

SCIENTIFIC SERIALS.

The Mathematical Gazette, No. 4 (Macmillan).—This is the first number of the enlarged series. We are glad to find that the support accorded to the first year's issue has been sufficient to warrant this enlargement; but to make the *Gazette* a success, and not a drag upon the funds of the Association, it is imperatively necessary that a much larger measure of support should be rendered by the general body of mathematical teachers. The opening paper is one on algebra in schools, which was read before the Association at its annual meeting in January of this year. In this article the author, Mr. Heppel, drawing upon his wide experience as a "coach," states that when pupils have come to him he has found that the work in algebra has usually to be done all over again. The reason of this appears to him to be "the ever-growing divergence there is between the conception of the nature and objects of algebra that dominates school teaching and the conception that regulates the application of algebra to more advanced mathematics." Many of the suggestions are likely to be useful, and we commend them to the notice of our brethren in the craft of teaching.—Mr. T. Wilson contributes a note on mathematics for astronomy and navigation, in which he suggests that the elements of spherical trigonometry might occupy a more prominent place in school teaching than they do, and to cover all ages he winds up with, "let no one despair that he is too old for mathematics."—Mr. Rouse adds a second chapter to his previous interesting article on conics.—"Some old text-books" is a review of John Ward's "The Young Mathematician's Guide" (1747), by Mr. J. H. Hooker, which brings before us matter that was served up for the food of students in the time of "good Queen Anne." The rest of the number is taken up with more extended articles (than before) entitled notes, solutions, new questions, and titles of new books. These latter pages should be of general interest, as they are likely to be useful both to students and teachers.

Bulletin of the American Mathematical Society, series 20, vol. i. No. 6, March 1895.—The notice of "Arthur Cayley," pp. 133-141, which opens this number, is a warm appreciation of the character and writings of our great mathematician, by Dr. Charlotte Scott, and is due to her "intense admiration for his work and personality, and to the fact that for the last fourteen years" she has "been privileged to know him and experience his kindness." It is the fullest account we have yet read, and has many more points of interest for an Englishman than Signor Brioschi's *éloge*, which is naturally confined more closely to an appreciation of his mathematical work. One extract we must make:—"Any sketch of Prof. Cayley is self-condemned if it leaves out of account the child-like purity and simplicity of his nature, the entire freedom from the professional touchiness on the score of priority to which mathematicians are as liable as other men. He was ever ready to say what he was working at, to indicate the lines of thought, to state what difficulties he was encountering . . . but his greatness and his simplicity cannot be enshrined in anecdotes."—Prof. Osgood (pp. 142-154) in "The Theory of Functions," analyses, chapter by chapter, Dr. (now Prof.) Forsyth's brilliant work on "The Theory of Functions of a Complex Variable," and winds up thus:—"The book is not one that can safely be put into the hands of the immature student for a first introduction to the study of the theory of functions. But the student who is already familiar with the elements, and who has acquired some degree of critical power, will find its pages incentive to valuable work in this wide field."—A short note follows on the introduction of the notion of hyperbolic functions, by Prof. Haskell, which was read before the Society at its December (1894) meeting.—The second summer meeting of the Society is to be held at Springfield, Mass., on August 27.

Internationales Archiv für Ethnographie, Band vii. Heft iv. 1894. This part commences with a long and thorough study (in German) on the hair-cutting customs of the Southern Slavs, by Friedrich S. Krauss. Several songs are reproduced in the

original, which are also translated into German. In this study two elementary ideas of mankind are met with, but imbued with the local colour of the Southern Slavs, and varied in tint according to the stage of culture. Hair-cutting is a means of adoption into kinship, and also as a redemption from the sacrifice of the body or life to the spirit of disease. It is a rite performed for social obligations and for good luck.—Prof. P. J. Veth concludes his exhaustive account (in Dutch) of the Mandrake, which is a valuable contribution to signature-lore or sympathetic magic. The most interesting of the "Notes" is an illustrated communication by A. Hermann, on the cupping and blood-letting appliances of the wandering gypsies.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, March 21.—"On the Dielectricity of Air." By Lord Kelvin, P.R.S., Magnus Maclean, and Alexander Galt.

