

Photograph spectrum of corona during totality on both sides of dark moon.

(5.) Prismatic camera. 6-inch photo. lens as in (2), but with grating.

Use first order spectrum on one side and second order on the other.

Commence two minutes before totality. Continue till two minutes after totality on gradually ascending or descending or rotating plate.

(6.) 6-inch photo. lens as in (2), mounted on alt-azimuth. Fine slit. One prism of 60°. To observe spectrum of corona.

(7.) Photographs of corona of short, medium, and very long exposure to determine form and true solar limit of apparent corona due to the illumination of our air, using for the latter purpose the photographic intensity of the image of the moon.

I am aware that because Solar Physics is a new subject, and one so entirely in the domain of pure science, the above scheme may appear ridiculous to many, for if carried out in its completeness its cost would perhaps amount to the sixtieth part of the sum expended on the Transit of Venus in 1874. I have, however, felt myself bound to put it forward as an ideal scheme and one which, if several civilised Governments do each a little, concerted action may help us in part to realise. I am informed that the French and Italian Governments are already making preparations for observations, and my desire is that we may be represented on an occasion which, having regard to the duty which is incumbent upon us to secure observations for the use of those who come after us, is one of high importance.

SCIENTIFIC SERIALS

The American Naturalist, November, 1882, contains:—On the ancient man of Calaveras, by W. O. Ayres.—On the grey rabbit, by S. Lockwood.—On the genus *Nebalia* and its fossil allies, representing the order Phyllocarida, by A. S. Packard, jun.—American work on recent mollusca, 1881, by W. H. Dall.—Progress of invertebrate palæontology in the United States in 1881, by C. A. White.—On the number of bones at present known in the pectoral and pelvic limbs of birds, by R. W. Shufeldt.—The Editor's table—Recent literature.—General notes.

Zeitschrift für wissenschaftliche Zoologie, Bd. 37, Heft 3, November 1, 1882, contains:—On the structure and development of *Dinophilus apatris*, by Dr. E. Korschelt (plates 21 and 22). The author would place the forms belonging to this genus in a new family of the Turbellaria.—Studies among the Lampyridæ, by H. Ritter v. Wielowiejski (plates 23 and 24).—On the deposition of bone in the skeleton of bony fishes, by Max Köstler (plate 25).—On the origin and development of the green cells in Hydra, by Dr. Otto Hamann (plate 26); see remarks on this paper by Prof. Lankester, NATURE, vol. xxvii. p. 87.

Bulletin de la Soc. Imp. des Naturalistes de Moscou, 1882, No. 1, contains:—On the geology of the Windimir district, by H. Trautschold.—New lepidoptera of the Amur land, by H. Christoph (conclusion).—On the stone-growth of Sarepta—list of the Staphylinidæ, and on some new plants of Sarepta, by A. Becker.—On the geographical distribution of the hop in ancient times, by Dr. C. O. Cech.—A protest relative to palæontological nomenclature, by H. Trautschold.—Remarks on some anomalies found in the form and colour of the plants in the various countries of the Russian territory, by Dr. A. von Riesenkauff.—Note on an instrument to measure the intensity of gravity, by A. Issel.—On crinoids, addenda and corrigenda, by H. Trautschold.—Materials for a fauna of the Black Sea, fasc. iii, Verme, by V. Czerniavsky. In Russian, but the diagnoses of new genera and species are in Latin.

Revue internationale des Sciences biologiques, October 15, 1882, contains:—Translation of Prof. Pringsheim's "Researches on Chlorophyll."—M. Roujon, on the faculty of speech in mammals.—Prof. Abel, on the dangerous properties of fine coal dust (translation).—M. Vignier, on orientation and its organs in animals and in man.—*Proceedings* of the Academy of Sciences, Paris.

