

Month.	No. of Aurorals.	Normals.	Hours.	Normals of Rain.
May	36	106	9	109
		103	10	105
June	31	101	11	102
		100	12	103
July	38	101	13	106
		103	14	109
August	34	105	15	108
		107	16	104
September	43	106	17	98
		103	18	92
October	38	100	19	87
		95	20	85
November	27	91	21	87
		89	22	90
December	30	87	23	91

SCIENTIFIC SERIALS

Jahrbuch der kaiserlich-königlichen geologischen Reichsanstalt. Vol. xvi. No. 1. (Vienna.) The first paper in this part of the *Jahrbuch* is one by Prof. Kreuz, "Das Vihorlat-Gutin-Trachytegebirge." This is one of those painstaking lithological papers which are less commonly met with in our own scientific journals than one could wish. The author has carefully examined under the microscope the trachytic rocks of the Vihorlat-Gutin mountains of North-eastern Hungary, a range which stretches from north-west to south-east in the same direction as the Carpathian Sandstones. He groups the rocks under three divisions:—(1) Augite-andesite; (2) Sanidine-oligoclase-trachyte; (3) Breccias and Tuffs; and his descriptions of the two former are particularly full and interesting. The breccias and tuffs are necessarily less susceptible of clear concise description; they appear to vary as much and in as short a space as similar volcanic accumulations elsewhere.—Prof. Koch, of Ofen, contributes "Beitrag zur Kenntniss der geognostischen Beschaffenheit des Urdniker Gebirges," an isolated little mountain range, which stretches between the Danube and the Save in East Slavonia. He describes the Tertiary strata he examined in his last visit to that district as being grouped round the foot of the hills. The beds are of marine, fresh, and brackish-water origin. He does not determine their exact geological horizon, but gives lists of the fossils he obtained. The paper concludes with an account of a mass of sanidine-trachyte, which the author believes to be of Tertiary age.—A paper on *Aulococeras Fr. V. Hauer*, by Dr. Edm. von Mosjsiores, is illustrated with four lithographic plates. This and the following paper "On the Tertiary Formation of the Vienna Basin," by Theodor Fuchs and Felix Karrer we recommend to the attention of our palæontologists. Fuchs' and Karrer's paper is most elaborate, and contains copious lists of fossils which, besides being interesting in themselves, are useful for purposes of comparison. The *Jahrbuch* concludes with "Studien aus dem Salinargebiete Siebenbürgens," by F. Posepny; this, however, is only the second part of the paper, the first part having been published so far back as 1867. These saliferous regions are described in considerable detail, and numerous chemical analyses are given. A map, and sections, &c., accompany the paper. We should mention that the *Jahrbuch* includes obituary notices of two former members of the Institute, the well-known Wilhelm Haidinger, and Urban Schloenbach, an enthusiastic palæontologist and geologist who was cut off at the early age of thirty-one.

THE three numbers of the *Quarterly Journal of Microscopical Science* of the present year contain a number of valuable original contributions to science, besides transactions, chronicles of the progress of histology and micro-zoology, and various reviews and short notes and memoranda. In the January number Prof. Allman describes a new mode of reproduction by fission in a new hydroid polyp, which he figures in a plate.—Haeckel's researches on the nature of Cocoliths and Bathybius are noticed at length, and the remarkable Radiolarian *Myxobrachia* is figured in a tinted plate.—Mr. Archer, of Dublin, to whose researches published in the same journal in 1869 we owe our knowledge of a most beautiful and interesting group of fresh water Protista—the Heliozoa—contributes to the April number a further account of new fresh water rhizopods, illustrated with two coloured plates.—In the same number Mr. Moseley figures and describes the nerves of the cornea, and Mr. Lankester gives