§ 1. The experiment described in § 14 of our paper on the "Electrification of Air and other Gases by bubbling through Water and other Liquids" (*Roy. Soc. Proc.*, February 21, 1895), proves that air, electrified negatively by bubbling through water and caused to pass through a metallic wire gauze strainer, gives up some, but not a large proportion, of its

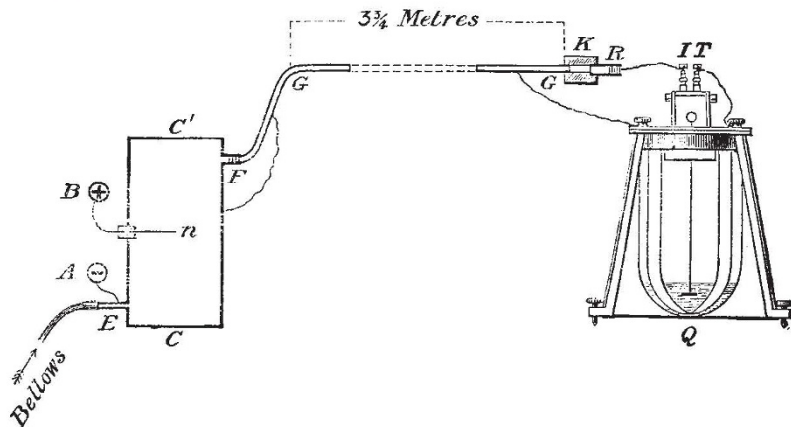


FIG. 1.

electricity to the metal. We have now made a fresh experimental arrangement for the purpose of investigating dielectricity of air which has been electrified, whether positively or negatively, by other means than bubbling through water: with apparatus represented in Figs. 1 and 2, which is simplified from that of our former paper by the omission of the apparatus for electrification by bubbling, and for collecting large quantities of electrified air.

§ 2. In Fig. 1, A B represent the two terminals of a Voss electric machine connected, one of them to a metal can, C' (a small biscuit canister of tinned iron), and the other to a fine needle, of which the point n is in the centre of the can. The wire making the connection to the needle passes through the centre of a hole in the side of the can, stopped by a paraffin plug. Air is blown from bellows through a pipe, E, near the bottom of the can, and allowed to escape from near the top through an electric filter, F, called the tested filter, from which it passes through a long block-tin pipe, G, G, about $3\frac{3}{4}$ metres long and 1 cm. internal diameter, and thence through a short tunnel in a block of paraffin, K. From this, lastly, it passes through a second electric filter, R, into the open air. This second filter, which we sometimes call the testing filter, sometimes the electric receiver, is kept in metallic connection with the insulated terminal, I, of a quadrant electrometer, Q. The metal can and the block-tin pipe are metallically connected to the outer case and uninsulated terminal, T, of the quadrant electrometer.

§ 3. The testing filter or electric receiver consists of twelve discs of brass-wire cloth fixed across the mouth of a short metal pipe supported on the end of the paraffin tunnel in the manner

represented in Fig. 2, on a scale of twice the size of the filter which we have actually used, or of true size for a filter on a tube of 2 cm. diameter, which for some purposes may be better. One of eleven similar discs, of size adapted to a tube of 2 cm. diameter, and an outermost disc with projecting lugs, are shown, true size, and with the gauge of the wire-cloth which we have actually used, shown true size, in Fig. 3. The eleven little circular discs of wire cloth are held in position by bending over them the four lugs belonging to the outermost disc, and all are kept compactly together by a short piece of

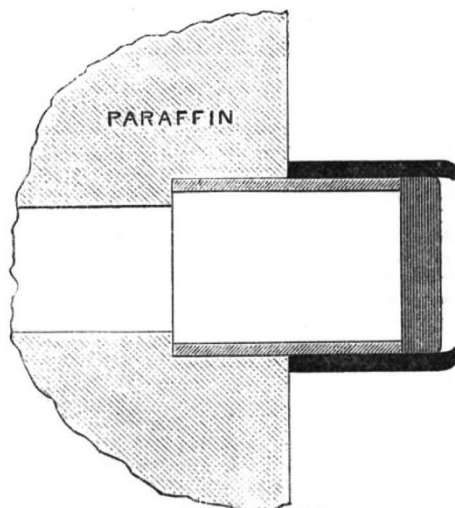


FIG. 2.

india-rubber tube stretched over them outside, as shown in Fig. 2.

§ 4. We commenced with a few experiments to test the efficiency of the testing filter, R, with no tested filter at F, and merely continuous block-tin pipe, FGG, from the can to the paraffin tunnel. First, working the bellows with no electrification of the needle point, we found no sensible electric effect on the electrometer, which proved that, whether from natural electrification of the air of the laboratory, or by the action of the bellows, or by the passage of the air through the long metal pipe, no electrification sensible to our test was produced. After

began with a filter of 12 wire-gauze discs, placed at F and kept in metallic connection with the tin pipe outside. This nearly halved the electricity shown by the electrometer. We then tried 24, 48, 72, 96, 120 wire-gauze discs, successively, placed in groups of 24, and separated from one another by short lengths of 2 cm. of lead tube, in the line of the flow of the air between F and G (Fig. 1), all kept in metallic connection with the block-tin pipe and the outer case of the electrometer. We were surprised with the smallness of the additions to the dielectric efficiency of the 12 strainers first tried: for example, the filter of 120 wire gauzes only reduced the electrical indication to a little less than one-half of what it was with the 12 which we first tried.