Rendiconto delle Sessioni dell' Accademia delle Scienze dell' Istituto di Bologna, 1881-82.—We note the following: On the succentriate spleen of the dog, and on the reproduction of the spleen by pathological processes that have abolished the function of that viscus, by S. Tizzoni.—On adaptation of species to environment; new researches on the genetic history of *Trema-*

todes, by S. Ercolani.—On the craniology of lunatics, by S. Peli.—On congenital deviations of the vertebral column in domestic animals, by S. Gotti.—Function of the cœcum and the rest of the large intestine, by S. Vella.—On polydactylia and polymelia in man and vertebrates, by S. Ercolani.—On the variations and the course of the river Po, by S. Predieri.—Meteorology applied to the study of botany, with a description of a new geothermometer, by S. Bertoloni.—On some new electric figures, by S. Villari.—On electric shadows, by S. Righi.—On the minute anatomy of the muscles in insects which move their wings, by S. Ciaccio.—The elevation of the Bolognese Apennines by direct action of gravity and of lateral pressures, by S. Bombieri.—Experimental researches on nerve-stretching, by S. Rossi.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, November 23.—"Monthly Means of the Highest and Lowest Diurnal Temperatures of the Water of the Thames, and Comparison with the corresponding Temperatures of the Air at the Royal Observatory, Greenwich." By Sir George Biddell Airy, K.C.B., F.R.S., late Astronomer Royal.

The observations were instituted at the suggestion of the conductors of the Medical Department in the Office of the Registrar General of Births, Deaths, and Marriages, with the view of supplying some knowledge of an element which may possibly affect the sanitary condition of the metropolis. The plan of observations was arranged at the Royal Observatory of Greenwich; and the instruments were procured and mounted, and repaired when necessary, under the care successively of James Glaisher, Esq., and William Ellis, Esq., superintendents of the Magnetical and Meteorological Department of the Observatory. The self-recording instruments were attached to the hospital ships successively anchored in the Thames, nearly opposite to Greenwich; and their records were read and registered by the medical officers of those ships, and these written registers were transmitted every week to the Royal Observatory.

I have been favoured by Mr. Ellis, who, at my request, has kindly superintended the preparation of the results of observations of thermometers in the water of the Thames, with the following remarks on the nature of the observations and the elements for their reduction.

"The thermometers were inclosed in an upright wooden trunk attached to the side of the ship, its lower portion projecting into the water; the trunk was closed at the bottom; the closing plate, and that portion of the sides which was under water, being perforated with holes, to allow the water easily to flow through. The thermometers were suspended in the trunk, so as to be about two feet below the surface of the water, and one foot above the bottom of the trunk.

"The instruments employed throughout were, one for highest temperature, and one for lowest temperature. For highest temperature two constructions have been successively used: the earlier, in which the mercury, with rising temperature, pushes up a steel index, leaving it detached when the temperature falls; the later, in which the column of mercury becomes divided on fall of temperature, the principal portion of the column being left in the tube. For lowest temperature, a spirit thermometer was employed, its index being contained within the column of spirit. The index-errors of the two thermometers in use were properly determined, and corrections for them were applied when necessary.

"The thermometers were read every morning at 9 a.m.

"The observations of atmospheric temperature at the Royal Observatory were made with the thermometers in ordinary use at the elevation of 4 feet above the ground."

It will be remarked that the indications of the thermometers in the Thames were read only once in each day. I could have wished that a greater number of readings could have been taken, sufficiently numerous to exhibit the dependence of the temperature of the Thames-water upon the phase of the tide. But under the circumstances this was impracticable. To establish a self-registering apparatus was out of question; and if on a few occasions we had gone through the labour of making observations at every hour of day and night, the conclusions deduced from those few instances might have been vitiated by accidents. But I am able to assert positively, as a result from the reductions to be exhibited in the following pages, that nothing has been lost from the restriction of the plan of observation. It will be seen that

the daily change of temperature, produced by the aggregate of strictly diurnal change (depending on the solar hour) and tidal change (depending on the moon's apparent position) is so small that it is impossible to attach with any certainty a sensible value to either of these causes.

I now proceed to describe the principal steps in the reduction of the observations.

