

SCIENTIFIC SERIALS.

American Journal of Mathematics, vol. xviii. No. 2, April.—The intermediary orbit, *i.e.* the Moon's periodic orbit relatively to the Sun obtained from the variation terms when all terms but those depending on the ratio of the mean motions only are omitted, has been considered in vol. i. by Dr. Hill, and subsequently in the *Acta Mathematica* (vol. viii.) the same writer obtained an expression for the motion of the Moon's perigee, so far as it depends on the ratio of the mean motions. These papers have been followed by others by Prof. E. W. Brown, in which the terms depending on the solar parallax and the lunar eccentricity are computed.—The object of the opening paper of the present number, on the inclinational terms in the Moon's coordinates, by P. H. Cowell, is to take into account, according to Dr. Hill's method, the inclination of the orbit, considering it as being the manifestation of a small oscillation about Dr. Hill's distorted circular orbit, which relatively to the Sun is a closed curve. The terms multiplied by the first power of the inclination have been calculated to the sixth order, and an expression for the part of the motion of the Moon's node, that depends upon the mean motions only, has been found as far as the eighth order, *i.e.* one term further than in Delaunay's series. The terms multiplied by the square of the inclination have been calculated to the fifth order, and the terms multiplied by the third power of the inclination to the fourth order in *m*. The notation adopted is that of the paper by Prof. Brown (*Am. Journ. Math.*, vol. xvii.).—A short note by A. S. Chessin, on non-uniform convergence of infinite series, brings out more clearly a point in a previous note (vol. xviii. No. 1), which the writer says has been misunderstood.—On a certain class of equipotential surfaces, by B. O. Peirce, discusses the nature of such systems of plane curves as are at once the right sections of possible systems of equipotential cylindrical surfaces belonging to distributions of matter which attract, according to the law of nature, and the generating curves of possible systems of equipotential surfaces of revolution.—M. Petrovitch contributes "Remarques sur les équations de dynamique et sur le mouvement tauchrone."—A note on C. S. Peirce's paper on a quincuncial projection of the sphere, by J. Pierpont, corrects an inaccuracy in that paper (vol. ii. p. 394). Mr. Pierpont, in a note on the invariance of the factors of composition of a substitution-group, gives a much simplified proof of this important theorem.—H. Maschke, in a long article (pp. 156-188) on the representation of finite groups, especially of the rotation-groups of the regular bodies of three- and four-dimensional space, by Cayley's colour diagrams, shows that Cayley's method (the theory of groups, graphical representation, *Am. Journ.*, vol. i., and on the theory of groups, *Am. Journ.*, vol. xi.) can be readily applied to the construction and investigation of numerous groups of higher orders. In particular, the writer says, the colour diagrams for the rotation groups of the regular bodies can be arranged in such a way that they lend themselves much easier, at least in some respects, to a study of the groups concerned, than even the models of the regular bodies. Numerous diagrams of interest accompany the paper.

SOCIETIES AND ACADEMIES.

LONDON.

Chemical Society, March 19.—Mr. A. G. V. Harcourt, President, in the chair.—The following papers were read:—The constitution of a new organic acid resulting from the oxidation of tartaric acid, by H. J. H. Fenton. The acid obtained by the oxidation of tartaric acid in presence of iron seems to be a dihydroxymaleic acid of the constitution $C(OH)(COOH):C(OH)(COOH)$; an isomeric acid has also been prepared, which is possibly the corresponding dihydroxyfumaric acid.—The volume and optical relationships of the potassium, rubidium and cesium salts of the monoclinic series, $R_2M(SO_4)_2 \cdot 6H_2O$, by A. E. Tutton. A detailed investigation of the physical properties and volume relationships of the twenty-two salts of this series, of which the author has previously determined the morphological constants, leads to a number of important conclusions; the alkali metal R in salts of this series, exerts a predominating influence on the crystallographical characters of the substances.—Comparison of the results of the investigations of the simple and double sulphates containing potassium, rubidium and cesium, by A. E. Tutton.—The bearing of the results of the investigations