We found that cotton-wool between the spaces in the groups of 24 wire gauzes largely increased the dielectric effect. Thus, with 72 wire gauzes and cotton-wool we succeeded in reducing the electrical effect to about one-twelfth of what it was with only a filter of 12 wire gauzes; but hitherto we have not succeeded in rendering imperceptibly small the electricity yielded by the outflowing air to the testing filter R in our method of observation.

§ 6. We intend trying various methods of obtaining more and more nearly complete dielectricification of the electrified air flowing out of the can at F; and this for air electrified otherwise than by the needle point, as shown in the diagram: for instance, by an electrified flame in place of the needle point; or again by bubbling through water or other liquids. Meantime, the mere fact that the electricity, whether positive or negative, given to air by an electrified needle point, can be conveyed through 3 or 4 metres of small metal tube (1 cm. diameter), and shown on a quadrant electrometer by a receiving filter, is not without interest. We may add now that, with the receiving filter removed and merely a fine platinum wire put in the mouth of the paraffin tunnel, we have found that enough of electricity is taken from the outflowing air to be amply shown by the quadrant electrometer; which renders even more surprising the fact that the dielectric power of 120 strainers of fine wire-gauze should be so small as we have found it.

"On the Question of Dielectric Hysteresis." By Alfred W. Porter and David K. Morris.

The experiment described was intended to test whether the dissipation of energy that occurs in the dielectric of a condenser is due to true hysteresis (as claimed by Riccardo Arno), or simply to viscosity. To discriminate between them it is essential that the condenser be put through a cyclic series of states at such a slow rate that all viscous effects shall have had time to subside before a measurement of the charge corresponding to a certain potential difference is made. It is essential also to arrange

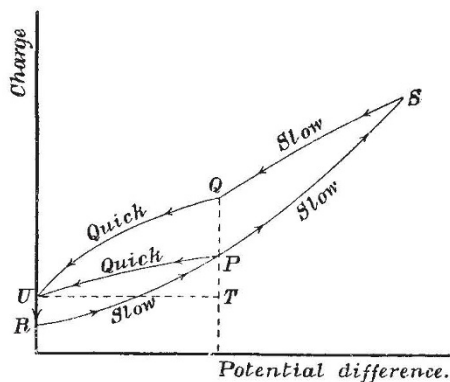


FIG. 1.

FIG. 3.—Twenty-five wires to the centimetre. Diameter of each wire is 0.16 mm. Hence each aperture is 0.24 mm. square.

that we kept the needle point, *n*, electrified, either positively or negatively, for five or six minutes at a time by turning the little Voss machine, and we found large effects rising to about 3½ volts in five minutes, positive or negative, according as *n* was positive or negative.

§ 5. The apparatus is now ready to test the efficacy of filters or other appliances of different kinds placed at F for the purpose of dielectricifying air which has been electrified, whether positively or negatively, by the electrified needle point *n*. We

that any test of the charge which involves a change of state should itself form part of the cycle. This was accomplished by making the cycles as shown in the figure, the cyclic order being RPURPSQUR; the portions PU and QU representing discharges through a galvanometer. If hysteresis exist, the change of charge QT will be greater than the change PT. As the result of twelve cycles the ratio QT/PT comes out $1 \div \frac{1}{8760}$; a second series of twelve gives $1 - \frac{1}{10350}$.

Hence the charge is sensibly the same for a given value of the potential difference, whether that value has been arrived at from lower or from higher values than itself.