In the weekly publication of these observations by the Registrar General, the weekly means of each observed element were also exhibited. In preparation for a detailed publication of the whole, I had the entire series of these weekly means collected, each being accompanied with notes of the principal phases of the moon, the occurrence of remarkable storms, &c., occurring within the week. (This *résumé* exists, and is available for any discussion which might be suggested; I propose to offer it for deposit at the Royal Observatory.) But on general examination of the collected means, I did not perceive that any result could be expected which would justify the labour and expense of printing the whole. For instance, if there were any remarkable dependence on the phase of tide, different values for the "excess of mean temperature of the water above mean temperature of the air" would occur in the weeks which included respectively new moon, first quarter, full moon, third quarter, and these would recur with little alteration for several months. But on general examination, I do not see anything which would justify more technical discussion directed to this point. Finally I decided on exhibiting only the means of deductions as to temperature for each calendar month, and omitting all other phenomena. As the succession of weeks and the succession of entire months do not generally coincide, the rule was established to adopt the first entire week in each calendar month as the first of the weeks to be used, in conjunction with three or four weeks following, to form the monthly mean. Thus, some months contain four weeks, and some contain five weeks. For instance, the month of March, 1846, contains the five weeks, March 1-7, 8-14, 15-21, 21-28, 28-April 4; but the next month contains only the four weeks—April 5-11, 12-18, 19-25, 26-May 2.

By this system, the results, as far as they appear to possess any value, are brought into the compass of five convenient Tables of Double Entry, which, with their columnar and lateral means, appear to give all the information that can be desired. The contents of the several tables are:—

Table I. Monthly Mean Temperature of the Water of the Thames.

Table II. Monthly Mean Atmospheric Temperature at the Royal Observatory.

Table III. Monthly Mean Excess of Thames Temperature above Observatory Atmospheric Temperature.

Table IV. Monthly Mean of Diurnal Range of Temperature of the Water of the Thames.

Table V. Monthly Mean of Diurnal Range of Atmospheric Temperature at the Royal Observatory.

The last line only of each of these tables is given in the present communication to NATURE.

Monthly Means, through a Range of Thirty-five Years, of the Principal Elements of the Temperature of the Water of the Thames

Month.	Temperature of the water of the Thames.	Atmospheric temperature at the Royal Observatory.	Excess of temperature of the Thames above atmospheric temperature.	Diurnal range of temperature of the Thames.	Diurnal range of atmospheric temperature.
January	39·4	38·9	+0·5	1·9	9·6
February	40·7	40·4	+0·3	2·0	11·5
March	43·6	42·8	+0·8	2·0	15·0
April	50·0	48·7	+1·3	2·3	18·5
May	56·3	54·4	+1·9	2·4	19·9
June	62·6	60·6	+2·0	2·2	20·5
July	65·7	63·9	+1·8	2·1	21·2
August	64·4	62·6	+1·8	2·0	19·6
September	59·9	57·9	+2·0	1·9	18·1
October	52·9	50·7	+2·2	2·0	14·3
November	44·3	42·3	+2·0	2·1	11·3
December	40·4	39·8	+0·6	2·1	9·1

And the following appear to be the legitimate epitomised inferences:—

(1). The mean temperature of the Thames-water is higher than that of the Observatory thermometers by 1°·5. But the locality of the Observatory thermometers is, in hypsometrical elevation, about 160 feet above that of the Thames thermometers. It would seem probable therefore that the mean temperature of the water is higher than the climatic temperature by only a small fraction of a degree.

(2). This difference is not uniform through the year. With some irregularities, the greatest excess of Thames temperature occurs in September, and the least in February. But the autumnal difference exceeds the spring difference by only 1°·6. It seems not improbable that this is the effect of a slight communication with the sea, whose surface-waters have accumulated in autumn the effect of solar radiation through the summer; with contrary effect at the opposite season.

(3). The mean range of temperature through the day is 2°·1. And this expresses the numerical change from the lowest solar temperature, or the lowest temperature in the first tide, or the lowest temperature in the second tide (whichever may be the lowest), to the highest solar temperature, or the highest temperature in the first tide, or the highest temperature in the second tide (whichever may be the highest). It is evident that the change of temperature due to the diurnal change of solar action, and the change of temperature due to each of the tides, must each, individually, be very small.