of the simple and double sulphates containing potassium, rubidium and cesium, upon the nature of the structural unit, by A. E. Tutton. No considerable contraction occurs in the formation of the double salts of the series $R_2M(SO_4)_2 \cdot 6H_2O$ from its constituent salts, so that it is improbable that these constituents are in chemical combination in the solid state; this conclusion is supported by the fact that these salts do not exist in solution, and that many of them are very unstable. It is not necessary to assume that the structural units of crystals consist of more than one chemical molecule in the case of double salts or salts containing water of crystallisation.—The hydriodides of hydroxylamine, by W. R. Dunstan and E. Goulding. The only crystalline hydroxylamine hydriodides which the authors have been able to prepare have the compositions $3NH_3O, HI$ and $2NH_3O, HI$.—An analysis of water from the dropping well at Knaresborough in Yorkshire, by B. A. Burrell.—Contributions to the knowledge of ethylic acetoacetate. Part I. Acetonylmaleic acid, by S. Ruhemann and E. A. Tyler. Ethylic sodio-acetoacetate and ethylic chlorofumarate react with formation of ethylic methylidihydrofurfurantricarboxylate, which on hydrolysis with alcoholic potash yields acetonylmaleic acid $CMe(OH):CII.CH(COOH).CH(OH).COOH$.—The action of lead thiocyanate on the chlorocarbonic esters. Part I. Carboxethylthiocarbimide and its derivatives, by R. E. Doran.—An auxiliary assay balance, by R. Law. The author describes a balance for assay work, which gives the weight of the gold "cornet" with such accuracy that on its transference to the ordinary assay balance, the observer can put the requisite weight on the balance pan at once; the remaining fraction can then be determined by the rider alone.—Charas: the resin of Indian hemp, by T. B. Wood, W. T. N. Spivey, and T. H. Easterfield. Charas, the resin of *Cannabis indica*, contains a terpene, a sesquiterpene, a paraffin, $C_{29}H_{60}$, and a red oil, $C_{18}H_{24}O_2$; the latter, in doses of 0.05 gram, produces intoxication and sleep.—Note on the decomposition of α -chloronitrocamphor, by A. Lapworth.—On heating α -chloronitrocamphor, camphorquinone is produced.— π -Bromocamphor, by C. Revis and F. S. Kipping.—Oxidation products of α -bromocamphorsulphonic acid, by A. Lapworth and F. S. Kipping. On oxidising ammonium α -bromocamphorsulphonate with nitric acid, products are obtained which seem to be a sulpholactone, $C_{10}H_{12}SO_4Br_2$, a hydroxydibromocamphorsulphonic acid and an ammonium dihydrogen π -sulphocamphoric acid.—On the xylic and xylidinic acids, by W. H. Bentley and W. H. Perkin, junr.

March 26.—Anniversary Meeting.—Mr. A. G. V. Harcourt, President, in the chair.—After the reading of the presidential address and the transaction of the usual business, a ballot was taken for the election of officers and Council for the ensuing year.

Geological Society, April 15.—Dr. Henry Hicks, F.R.S., President, in the chair.—The President announced that a portrait in sepia of Prof. Bonney, executed by Mr. Trevor Haddon, had been presented to the Society by thirty-four subscribers, Fellows of the Society.—The following communications were read:—The Junction-Beds of the Upper Lias and Inferior Oolite in Northamptonshire. Part I. Physical and Chemical, by Beeby Thompson. The author, while combating the view that a considerable unconformity existed between the Upper Lias and the Inferior Oolite of Northamptonshire, brought together much evidence to illustrate the effects of slipping, and to show that these effects may be mistaken for those of unconformity. He also applied the evidence which he had collected to illustrate certain points in the physics of valley-formation. After giving details as to the horizon of the springs of the district, the distribution of water in the Inferior Oolite, and the development of the springs, he argued that every valley of the district has been elongated in the direction which it now has by a stream originating in a spring always at its head, and that the development of channels towards particular points of discharge had been the chief agent in initiating the formation and guiding the direction of all the minor valleys of the river-system within the influence of the same set of beds. A description of the characters of the slopes followed, and their significance was discussed. The structure of the hills and valleys of the district occupied the next portion of the paper, and the author considered that corresponding to the deepening of a valley by denudation there was uplifting of the beds below it, and at the same time an outward and upward thrust along the hillside which lifted beds there; also, that hills were reduced in height by sinking as well as by denudation of their