a minute account of the structure and mode of formation of the sperm-ropes of the river Annelids.—In the July number an exceedingly valuable memoir by Dr. Van Beneden appears "On the Development of a Species of Gregarina," which he described last year (also in the Journal). It appears that the Gregarinæ exhibit a young stage when they are devoid of nucleus, and have great activity and worm-like form; to this stage Dr. Van Beneden applies the name *pseudo-filarian*.—In the same number Mr. Sorby gives an elaborate paper on the colouring matters of leaves, which has an appropriate place in a journal devoted to microscopy, since it is only by the micro-spectroscope that many of those colouring matters can be studied on account of their small quantity, and, further, since the application of such methods of analysis to histology as the micro-spectroscope affords is of the very highest importance.—Various points relating to the instrument itself are discussed in these three parts by Dr. Royston Pigott, who figures his aplanatic searcher and its results on the Podura scale; by Messrs. Dudgeon, Newton, and others, who describe new apparatus.—Mr. Moseley gives accounts of how to use gold chloride and silver nitrate in histological research, and how best to prepare and cut sections of the frog's egg for embryological study.—The original paper by Dr. Nitzsche, of Leipzig (illustrated), on the reproduction of the Bryozoa, and the reply to Mr. Hincks, are important, and on a very curious point. It is, however, to the chronicles and notes which we would especially call attention as of service to biological students. Long abstracts of all the important papers published in the German periodicals are to be found—in some cases illustrated by woodcuts; thus we have Neuman on the origin of the red blood corpuscles, Kranske on connective tissue, Flemming on fatty tissue, Schöbl on the bat's wing and mouse's ear, Flügler on the method of demonstrating nerve-endings in the liver and other glands, Exner on the Schneiderian membrane, Cienkowski on the sporogonia of *Noctiluca*, and many other such.

IN the *Journal of Botany* for October, Dr. Braithwaite continues his Recent Additions to our Moss Flora. Mr. R. Tucker gives some Notes on the now well-defined Flora of the Isle of Wight; and Dr. Moore Notes on some Irish Plants. Mr. F. Stratton contributes an article on *Monotropa hypopitys*, confirming the statement of other recent observers that this plant is not truly parasitic. The remainder of the number is occupied by short notes, reviews, reports, and reprints.

THE *Scottish Naturalist* for October opens with a timely reprint of an extract from Mr. Patrick Matthew's work on Naval Timber, published in 1831, and referred to in Darwin's "Origin of Species," in which he distinctly enunciates the theory that "circumstance and species have grown up together," or that new species have arisen from old species adapting themselves to altered circumstances. The most important original articles in the number are: The Baleens, or Whalebone Whales of the North-east of Scotland, by Mr. R. Walker; Notes on the Tetraonidæ of Perthshire, by Mr. R. Paton; On the Altitudes attained by Certain Plants (varying from those already recorded), by Dr. F. Buchanan White; and On Scottish Galls, by Mr. J. W. H. Traill.

SOCIETIES AND ACADEMIES

PARIS

Academy of Sciences, October 2.—M. C. Jorden read a mathematical paper "On the Classification of Primary Groups." Two papers on subjects connected with physics were read, one by M. A. Cornu, "On the Determination of the Velocity of Light," in which he suggests an improvement in the method proposed by Fizeau for this purpose, and a note by M. G. Salet on the Spectra of Tin and its components, which he describes as the most singular he has ever seen.—On astronomical subjects several communications were made.—M. Chasles replied to a statement made by M. Bertrand at a previous meeting with regard to Aboul Wéfa's method of calculating the position of the moon. M. Yvon Villareau communicated a long paper, full of mathematical formulæ, "On the Determination of the true Figure of the Earth, without the necessity of actual levellings."—M. De launay read a note on the two recently discovered planets, Nos. 116 and 117, in which he indicated that the planet discovered at Versailles by M. Borely, and named Lomia, must be numbered 117, as the planet discovered by M. Luther two days afterwards had been previously detected in America by Mr. C. H. F. Peters.—

Letters on these planets by MM. Luther and Peters were also communicated by M. Leverrier, and M. Delaunay presented a determination of the orbit of Lomia by M. Tisserand.—The same gentleman a note on the nebulae discovered by M. Stephan at Marseilles, and a note by M. Loewy on a new equatorial instrument. The latter is mounted like a transit instrument, but its body is bent at a right angle, and the images are carried to the eye of the observer by means of prisms or mirrors. The advantage, according to the author, is that the observer can carry on his investigations without changing his place, and that the necessity for an expensive revolving dome is done away with.—A fourth letter from Father Secchi, on the protuberances and other remarkable portions of the surface of the sun, was read. It contains a classification of the phenomena in question, and notices the chromosphere, protuberances, and clouds. Of the second several kinds are described.—M. de Fonvielle presented the programme of an intended balloon-ascent for the purpose of noticing the meteors of November 1871, and MM. Regnault and Elie de Beaumont made some remarks upon the same subject.—A letter was read from M. A. Poëy on the law of similar evolution of meteorological phenomena, in which he indicates the existence of a connection between the periodicity of meteorological phenomena and the diurnal and annual movements of the earth.—M. G. Lemoine presented a second part of his investigation of the reciprocal transformation of the two allotropic states of phosphorus, and M. Berthelot a second part of his researches upon ammoniacal salts. In the latter the author treats of the compounds of ammonia with boracic and carbonic acids.—A paper was read by M. C. Mène, giving numerous analyses of dyes belonging to the carboniferous formation.—The tables of meteorological observations made at the Paris Observatory during the month of September was also communicated to the meeting.