(4). It appears to me that the fundamental inference must be this: that the material water is very little changed at Greenwich by the tide. Although a vast body of water rushes up at every flow, running with great speed, and sometimes raising the surface by 20 feet, yet nearly the same water runs down at ebb, and is again brought up, with all its contents, at the next flow. These expressions are to be taken as modified by the descent of fresh water from the land; but the amount of that water must be small, in comparison with the mass which it joins in the Thames at London.

(5). I do not imagine that the tidal action has any beneficial effect on the climate of London, except that probably the agitation of the water produces mechanical agitation of the air, and thus destroys injurious stagnation.

Mathematical Society, December 14.—Prof. Henrici, F.R.S., president, in the chair.—Messrs. T. Woodcock, Hugh Fraser, Major Allan Cunningham, R.E., and Capt. P. A. Macmahon, R.A., were elected members.—The chairman announced that in consequence of ill-health Mr. C. W. Merrifield, F.R.S., had been obliged to resign the office of treasurer, and that the council had elected Mr. A. B. Kempe, F.R.S., to undertake the duties of the office. Dr. Hirst spoke in feeling terms of the work Mr. Merrifield had done for the Society, and in accordance with his suggestion a vote of thanks for his services in the past, and of condolence with him on account of the reasons which had led him to sever his official connection with the Society was carried.—The following communications were made:—On the vibrations of a spherical shell, by Prof. H. Lamb.—On the absolutely least periods of the elliptic functions, by Prof. H. Smith, F.R.S.—On certain relations between volumes of loci of connected points, by Mr. E. B. Elliott.—Geometrical proof of Griffiths' extension of Graves' theorem, by Mr. J. J. Walker.—On polygons circumscribed about a tricuspidal quartic, by Mr. R. A. Roberts.—Note on an exceptional case in which the fundamental postulate of Prof. Sylvester's theory of Tamisage fails, by Mr. J. Hammond.—On certain quartic curves, which have a cusp at infinity, whereat the line at infinity is a tangent, by Mr. H. M. Jeffery, F.R.S.

Zoological Society, November 28.—Prof. W. H. Flower, F.R.S., president, in the chair.—Mr. W. B. Tegetmeier exhibited and made remarks upon the skull of a rhinoceros from Borneo; also the horns of a buffalo and deer from the same country.—Mr. J. E. Harting exhibited a specimen of the South African Eagle-Owl (*Bubo maculosus*), said to have been obtained many years ago near Waterford in Ireland.—Mr. R. Bowdler Sharpe exhibited and made remarks on some specimens of Swifts from the Congo. Mr. Sharpe also exhibited a specimen of *Macherhamphus alcinus* which had been obtained in Borneo by Mr. Everett.—A communication was read from Prof. Owen, C.B., on the sternum of *Notornis* and on sternal characters.—A communication was read from Dr. A. B. Meyer, C.M.Z.S., in relation to the adoption by naturalists of an international

colour-scale in describing the colours of natural objects.—A communication was read from Dr. W. Blasius, of Brunswick, containing a description of a small collection of birds made by Dr. Platen in the island of Ceram. The collection contained 49 specimens referable to 21 different species, one of which was new to the fauna of Ceram.—A communication was read from Mr. E. P. Ramsay containing the description of a new species of *Monarcha* (*Piezorhynchus*) *browni*.—Mr. W. Bancroft Espeut read a paper on the acclimatisation of the Indian Mungoos (*Herpestes griseus*) in Jamaica. The author explained that the object in introducing the Mungoos into Jamaica was the destruction of the rats, which had committed serious ravages among the sugar and coffee crops. The first Mungooses were introduced in 1871, and so beneficial was the effect produced, that the saving to the sugar and coffee planters now was estimated at least at 100,000*l.* a year.—Lieut.-Col. Godwin-Austen read a paper describing specimens (male and female) of *Phasianus humia*, Hume, which had been obtained by Mr. Ogle on the peak of Shiroifur in North-East Manipur, upon the Naja Hills.—A communication was read from Mr. A. Thomson containing the results of some observations made by him during the rearing of a species of Stick-insect (*Bacillus patellifer*) in the Society's Insect-house.

