24 centim. in diameter and had a focal distance of 3'25 metres. Its price was 6,300f.—On a new (electric) couple specially prepared for the application of continuous currents in therapeutics, by M. J. Morin.—On a system of continuous alarm signals to prevent railway collisions or collisions of ships at sea during foggy weather, by M. C. J. de Mat.—Geological considerations on the probable origin of the drift soil called *diluvium*, by M. E. Robert.—On the employment of coal-tar alkalies for the destruction of *Phylloxera*, by M. A. Rommier.—Direct construction of the centre of curvature in a point of the section made in a surface by any plane, by M. A. Mannheim.—On the diffusion between moist and dry air through a septum of porous clay, by M. L. Dufour.—Measurement of the electromotive force of batteries in absolute units, by M. A. Crova.—Density of hydrogen combined with metals, by MM. L. Troost and P. Hautefeuille. The observed density is about 0'625.—Experiments concerning combustion in the animal organisation, by M. P. Schutzenberger.—On the brominated derivatives of pyruvic acid, by M. E. Grimaux. The author described di- and tri-bromopyruvic acids and touched upon the constitution of the acid itself.—Modifications employed in the preparation of iron reduced by hydrogen, for the purpose of obtaining the metal perfectly pure, by M. Crolas.—Note on the determination of lime in meteoric waters, by M. H. Marié-Davy.—On asphyxia from insufficiency of oxygen, by M. Félix le Blanc.—On the use of oxygen in ballooning, by M. W. de Fonvielle.—Injection of ammonia into the veins to oppose accidents caused by snake bites, by M. Oré.—On the functional irritability of the stamens of *Berberis*, by M. E. Heckel.

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