upper parts. In discussing the question of unconformity between the Inferior Oolite and Upper Lias, the rarity of exposures of true junctions was noted, the junctions which have been chiefly examined by other observers being obscured by slipping; and reasons were given for inferring an absence of unconformity at the horizon, both on account of the character of the true junctions, and from other considerations. The author, however, gave reasons for believing that a slight unconformity occurs in the Upper Lias, so that the lower part of the *jurensis*-zone is absent, and not its upper part, as has been elsewhere inferred.—Contributions to the stratigraphy and palæontology of the *Globigerina*-limestones of the Maltese Islands, by J. H. Cooke. A bibliography of the *Globigerina*-limestones, followed by some remarks on the physical features and general distribution of the strata.—On the geology of the neighbourhood of Carmarthen, by Miss Margaret C. Crosfield and Miss Ethel G. Skeat. The area described lies approximately within a four-mile radius of Carmarthen. The beds of the district have been subjected to complicated foldings, amongst which an earlier set, giving rise to a number of small anticlines with north-and-south axes, and a later more extensive set, due to the series of earth-movements which produced the great Condrusian ridge, producing anticlines and synclines having a general east-and-west trend, can be made out. The rocks forming the subject of the present paper occur in one limb of a complex anticline produced during the latter set of movements. In the discussion that followed, the President congratulated the authors on the important discoveries which they had made. The finding of Tremadoc rocks in the neighbourhood of Carmarthen was a fact of great importance, and might lead to the discovery of still older rocks in that area. The succession closely resembled that found in Pembrokeshire; but it was now carried further east than had previously been done, though the work of the late T. Roberts and Mr. Marr had led to the idea that rocks at least as old as those of Arenig age would be found in this area.

Linnean Society, April 16.—Mr. W. Percy Sladen, Vice-President, in the chair.—Mr. George Massee read a paper on the types of Fungi in the collection of the late Rev. M. J. Berkeley, which was presented to Kew in 1879, and which contains rather more than 11,000 species. Many of the species were described more than fifty years ago; hence the diagnoses are in some cases too brief, and do not embody points which at the present day are considered to be of importance. In many instances this has led to the same species being re-described by others as new. Mr. Massee now supplied careful descriptions of the types, with a view to obviate future confusion, and to secure for Berkeley as the original describer the priority in nomenclature which is justly his.—Mr. A. D. Michael read a paper upon the internal anatomy of *Bdella* (the Red-snouted Mite), giving the results of three years' work and of many hundreds of dissections and serial sections. The material was furnished chiefly from the Zoological Station at Port Erin, and the subject is practically new, only one paper (describing a few parts of the female) having been hitherto published.

Zoological Society, April 21.—Sir W. H. Flower, K.C.B., F.R.S., President, in the chair.—Mr. Sclater exhibited and made remarks on some specimens from Nyasaland, lately sent home by Sir H. H. Johnston, K.C.B. Amongst these was a fine head of the sable antelope (*Hippotragus niger*) from the Zomba plains, and an example of the brindled gnu (*Connochætes gorgon*), or of a nearly allied form, believed to be the first specimen of this antelope sent home from British East Africa.—Mr. Sclater also exhibited, by the kind permission of Mr. Justice Hopley, of Kimberley, a pair of horns of the so-called *Antelope triangularis*, said to have been obtained somewhere on the Zambesi. These horns were now generally supposed to be abnormal horns of the cow eland.—Mr. W. E. de Winton gave an account of a small collection of mammals from Ecuador, lately sent to the British Museum by Mr. L. Söderstrom, H.B.M. Consul at Quito. It contained examples of only three species, but two of these appeared to be new to science. One of them was a new deer, proposed to be called *Pudua mephistophelis*, and the other a rodent of the genus *Ichthyomyis*, which was named *I. söderstromi*.—Mr. F. E. Beddard, F.R.S., read a paper on the anatomy of a grebe (*Aechmophorus major*), and added some remarks upon the classification of the Charadriiform birds, to which he considered the auks to be more nearly related than to the grebes.—A communication was read from Messrs. F. D. Godman, F.R.S., and O. Salvin, F.R.S., on the butterflies of St. Vincent, Grenada, and the adjoining

islands, based on the collections made by Mr. Herbert H. Smith.—A communication was read from Miss E. M. Sharpe containing an account of the Lepidoptera obtained by Dr. Donaldson Smith during his recent expedition to Lake Rudolf. Examples of ninety-one species were obtained, of which two were apparently new. These were described as *Panoëa swalensensis* and *Papilio donaldsoni*.—A second paper by Miss E. M. Sharpe contained an account of the Lepidoptera obtained by Mrs. E. Lort Phillips in Somaliland. Eighty-four species were enumerated, one of which, *Tetracolus ludovicke*, appeared to be undescribed.—A communication from Mr. W. F. Kirby contained descriptions of some dragon-flies obtained by Mr. and Mrs. Lort Phillips in Somaliland. Three of these were described as new to science.