Chemical Society, December 7.—Mr. Gilbert, president, in the chair.—The following papers were read:—On the condensation products of oenanthol, by W. H. Perkin, jun. The author has endeavoured to obtain evidence as to the constitution of these bodies. By the action of dilute alcoholic potash on oenanthol, an acid, $C_{14}H_{26}O_2$, was formed, boiling at 270° – 298° , and two aldehydes, $C_{14}H_{26}O$, boiling 277° – 279° , and $C_{28}H_{50}O$, boiling 330° – 340° . Zinc chloride forms with oenanthol principally $C_{14}H_{26}O$; nascent hydrogen converts this last substance first into an alcohol, $C_{14}H_{28}O$, and finally into the alcohol, $C_{14}H_{30}O$. Alcoholic potash converts $C_{14}H_{26}O$ into heptylic acid and an acid, $C_{14}H_{26}O_2$. The author concludes that the substance $C_{14}H_{26}O$ is hexylpentylacrylic aldehyd.—On the condensation products of isobutyl aldehyd, by W. H. Perkin, jun. Fossek has also recently worked on this subject, but has used aqueous potash, the action of which seems to be very different from that of alcoholic potash. Thus the latter forms an acid, $C_{12}H_{22}O_3$, not solidifying at -10° . Fossek obtained with aqueous potash an acid, $C_8H_{16}O_3$, melting at 75° . The author prepared an aldehyd, $C_{12}H_{22}O_2$, and from this, by nascent hydrogen, an alcohol. By the action of stronger potash upon isobutyl-aldehyd, higher condensation products were obtained.—On a condensation product of phenanthraquinone with ethylic acetoacetate, by F. R. Japp and F. W. Streatfield. This substance has the formula $C_{20}H_{16}O_4$, and crystallises from benzene in white silky needles, fusing at 185° ; it is ethylicphenanthroxyleneacetoacetate; by treatment with hydriodic acid it forms ethylicphenanthroxyleneisocrotonate, fusing at 124° . A new acid and a new compound, which the authors believe to be the desoxybenzoin of phenanthrene, have also been obtained.—On the constitution of lophin, by Dr. Armstrong. The author considers that the symmetrical formula proposed by Radziszewski is to be preferred to that proposed by Dr. Japp.—On the constitution of basic ferric sulphate, by S. U. Pickering. By the determination of its molecular weight, this salt has the formula $Fe_2(SO_4)_3 \cdot 5Fe_2O_3$.—On the chemistry of Hay and "Ensilage," by F. W. Toms.—On certain brominated carbon compounds obtained in the manufacture of bromine, by S. Dyson. In a bye product the author has detected carbon tetrabromide, bromoform, and chlorobromoformi.—Note on the preparation of diphenylenketone ether, by W. H. Perkin.

Anthropological Institute, November 28.—General Pitt-Rivers, F.R.S., president, in the chair.—Dr. W. G. Parker read a paper on the language and people of Madagascar. The language belongs to the Malayo-Polynesian group, being most nearly allied to the Malay proper. The various dialects, numbering more than sixteen, are essentially only one language. It is soft, musical, phonetic, and easily learned by Europeans. Until the early part of the present century it was a spoken language only, but the English missionaries reduced it to its present form, our own English alphabet being adopted, with the exception of the letters *c, g, u, w, x*, which have no equivalent sounds in Malagasy. The vowels are four in number, and the consonants sixteen, pronounced as in English, with the exception of *g*, which is always hard (as in *gate*), and *j*, which has the sound of *dz* (as in *adze*). There are only two real diphthongs. In