Fresh evidence is also given of the presence of viscosity. *Thus while the condenser here experimented upon exhibits marked viscous effects, yet the authors could detect no hysteresis.*

Entomological Society, April 3.—Prof. R. Meldola, F.R.S., President, in the chair.—Mr. C. J. Gahan exhibited two examples, male and female, of a rare Prionid beetle, *Chariea cyanea*, Serville, which had been kindly sent to him for examination by M. René Oberthür; and stated that Lacordaire was mistaken with regard to the sex of the specimen which he described in the "Généra des Coléoptères." He pointed out that the elytra of the male were relatively much shorter than those of the female; and that the joints of the antennæ from the third to the tenth were biramous. Mr. Gahan also exhibited two species of the genus *Decarthria*, Hope, and said he believed these were the two smallest species of Longicorns known.—Dr. Sharp, F.R.S., exhibited the soldiers and workers of a species of Termites found by Dr. Haviland in South Africa. He stated that these insects possessed eyes and worked in daylight like Hymenopterous ants, and that in habits they resembled harvesting ants by cutting grass and carrying it into holes in the ground. Dr. Sharp said that although these holes were probably the entrance to the nests, Dr. Haviland was unable to find the actual nest, even by prolonged digging, so that the winged forms were still unknown. He thought this species was probably allied to *Termes viarium* of Smeathman, in which the soldiers and workers possessed eyes, and had been observed by Smeathman to issue from holes in the ground, but whose nests could not be discovered. Mr. McLachlan observed that it was possible there might be species of Termites without any winged form whatever.—Mr. Rye called attention to the action of one of the Conservators of Wimbledon Common, who, he stated, had been destroying all the aspens on the Common. He inquired whether it was possible for the Entomological Society to protest against the destruction of the trees. Mr. Goss said he would mention the matter to the Commons' Preservation Society.—Mr. Francis Galton, F.R.S., read a paper entitled "Entomological Queries bearing on the Question of Specific Stability." (See p. 570.)—Mr. Merrifield stated that he received some years ago, from Sheffield, ova of *Selenia illustraria*, the brood from which produced, in addition to typical specimens, four of a dark bronze colour, and from these he bred a number of specimens of a similar colour.—Dr. F. A. Dixey referred to a variety of the larva of *Saturnia carpinii* with pink tubercles. He said the imago bred from this larva produced larvæ of which 10 per cent. had pink tubercles. Prof. Poulton, F.R.S., said he had found larvæ of *Smerinthus ocellatus* with red spots, and that this peculiarity had been perpetuated in their descendants. Mr. McLachlan, Canon Fowler, and Prof. Meldola made some further remarks on the subject.—Mr. G. F. Hampson read a paper by Mr. C. W. Barker, entitled "Notes on Seasonal Dimorphism in certain species of Rhopalocera in Natal." Mr. Merrifield said he was of opinion that a record of the temperature at different seasons would be a very desirable addition to observations of seasonal dimorphism. Mr. Hampson said he believed that temperature had very little to do with the alteration of forms. At any rate, according to his experience, in India the wet season form succeeded the dry season form without any apparent difference in the temperature. Prof. Poulton remarked that the apparent temperature as felt must not be relied upon without observations taken by the thermometer. Dr. Dixey, Mr. Barrett, Dr. Sharp, and Prof. Meldola continued the discussion.

Zoological Society, April 2.—W. T. Blanford, F.R.S., Vice-President, in the Chair.—Mr. Boulenger exhibited the type specimens of two new chameleons from Usambara, German East Africa. Special interest attached to them from the fact that they appeared to be more nearly related to the Madagascar species than to any of the numerous forms now known from Continental Africa.—Mr. Walter E. Collinge read a paper on the sensory canal system of fishes, treating of the morphology and innervation of the system in the Physostomous Teleostei.—Dr. Mivart, F.R.S., read a paper descriptive of the skeleton in *Lorius flavopalliatius*, comparing it with that of *Psittacus erithacus*, and pointed out a number of differences in detail.—Mr. G. A. Boulenger, F.R.S., made remarks on some cranial characters of the salmonoid fishes, and expressed the opinion that there was no justification for separating *Coregonus* and *Thymallus* from the Salmonidæ, as had been proposed by Cope

and Gill.—Prof. T. W. Bridge read a paper in which he pointed out certain features in the skull of *Osteoglossum*. The author directed attention to the existence of a peculiar oral masticatory mechanism in *Osteoglossum formosum*, distinct from that furnished by the upper and lower jaws and their teeth. The existence of an essentially similar mechanism in the Ganoid *Lepidosteus osseus* was also described, and the conclusion suggested that the two genera offer in this respect an interesting example of parallelism in evolution.