PARIS.

Academy of Sciences, April 27.—M. A. Cornu in the chair.—Observations of the Swift comet (April 13, 1896) made with the large equatorial of the observatory of Bordeaux, by MM. G. Rayel, L. Picart, and F. Courty.—Macular or perifoveal oedema of the retina, by M. J. P. Nuel.—New divisions in the rings of Saturn, by M. Flammarion (see p. 17).—Remarks on a communication of M. R. Liouville, entitled "On the rotation of solids," by M. N. Joukovsky. A claim for priority for some Russian mathematicians.—On the transition from the state of flow through an orifice to flow over a weir, by M. Hégly.—On a self-registering thermometer balance, containing either gas or saturated vapour, by MM. H. Parenty and R. Bricard. The two arms of a balance carry respectively a barometer and an air thermometer, both dipping into the same mercury trough. At constant temperature, and with varying atmospheric pressures, the alterations in the weights of the two arms caused by the movements of the mercury are identical, and the balance remains in equilibrium, but an alteration of temperature causes a motion of the beam, which can easily be made self-registering. For a small range of temperature the sensitiveness of the apparatus is considerably increased by substituting a volatile liquid for the gas. The device also readily acts as a temperature regulator.—Mode of action of the X-rays upon a photographic plate, by M. R. Colson. An account of some experiments made with a view to ascertain whether the X-rays impress the photographic plate directly, or whether they are transformed by the glass or film into secondary radiations of a phosphorescent nature, to which the photographic action may be ascribed. All the results pointed to the action being direct, no trace of action due to secondary rays being observable.—On the heterogeneity of the radiations emitted by Crookes' tubes and on their transformation by screens, by M. F. P. Le Roux. The name "hyperdiabatic radiations" is proposed as more suitable than X-rays.—Action of the X-rays upon electrified bodies, by MM. L. Benoist and D. Hurmuzescu. A study of the effect of the nature of the gaseous dielectric in which the electrified substances are placed upon the rate of discharge by the X-rays. The speed of dissipation in air was found to be approximately proportional to the square root of the pressure. At the same pressure the rate of loss of charge with air and carbon dioxide, and air and hydrogen was roughly inversely proportional to the square roots of their densities.—On electrified Röntgen rays, by M. A. Lafay.—Optical superposition of six asymmetric carbon atoms in one active molecule, by MM. P. A. Guye and C. Goudet. The rotations for four divaleryl tartrates of amyl are given, the number calculated from the assumption of the algebraic superposition of the optical effects of the several asymmetric carbon atoms approximates to one of these experimental values.—On a basic nitrate of magnesia, by M. G. Didier. By adding magnesia to a strong solution of magnesium nitrate, the nitrate $Mg(NO_3)_2 \cdot 2MgO + 5H_2O$ is obtained.—On crystallised sesquiphosphide of iron, by M. A. Granger. Ferric chloride heated to redness in the vapour of phosphorus gives the phosphide Fe_2P_3 , which is obtained in the crystalline form if the reaction is carried on slowly.—Study of peridinitronaphthalene, by M. C. Gassmann.—On the tartrate of phenylhydrazine and its derivatives, by M. H. Causse.—Heat of combustion of some cyanogen derivatives, by M. Guinchant. The introduction of the cyanogen group increases the molecular heat of combustion by ninety calories.—On the distillation of the first acids of the fatty series, by M. E. Sorel.—On zeolites and the substitution of the water they contain by other substances, by M. G. Friedel.—On the determination, by a new photometric method, of the laws of luminous sensibility to blacks and greys, by M. C. Henry.—Measurement of odours

in the air, by MM. A. Gerardin and M. Nicloux. The variation in volume of air after treatment with a glowing platinum wire is suggested as giving a measure of bad odours in air.—Statistical researches on the cultivated oyster on the coasts of France, by M. G. Roché.—On the metamorphic gypsums of Algeria, by M. L. Gentil.—The allotropic state of the elementary gases, by M. C. V. Zenzer.—A new general method for calculating the roots of algebraical equations which contain four terms and more, by M. Wisthaler.