October 9.—M. Bertrand presented a note by M. Painvin on the determination of the rays of a curve at any point of a surface defined by its tangential equation.—M. P. A. Favre read a continuation of his thermic investigations upon voltaic energy, in which he gives the results obtained by him in experiments with batteries containing fuming nitric acid, permanganic and sulphuric acids mixed, and hypochlorous acid. In connection with this subject, M. F. Le Blanc also presented a note on the energy of piles with two liquids. In a note on the most economical arrangements of voltaic batteries with regard to their polar electrodes, M. T. Du Moncel discusses the question of the desirability of reducing the size of the positive electrode.—M. Ruhmkorff described an arrangement for obtaining an exceedingly intense induced magneto-electric current.—Several astronomical papers were read, and among them a notice by M. Faye of the history and present state of the theory of comets, in which he contends for the existence of a repulsive force (*solar repulsion*) manifested in the phenomena of comets.—M. Delaunay announced that M. Stephan had observed Encke's comet at Marseilles on the night of the 8-9th October. In searching for this comet M. Stephan had discovered some new nebulae.—M. Bertrand presented a reply to the remarks made by M. Chasles at the last meeting of the Academy on the determination of the position of the moon by Aboul Wéfa, and MM. Leverrier and Chasles remarked upon the desirability of searching the Oriental libraries for the astronomical writings of that author.—M. Delaunay communicated a note by M. Tisserand containing the determination of the orbit of the planet No. 116 (discovered by Mr. C. H. F. Peters).—M. Laugier presented a paper by M. Pagel, containing observations of the determination of the magnetic needle made at the Observatory of Toulon since the year 1866.—M. Roux presented an investigation of the artesian water of Rochefort, which comes up from a depth of nearly 857 metres. He gave a detailed analysis of the mineral contents of this water, and noticed the temperatures observed at various depths during the boring, which were considerably in excess of those recorded at Grenelle.—M. Billebault forwarded a note on the employment of gas-tar in the treatment of diseases of the vine, and especially against *Phylloxera vastatrix*. The destruction of this insect was also the subject of notes by MM. Peyrat and Deleuze.—M. E. Duclaux presented a note on a means of causing at will the hatching of silkworm eggs, which consists in exposing the eggs for a certain time to the action of cold.—In a note on the time which elapses between the excitation of the electric nerve of the torpedo and the discharge of its apparatus, M. Marey described some experiments made by him, from which it would appear that the nervous action is transmitted rather more slowly in the electric

nerve than in the motor nerve of a muscle.—M. H. Sainte-Claire Deville communicated a note by M. A. Sanson on the theory of the early completion of the bones, in which the author replied to an objection to his theory made by a German writer.

PHILADELPHIA

Academy of Natural Sciences, February 6.—The President, Dr. Ruschenberger, in the chair. Prof. Leidy stated that he had recently received a small collection of fossils for examination from Prof. J. D. Whitney, who obtained them from California. The specimens are as follows:—A fragment of an inferior molar, apparently of *Mastodon americanus*. Of this specimen Prof. Whitney remarks that it was obtained from a depth of 80 feet beneath the basaltic lava of Table Mountain, Tuolumne County, Cal., where it was found in association with remains of human art. A much worn lower molar of a large horse, probably the *Equus pacificus*, from 16 feet on Gorden Gulch. The triturating surface of the crown measures $13\frac{1}{2}$ lines fore and aft, and 10 lines transversely, inclusive of the cementum. Two equine molar teeth, which, according to the accompanying label, were obtained 350 feet below the surface, at Soulsbyville, Tuolumne County, Cal. One is an unworn upper back molar, apparently of a species of *Protophippus*. It is moderately curved from behind forward and downward, but only slightly from within outward. It is 21 lines long in a straight line. Its greatest breadth above the middle, fore and aft, is nearly 9 lines; its thickness about 7 lines. The other tooth is a lower molar, about one-third worn, probably of the same species. The triturating surface is 10 lines fore and aft, and nearly 7 transversely. Two teeth labelled "Found ten feet below the surface at Dry Creek, near Bear Creek, Mercer County, Cal." One of the specimens appears to be the portion of a canine tooth, and the other is an incisor. They resemble in form the corresponding teeth of the lama, and probably belong to a species of the same genus. The incisor is about $1\frac{1}{2}$ inch in length; the crown externally is 11 lines long and $4\frac{1}{2}$ lines wide.