pronunciation every vowel or diphthong must be clearly sounded, and the accents properly placed, because often the alteration of one vowel, or of the place of the accent, is the only means of distinguishing similar sounding words. The author then gave the six chief rules of syntax, and explained the grammatical structure of the language. In the second part of the paper the peculiar geographical position of Madagascar was first noticed. Its estimated population (from four to four and a half millions), and its chief structural features, with a special notice of the central plateau. There are a great many tribes in Madagascar, but all are divisible into two distinct classes, according to their race-origin, Malay and African. Their forms of government are (1) petty absolute monarchies over the greater part of the island; (2) among the Hovas tribe it is nominally an absolute monarchy, really an oligarchy, the head of which has almost regal power. The office of *Prime Minister* is not peculiar to the Hovas, tribes on the north and west coasts also possessing the same institution; but only among the Hovas is the Prime Minister not only the factotum, but also the "ex-officio husband to the queen." A short sketch of the new code of Hova laws was next given, this being the only tribe which possesses a code of laws. An outline of the history of Madagascar was given, showing the origin of the present form of government among the Hovas, the tribe which seeks to possess the entire island. Lastly, reference was made to the French claims against Madagascar, now being put forward, and their effect upon British interests. These claims are: (1) the demand that French subjects should be allowed to buy, sell, and own land in Madagascar; (2) the claims of private individuals; (3) the establishment of a French Protectorate over a large part of the island. The French are now acting in accordance with a preconcerted (and published) plan for invading and conquering the whole of the island. As affecting the interests of the British Empire, the possession of Madagascar by France will enable that Power, if at war with us, to endanger or even stop our lines of communication with our Indian, Australian, and other colonies, by the Red Sea and the Cape of Good Hope route. In the discussion that followed the Rev. James Sibree, the Rev. W. C. Pickering, Prof. Gustav Oppert, Mr. A. H. Keane, and others took part.

BERLIN

Physiological Society, November 24.—Prof. Du Bois-Reymond in the chair.—Dr. A. Fraenkel read a paper upon the further results of experiments which he had made in conjunction with Dr. Geppert to determine the influence of a rarefied atmosphere upon the animal organism. Some of the results of these investigations had been brought before the last meeting of the Society by Dr. Geppert (*antea*, p. 120). Besides the general phenomena and the behaviour of the gases of the blood in animals which breathe in a rarefied atmosphere, investigations were made as to the influence of rarefaction upon blood-pressure. The blood-pressure was read off upon a manometer which was outside the box in which the animal, the subject of experiment, was kept exposed to various degrees of rarefaction. One arm of the manometer communicated through the side of the box with an artery of the animal, while the other arm was in communication with the general cavity of the box. When the atmospheric pressure sank to half the normal amount, the blood-pressure showed no change; when the pressure sank to a third of an atmosphere, a small rise took place in the blood-pressure. This rise, however, passed away during the sleep that occurred under the influence of this amount of rarefaction, and the pressure became normal again. When the air was still further rarefied till the pressure was as low as one quarter of an atmosphere or less, the pulse became weak and small, the blood pressure went down, and then if normal quantities of oxygen were not quickly restored, the heart stopped. The chief aim of the whole investigation was the definite determination of the influence of a rarefied atmosphere upon metastasis (*Stoffwechsel*), upon which question, up to the present, only few, and even these contradictory, data were existent. The authors agreed in general with M. Paul Bert, in regarding the effect of a rarefied atmosphere as inducing a chemical change which was brought about by a diminished supply of oxygen. The amount of urea secreted in the twenty-four hours was taken as the measure of metastasis. During a lengthened period of observation on those days in which the animals thus experimented on had the same amount of food, the quantity of urea secreted in the twenty-four hours remained constant. Nor was there any alteration in the amount of urea when they were exposed to variations of pressure down to half an atmosphere.

On the diminution of the pressure to one third of an atmosphere, at and under which pressure the amount of oxygen contained in the blood is markedly diminished, and the animal falls into a deep sleep, there was, after this degree of rarefaction had lasted several hours, a very remarkable increase in the amount of urea. This increase did not occur till the next day in the case of animals which had been fed, whereas it occurred on the day of the experiment in the case of those animals which were kept hungry, but it in all cases lasted over a couple of days after the experiment. Dr. Fraenkel's belief is that the rarefaction influences the metastasis by depriving the blood and the tissues of some of their necessary oxygen, and that this want of oxygen entails an excessive destruction of albumen, the constituents of which are in part deposited as fat, and in part are changed into urinary products. Besides the increased elimination of urea, fatty degeneration of tissues (*e.g.* of the heart) is observed when the system is in want of oxygen.