DIARY OF SOCIETIES.

LONDON.

THURSDAY, MAY 7.

ROYAL SOCIETY, at 4.30.—On the Liquefaction of certain Alloys of Gold: E. Matthey.—On the Occurrence of the Element Gallium in the Clay-Ironstone of the Cleveland District of Yorkshire. (Preliminary Notice): Prof. Hartley, F.R.S., and H. Ramage.—The Electromotive Properties of Malapterurus electricus: Prof. Gotch, F.R.S., and G. J. Burch.—The Occurrence of Nutritive Fat in the Human Placenta (Preliminary Communication): Dr. T. W. Eden.

ROYAL INSTITUTION, at 3.—The Art of Working Metals in Japan: W. Gowland.

LINNEAN SOCIETY, at 8.—On the Tooth-Genesis of the Canidæ: Dr. H. Maret Tims.—Exhibitions: Lantern-Slides illustrative of the Habits of the Tiger Beetle, *Cicindela campestris*: F. Enock.—Preparations of the Hermaphrodite Glands of Apus: H. M. Bernard.

CHEMICAL SOCIETY, at 8.—Ballot for Election of Fellows.—Morin, Part I.: Dr. H. Bablich and A. G. Perkin.—Luteolin, Part II.: A. G. Perkin.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The "James Forrest" Lecture: Physical Experiment in relation to Engineering: Dr. Alexr. B. W. Kennedy, F.R.S.

IRON AND STEEL INSTITUTE (Institution of Civil Engineers), at 10.30 a.m.

GRESHAM COLLEGE (Basinghall Street), at 6.—The Planet Saturn: Rev. E. Ledger.

FRIDAY, MAY 8.

ROYAL INSTITUTION, at 9.—Electric Shadows and Luminescence: Prof. Silvanus P. Thompson, F.R.S.

ROYAL ASTRONOMICAL SOCIETY, at 8.—Note on a Determination of Precession and Drift, based on Auwer's Proper Motions: R. H. M. Bosanquet.—Royal Observatory, Greenwich: Diameters of Jupiter measured with the Filar and Double-Image Micrometers.—And probably: Photographs of the Spectra of the Helium Class of Stars: F. McClean.—Royal Observatory, Greenwich: Observations of Comets *a* 1896 (Perrine-Lamp) and of Comet *b* 1896 (Swift).

PHYSICAL SOCIETY, at 5.—On Dielectrics: R. Appleyard.—On the True Resistance of the Electric Arc: Messrs. Frith and Rodgers.

IRON AND STEEL INSTITUTE, at 10.30 a.m.—On the Rate of Diffusion of Carbon in Iron: Prof. W. C. Roberts-Austen, C.B., F.R.S.—On some Alloys with Iron Carbides: J. S. de Benneville.—On Mond Gas as applied to Steel-making: John H. Darby.—On Hot Blast Stoves: B. J. Hall.—On the Hardening of Steel: H. M. Howe.—On the Introduction of Standard Methods of Analysis: Baron Hanns Jüptner von Jonstorff.—On the Production of Metallic Bars of any Section by Extrusion: Perry F. Nursey.—On Mr. Howe's Researches on the Hardening of Steel: F. Osmond.—On the Treatment of Magnetic Iron Sand: E. Metcalf Smith.—On the Making of the Middle Lias Ironstone of the Midlands: E. A. Walford.

AFFILIATED PHOTOGRAPHIC SOCIETIES, at 8.—Process Work Applications: W. T. Wilkinson.

GRESHAM COLLEGE (Basinghall Street), at 6.—The Planet Saturn: Rev. E. Ledger.

MALACOLOGICAL SOCIETY, at 8.

SATURDAY, MAY 9.

ROYAL BOTANIC SOCIETY, at 3.45.

GEOLOGISTS' ASSOCIATION (Liverpool Street Station), at 2.3.—Excursion to Chingford Museum and Epping Forest. Director: T. V. Holmes.

MONDAY, MAY 11.

SOCIETY OF ARTS, at 8.—Applied Electro-chemistry: James Swinburne.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Through the Central Sudan to Sokoto: William Wallace.—Hausaland: Rev. Chas. H. Robinson.

TUESDAY, MAY 12.