March 7.—The President, Dr. Ruschenberger, in the chair, Mr. Thomas Meehan referred to some observations he made before the Academy last autumn in regard to a peculiar storing up of turpentine in the common insect, *Reduvius novemarius*. Since then entomologists had been investigating the use for which this turpentine was employed, without success. He was now able to report that it was for the purpose of fastening its eggs on the branches of trees, and for sticking them together; also, in probability, as a means of protection against enemies and the weather. The eggs of the *Reduvius* were inserted in groups, and each set upright one against another with the turpentine, like the cell in a honeycomb. It had hitherto been supposed by entomologists that the matter used for this purpose was a secretion of the insect itself; but so far as he could judge by the senses, the matter used was merely turpentine, and no doubt the turpentine he had observed the insect storing up in the fall.—Mr. Meehan exhibited some flowers of the common *Bowvardia leiantha* of the green-houses, and of the hardy *Deutzia gracilis*, and referred to his papers, published a few years ago in the Proceedings of the Academy, on practical diœcism in the trailing *Arbutus* (*Epigaea repens*) and *Mitchella repens*, in which he pointed out that these plants, though apparently hermaphrodite, had the stamens and pistils of different characters in separate plants, and were, therefore, subject to the laws of cross-fertilisation as indicated by Darwin. He had had his attention called to the *Bowvardia* by Mr. Tatnall, of Wilmington, Del., as furnishing a similar instance to that of *Epigaea* and *Mitchella*, to the same natural order as which, the *Cinchonous* division of *Rubiaceae*, the *Bowvardia* belonged. These had some plants with the pistils exerted, while in others only the stamens were visible at the mouth of the corolla tube. Mr. Tatnall had not had the matter suggested to him early enough to say that it was so in all cases; but he believed that these flowers, which practically might be termed pistillate and staminate, were found entirely on separate plants. This is a very important fact, as the *Bowvardia* is not raised from seeds in green-houses, but from cuttings of the roots, and, therefore, all these plants with separate sexes must have been produced from one original individual, without the intervention of seed, and thus confirm the position advanced in a previous paper of the speaker on "Bud Variations," namely, that variations in form, and, by logical inference, new species, may arise without seminal intervention. In the specimens of *Deutzia gracilis* were two forms of flowers on the same plant. Besides the large ones with stamens and pistils apparently perfect, there were numerous small flowers in which the

petals were only partially developed. The filaments were entirely wanting, but the anthers were as perfect, if not larger than in what we should call the perfect flowers. Any one could see that these small flowers were the result of deficient nutriment, and would be apt to pass the matter over with this simple reflection; but he wished to emphasise the fact that this defective nutrition rendered the female organs inoperative, while the male organs were still able to exercise their functions; thus affording another instance, if any more be needed, of the truth of his theory of sex, namely, that with defective nutrition, the female sex is the first to disappear, and that only under the highest conditions of vitality is the female sex formed. In the case of the *Bowardia* a similar law was seen. The most vigorous stems, or, as they would technically be called, woody axes, produced the female flowers.—Prof. Cope made some observations on a Batrachian of the coal measures, *Sauropfeura remex*, Cope. A specimen more perfect than the type recently obtained by Prof. Newberry exhibited posterior limbs such as has been ascribed to the *S. pectinata*. The vertebrae posterior to this point were perfectly preserved, and supported the remarkable processes to the end.