PARIS

Academy of Sciences, December 11.—M. Jamin in the chair.—M. Faye presented the *Connaissance des Temps* for 1883, and noted some improvements.—Observation of the transit of Venus in the Argentine Republic, by M. Mouchez. Good observations were made at the two stations, by MM. Beuf and Perrin.—M. Mouchez stated that the weather prevented observations on the Pic du Midi.—Installation and preliminary operations of the mission for observation of the transit of Venus, at Fort-de-France, by M. Tisserand.—Observations of the transit at Marseilles Observatory, by M. Stephan. There were five observers. The phenomenon was seen through a veil of vapours, and M. Stephan does not think this unfavourable; perhaps, indeed, it is the best condition possible (the solar intensity being weakened), if the observer do not lose his *sang-froid*, through fearing too great obscuration. The black drop was not seen. (Data for the first two contacts are furnished.)—New facts concerning rabies, by M. Pasteur, with MM. Chamberland, Roux and Thuillier. All forms of rabies come from the same virus. Death after inoculation with rabid saliva may be either from a microbe found in the saliva, from formation of much pus, or from rabies. The virus of rabies is found not only in the *medulla oblongata*, but in the brain and spinal cord. Rabies may be produced certainly and quickly, either by trepanation and inoculation, or by intravenous injection. The symptoms are different in the two cases. Animals sometimes recover after the first symptoms of rabies, never after the acute symptom. The authors have now four dogs which cannot take rabies, however inoculated. Whether this is from having had a mild form of it and recovered, or from being naturally refractory, he cannot at present say.—Separation of gallium, by M. Lecoq de Boisbaudran.—New studies tending to establish the true nature of *glairine* or *barégine*, and the mode of its formation in the thermal and sulphurous waters of the Pyrenees, by M. Joly. The concrete glairine of chemists, found in all those waters, consists essentially of detritus of a host of animals and plants, with some inorganic substances (crystals of sulphur, sulphate of iron, silica, &c.), and very often *Sulphuraria*, a true *Oscillator*.—On the conservation of solar energy; reply to Dr. Siemens, by M. Hirn.—Examples of black seen as orange red, by M. Trécul. A lady's black veil, in full sunlight, seemed orange red at the nodes of the tissue, while the internal parts remained black. The dye in this case was a very dark blue; and the orange-red is complementary.—Effects of lightning on the top of the Puy-de-Dôme, by M. Alluard. The anemometer cups (of red copper) at the top of an iron mast (6 m. high, and having a ladder and stand largely iron; also connected with earth plates), all show traces of fusion in their upper parts, and the fused matter is raised as a cone. (St. Elmo's fire often appears at the salient points of the mast, &c.)—Observations made during the viticolour campaign 1881-82, by M. Boiteau.—Factitious purulent ophthalmia produced by the liquorice lana, or jequirity, by M. Moura-Brazil.—M. de Lesseps presented a note on M. Wiener's explorations in the regions of the Amazon.—The Secretary read telegrams from Brazil, Washington, Oran, Nice, Bordeaux, &c., regarding the transit of Venus.—Observation of the transit at Châtsandun, by M. Lescarbault. He describes a greyish yellow luminous fringe seen all round the planet when this was three-fourths on the sun; it persisted till entrance was completed.—Observations of the transit at the Roman College, by P. Tacchini. He observed the contacts successfully with the spectroscope applied to a Merz refractor; while Prof. Millosevich observed in the ordinary way.