ROYAL INSTITUTION, at 3.—Ripples in Air and on Water: C. V. Boys, F.R.S.

SOCIETY OF ARTS, at 8.—The Future of the Fine Art of Wood Engraving: W. Biscombe Gardner.

ANTHROPOLOGICAL INSTITUTE, at 8.30.—Recent Observations on the Andamanese by Mr. M. V. Portman: Dr. J. G. Garson.—Photographic Apparatus for Travellers: Dr. J. G. Garson.—The Cranial Characteristics of the South Saxons compared with those of some of the other Races of Great Britain: R. J. Horton-Smith.—An Unpublished Batak Creation Legend: Heer C. M. Pleyte.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Papers to be further discussed: American and English Methods of Manufacturing Steel Plates: Jeremiah Head.—Four American Rolling-Mills: Samuel T. Wellman.

ROYAL PHOTOGRAPHIC SOCIETY, at 8.—Dry Plates for Röntgen Ray Photography: H. Snowden Ward.—Notes on the Pyro-developed Image: Alfred Watkins.—A New Stripping Film for Negative Work: J. B. B. Wellington.

ROYAL VICTORIA HALL, at 8.30.—The New Photography: A. W. Porter.

WEDNESDAY, MAY 13.

SOCIETY OF ARTS, at 8.—Tunnelling by Compressed Air: E. W. Moir.

GEOLOGICAL SOCIETY, at 8.—An Account of a Head or Gateway driven into the Eastern Boundary-Fault of the South Staffordshire Coalfield: William

Farnworth.—Dundry Hill: its Upper Portion, or the Beds marked as Inferior Oolite (G 5) in the Maps of the Geological Survey: S. S. Buckman and E. Wilson.—On the Geographical Evolution of Jamaica: Dr. J. W. Spencer.

THURSDAY, MAY 14.

ROYAL INSTITUTION, at 3.—The Art of Working Metals in Japan: W. Gowland.

SOCIETY OF ARTS, at 4.30.—Tea Planting in Darjeeling: G. W. Christison

MATHEMATICAL SOCIETY, at 8.—On the Application of the Principal Function to the Solution of Delaunay's Canonical System of Equations: Prof. E. W. Brown.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Influence of the Shape of the Applied Potential Difference Wave on the Iron Losses in Transformers: Stanley Beeton, C. Perry Taylor, and I. M. Barr.

FRIDAY, MAY 15.

ROYAL INSTITUTION, at 9.—Cable-laying on the Amazon River: Alexander Siemens.

EPIDEMIOLOGICAL SOCIETY, at 8.

QUEKETT MICROSCOPICAL CLUB, at 8.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—Biological Experimentation: Sir B. W. Richardson (Bell).—Elementary Practical Physics: W. Watson (Longmans).—Quain's Elements of Anatomy, Appendix, 10th edition (Longmans).—The Student's Lyell: edited by Prof. Judd (Murray).—Riverside Letters; G. D. Leslie (Macmillan).—A History of the Warfare of Science with Theology in Christendom: Dr. A. D. White, 2 Vols. (Macmillan).

PAMPHLETS.—Slavery and Servitude in the Colony of North Carolina: Dr. J. S. Bassett (Baltimore).—The Crambidæ of North America: Dr. C. H. Fernald (Massachusetts).—Report of the Marlborough College Natural History Society, 1895 (Marlborough).

SERIALS.—Memorie della Società Geografica Italiana, Vol. v. Part 2 (Roma).—Humanitarian, May (Hutchinson).—Bulletin de la Société Impériale des Naturalistes de Moscou 1895, No. 4 (Moscou).—Fortnightly Review, May (Chapman).—History of Mankind: F. Ratzel, translated, Part 8 (Macmillan).—National Review, May (Arnold).—Himmel und Erde, April (Berlin).—Journal of the Scottish Meteorological Society, third series, Nos. xi. and xii. (Blackwood).—Century Magazine, May (Macmillan).—Geographical Journal, May (Stanford).—Contemporary Review, May (Isbister).—Proceedings of the Physical Society, May (Taylor).—Scribner's Magazine, May (Low).—Zeitschrift für Physikalische Chemie, xix. Band, 4 Heft (Leipzig).—Archives of Clinical Skiagraphy: S. Rowland, Part 1 (Rebman).—Westminster Review, May (Warne).

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