March 21.—Dr. Carson, vice-president, in the chair.—Prof. Leidy made the following remarks on *Tenia mediocanellata*. Recently, one of our ablest and most respected practitioners of medicine submitted to my examination a tapeworm which had been discharged from a young man, after the use of the *Aspidium filix-mas*. The physician, in giving an account of the case, stated that he had previously treated the patient for another affection, in which raw-beef sandwiches had been prescribed for food. After looking at the worm, I remarked that it appeared to be the *Tenia mediocanellata*, a species which I had not before seen, and added that the patient had probably become infected from a larva swallowed with the raw-beef sandwiches. The specimen consisted of the greater part of the worm, broken into several pieces. Including some lost portions, it was estimated to have been upwards of thirty feet in length. Unfortunately, the head proved to be absent; but, so far as characters could be obtained from the specimen, in the form of the segments, position of the genital orifices, and the condition of the ovaries, it agreed with the description given of *T. mediocanellata*, rather than with *T. solium*. From a want of acquaintance with the former, I did not feel entirely satisfied that the specimen actually belonged to that species. Subsequently, my friend brought to me the anterior part of the body, probably, of the same individual tapeworm. He observed that his patient continuing to complain, he had administered another dose of the male-fern, which was followed by the expulsion of the portion of the worm now presented. The head of the parasite was included, and it confirmed the view that it pertained to the *Tenia mediocanellata*. The case serves as another caution against the use of raw flesh as food. The description of the worm, as derived from the specimen, is as follows:—The head is white, without pigment-granules, obtusely rounded, unarmed with hooks, and unprovided with a rostellum, but furnished with a minute acetabuliform fovea at the summit. The four acetabula are spherical, and opaque white. The diameter of the head is three-fourths of a line. The neck, or unsegmented portion of the body immediately succeeding the head, is about four lines long by half a line in breadth. The most anterior indistinctly defined segments of the body, and those immediately succeeding them, but more distinctly separated, are about one fifth of a line long by two-fifths of a line broad. In a more posterior fragment of the body, the flat and nearly square segments measure half a line long and one line broad, to one-third line long and two-and-a-half lines broad. A succeeding fragment exhibits segments three-and-a-half lines long by four lines broad, and two lines long by five lines broad. Many of the segments in this piece are irregularly separated laterally by deep, wide notches. In a succeeding long portion of the worm, the segments are wider behind than in front, and measure two, five, and three lines long by five lines broad. In a long piece of the posterior part of the worm, the segments are first four lines long and broad; and in the last four feet of the same piece, the segments are clavate in outline, from six to ten lines long, and two and three lines broad. The genital apertures are conspicuous, and are situated behind the middle of the segments. They alternate irregularly. Thus, in the last two feet of the posterior fragment of the worm, the first two segments exhibit the aperture on the left margin; the succeeding segment presents the anomaly of an aperture on both margins; then follow three apertures on the right, next two on the left, then four on the right, then eight alternating in pairs, then one on the left, and

so on. The ovaries are opaque white, and exhibit numerous closely crowded lateral branches. In the absence of pigment-granules to the head, and in the less robust character of the worm, the specimen differs from *T. mediocanellata* as described by Küchenmeister. The minute acetabular pit or fovea at the summit of the head is not mentioned by Küchenmeister and subsequent observers as a character of that species. It is a point, however, that might be readily overlooked, especially if the parts of the head are obscured by the presence of pigment-granules.—Prof. Cope exhibited a number of fishes from the Amazon above the mouth of the Rio Negro, which included some new and rare forms. Some of the latter were *Doras brachiatus*, *Plecotomus scopularius*, *Rosbooides rubrivertex*, *Myletes albiscopus*, &c. He exhibited a specimen of *Pariodon microps*, Kner, describing the parasitic habits of *Stegophilus* and those ascribed to *Vandellia*. He thought the structure and colouration of the *Pariodon* indicated similar habits, and that it would be found to be an inhabitant, at times at least, of the cavity of the body of some other animal.

BOOKS RECEIVED

ENGLISH.—Contributions to the Flora of Mentone, Part 4: J. T. Moggridge (L. Reeve and Co.).—Words from a Layman's Ministry at Barnard Castle.—Transactions and Proceedings of the Royal Society of Victoria, Vol. viii., Parts 1, 2; Vol. ix., Parts 1, 2.

FOREIGN.—Nachtrag zum 6 u. 7. Jahresbericht des Vereins für Erdkunde zu Dresden. (Through Williams and Norgat.)—Die feierliche Sitzung der kaiserlichen Akademie der Wissenschaften zu Wien, 30. Mai, 1871.—Almanach der k. Akademie der Wissenschaften zu Wien.—Oefversigt af k. Vetenskaps Akademiens Förhandlingar.