He verified the absorption by the Venus atmosphere, found the planet's diameter $67''25$, &c.—Observations of solar spots and faculae during the third quarter of 1882, by the same. The spots show a diminution, with well-marked secondary minimum in August. The faculae had nearly the same extension as in the preceding quarter. While their size diminishes, that of the spots increases.—On the great solar spot of November, 1882, and the magnetic perturbations that accompanied its appearance, by the same. It showed maximum activity at the middle of the disc, and afforded the rare opportunity of distinguishing solar protuberances in the disc as easily as on the limb.—Observations of the great Southern Comet, by M. Jacquet. A sketch is furnished, taken on board the *Niger*, at the mouth of the Rio de la Plata.—On Fourier's series, by M. Halphen.—On solids of equal resistance, by M. Léauté.—On a communication of M. Deprez, relative to the transport of force, by M. Lévy.—Displacements and deformations of sparks by electrostatic actions, by M. Righi.—On the atomic weight of yttrium, by M. Cléve. He obtains 89.02 and 88.9 , with different values for O and S.—On a fish at great depths in the Atlantic, the *Eurypharynx pelecyanoides*, by M. Vaillant. This was brought up from a depth of 2300 m. off the coast of Morocco, during a cruise of the *Travailleur*. It is about a foot and a half long, quite black, and remarkable for its enormous and disproportionately mouth (like a pelican's). It has no swimming-bladder and few fins, peculiar branchiae, &c. The genus *Malacosteus* seems the nearest.—On a new fossil insect of the order Orthoptera, from the coal-mines of Commeny (Allier), by M. Brongniart. It is of remarkable size, and is named *Titanophasma Fayoli*. The author cannot say whether it was winged or not.—On the meteorological fauna of the Varangerfjord, by MM. Pouchet and de Guerne.—The Suctociliates, a new group of Infusoria, intermediate between the Ciliates and the Acinetians, by de Merejkowsky.—Influence of excitability of muscle on its mechanical work, by M. Mendelssohn. For a certain tension the mechanical work of a single contraction of a more excitable muscle is greater than that of a muscle of normal excitability. But the number of successive works the former can do till exhaustion, and their sum total, is less; and the length of time it can perform a series of works with a given load, till exhaustion, is less.—Vegetation of wheat by M. Risler.—Conditions of production of *Epinastia* in leaves, by M. Mer.

CONTENTS

	PAGE
DISEASES OF MEMORY. By GEORGE J. ROMANES, F.R.S.	169
EASTERN ASIA. By A. H. KEANE	170
OUR BOOK SHELF:—	
Taschenberg's "Die Insekten nach ihren Schaden und Nutzen"	172
Pott's "Out in the Open"	172
Anderson's "Catalogue of Mammalia in the Indian Museum, Calcutta"	172
Houghton's "Microscope and some of the Wonders it Reveals"	173
Robinson's "Flora of Essex County, Massachusetts"	173
Jones's "Catalogue of the Fossil Foraminifera in the British Museum (Natural History)"	173
LETTERS TO THE EDITOR:—	
The Aurora and its Spectrum.—Hon. RALPH ABERCROMBY	173
Swan Lamp Spectrum and the Aurora.—J. MUNRO	173
The Meteor of November 17.—W. M. F. P.	173
Invertebrate Casts.—Dr. H. A. HAGEN (<i>With Diagram</i>)	173
The Scream of the Young Burrowing Owl sounds like the Warning of the Rattlesnake.—S. GARMAN	174
Fertilisation of the Common Speedwell.—A. MACKENZIE STAPLEY	174
Complementary Colours at the Falls of Niagara.—H. G. MADAN	174
M. DUMAS	174
THE METEOROLOGICAL OBSERVATORY ON BEN NEVIS	175
NOTES ON THE GEOLOGY OF HONGKONG. By F. WARRINGTON	
EASTLAKE	177
TRANSIT OF VENUS, 1882—BRITISH EXPEDITIONS. By E. J. STONE, F.R.S.; Prof. S. P. LANGLEY; JOHN BIRMINGHAM	177
NOTES	180
OUR ASTRONOMICAL COLUMN:—	
Measures of Double Stars	182
PHYSICAL NOTES	182
CHEMICAL NOTES	183
M. MIKLUKHO-MACLAY ON NEW GUINEA	184
THE RECENT AND COMING TOTAL SOLAR ECLIPSES. By J. NORMAN LOCKYER, F.R.S. (<i>With Illustrations</i>).	185
SCIENTIFIC SERIALS	189
SOCIETIES AND ACADEMIES	189