PAMPHLETS RECEIVED

ENGLISH.—Darwinism: Chauncey Wright.—The Cruise of the *Norma*: Marshal Hall.—The University of Durham College of Medicine, Syllabus for 1871-72.—The College of Physical Science, Newcastle-on-Tyne, Syllabus for 1871-72.—Observations on the Corona: Hercules Ellis.—Faint: M. H. Johnson.—The Scottish Naturalist, October.—Proceedings of the Meteorological Society, No. 56.—The Portfolio, No. 22.—Quarterly Weather Report of the Meteorological Office.—Journal of the Statistical Society for September.—On the Faults in Ironstone Seams: R. L. Jack.—The Phoenix, Vol. ii., No. 14.—Journal of the Iron and Steel Institute, Vol. ii., No. 3.—Journal of the Scottish Meteorological Society, No. 31.—The Quarterly Journal for Microscopical Science, October.

AMERICAN AND COLONIAL.—On the Influence of the Blue Colour of the Sky in developing Animal and Vegetable Life: Philadelphia.—On the Eozöonal Limestones of Eastern Massachusetts: L. S. Burbank.—On the Characteristics of the Primary Groups of the Class of Mammals: Dr. Th. Gill.—The Canadian Naturalist, Vol. v., No. 4; Vol. vi., No. 1.—Proceedings of the American Philosophical Society, Philadelphia, Jan.-June.—Extracts from the Proceedings of the Lyceum of Natural History, New York.—Proceedings of the Asiatic Society of Bengal, No. 7.—The Canadian Entomologist.—The Rural New Yorker, Vol. xxi., Nos. 21-24.

FOREIGN.—Jahrbuch der k. k. geologischen Reichsanstalt zu Wien, 1871, April-June.—Georg Gottfried Gervinus: Emil Lehmann.—Magazine d'Education et de Récréation, No. 162.—Sur la loi de l'Evolution similiaire des Phénomènes Météorologiques: M. A. Poëy.

CONTENTS

	PAGE
HELMHOLTZ ON THE AXIOMS OF GEOMETRY. By Prof. W. STANLEY JEVONS	481
LEIGHTON'S LICHEN-FLORA OF GREAT BRITAIN. By Dr. W. LAUDER LINDSAY, F.R.S.E.	482
OUR BOOK SHELF	484
LETTERS TO THE EDITOR:—	
Geometry at Oxford.—Prof. W. T. THISELTON DYER	485
Elementary Geometry.—W. D. COOLEY; THOMAS JONES. (With Diagrams)	485
The Coming Eclipse.—Col J. T. TENNANT, F.R.S.	486
British Mosses.—D. MOORE, F.L.S.	487
Corrections.—RICHARD A. PROCTOR, F.R.A.S.	487
A Universal Atmosphere.—JOHN BROWNING, F.R.A.S.	487
The Temperature of the Sun.—JOHN BALL	487
Flight of Butterflies	487
Velocity of Sound in Coal.—D. JOSEPH	487
Prof. Newcomb and Mr. Stone.—R. A. PROCTOR, F.R.A.S.	487
SCIENCE AT THE UNIVERSITIES	488
AN EXPLOSION (!) ON THE SUN. By Prof. C. A. YOUNG.	489
THE KE—PROGRESS OF DEVELOPMENT. By THOMAS H. POTTS	489
ON A NEW FORM OF CLOUD. (With Illustration.) By Prof. ANDRE POÏY	489
EXOGENOUS STRUCTURES AMONGST THE STEMS OF THE COAL MEASURES. (With Illustrations.) By Prof. W. C. WILLIAMSON, F.R.S.	490
NOTES	492
SCIENTIFIC INTELLIGENCE FROM AMERICA	495
PROF. HUXLEY ON THE DUTIES OF THE STATE	495
ON THE STRUCTURE OF THE PALÆOZOIC CRINOIDS. By Prof. WYVILLE THOMSON, F.R.S.	496
ON THE RELATION OF AURORAS TO GRAVITATING CURRENTS. (With Diagram)	497
SCIENTIFIC SERIALS	498
SOCIETIES AND ACADEMIES	498
BOOKS AND PAMPHLETS RECEIVED	500