Linnean Society, March 21.—Mr. C. B. Clarke, President, in the chair.—Prof. Stewart exhibited and made remarks upon a series of corals, dwelling upon certain characteristic features which illustrated their structure.—Mr. S. Pace brought forward a collection of shells belonging to the genus *Columbella*, and made some observations concerning the peculiarities and the geographical distribution of some of the species exhibited. A paper was then read by the President, "On the terminal flower in the *Cyperaceæ*." After remarking that the order *Cyperaceæ* had been newly arranged by Dr. Pax in Engler's "Jahrbücher" (1886), and in Engler and Prantl's "Pflanzenfamilien," the character taken for primary division of the order being the inflorescence, he pointed out that in the first sub-order Scirpoideæ with an axillary flower were placed *Cyperus*, *Scirpus*, *Psilocarya*, *Dichromena*, and *Hypolytrum*; in the second sub-order Caricoideæ with a terminal flower were placed *Schoenus Rynchospora*, *Mapania* and also *Carex*, *Scleria*, and their allies. The disruption of *Hypolytrum* from *Mapania*, of *Dichromena* and *Psilocarya* from *Rynchospora*, he thought, proved either that the modern method pursued by Dr. Pax was of limited systematic value, or that he had grievously erred in his ascertainment of the fact whether in such genus the flower is terminal or not. Mr. Clarke exhibited his own analyses of the spikelet in the larger genera in dispute. He held that in *Carex*, *Scleria*, and their allies, the flower, male and female, was strictly axillary; that in *Rynchospora* it was axillary—exactly as in *Dichromena* and *Psilocarya*—while in *Hypolytrum* the flower is terminal exactly as in *Mapania*. He further maintained that these facts could be sufficiently shown by the aid of a penknife and pocket-lens, and that no results which might be hereafter obtained by studies in development could affect either the weight to be attributed to the character of "terminal flower," or to the real affinities of the genera. The paper was illustrated by lantern slides illustrating dissections, and, in the discussion which followed, criticism was offered by Sir D. Brandis, Mr. A. B. Renile, Dr. Prain, and Dr. D. H. Scott.—On the conclusion of this paper, Dr. H. Field, of Brooklyn, New York, made some remarks on the proposed establishment of a central international bureau for zoological bibliography, and the annual publication of an international Zoological Record.

Mathematical Society, April 4.—Major MacMahon, R.A., F.R.S., President, in the chair.—The Rev. T. C. Simmons read a paper on a new theorem in Probability. The author replied to numerous questions put to him by Messrs. G. H. Bryan, Burton, Cunningham, and the President.—The President (Mr. Kempe, F.R.S., in the chair) communicated a note on the linear equations that present themselves in the method of least squares.—The following paper was taken as read: On the Abelian system of differential equations and their rational and integral algebraic integrals, with a discussion of the periodicity of Abelian functions, by the Rev. W. R. W. Roberts.

Geological Society, March 20.—Dr. Henry Woodward, F.R.S., President, in the chair.—On fluvioglacial and interglacial deposits in Switzerland, by Dr. C. S. Du Riche Preller. This paper is the outcome of one published in the *Geological Magazine* of January 1894, on the "Three Glaciations in Switzerland," in which the author described various glacial deposits near the lake of Zürich. He now describes a series of fluvioglacial conglomerates and interglacial lignite-deposits near the lakes of Zürich, Constance, Zug, and Thun, which, together with analogous deposits at the base of the Eastern, Western, and Southern Alps, constitute further evidence of two interglacial periods, and therefore of three general glaciations, the oldest of these being of Upper Pliocene, and the others of Middle and Upper Pleistocene age respectively. As regards the origin, age, and the time required for the formation of several of the Swiss deposits referred to in the paper, the author arrives in several respects at conclusions differing from those

recently enunciated by others. The author also argues that the first interglacial period was probably of shorter duration than the second; and in confirming his former conclusion that every general glaciation marks a period of filling-up, and every interglacial period marks a period of erosion of valleys, he avers that, if this conclusion be correct, it must needs be destructive of the theory of glacial erosion.—The Bajocian of the Mid-Cotteswolds, by S. S. Buckman. The Mid-Cotteswolds is defined as the district between the valleys of the Frome and the Chelt. A description of twenty-five sections is given, dealing principally with the strata found between the Upper *Trigonia-grit* and the Upper Freestone.

PARIS.

Academy of Sciences, April 1.—M. Cornu in the chair.—On the composition of drainage waters, by M. P. P. Dehérain. An account is given of experiments made on a large scale with fallow-land and with crops of barley, wheat, beet-root, and the vine. The observations began regularly in March 1892; the results are given for three seasons. Comparing the crops of 1893 and 1894 as regards nitrogen, it is seen that the abundant crop of the latter year leaves the soil no more exhausted than the medium crop of 1893. The nitrates produced in the soil, or added as manure, were better utilised in 1894; with the poorer crop a proportion was lost. The author differs from M. Schlessing, inasmuch as the latter believes the loss of nitrogen in drainage water to be so insignificant as to be able to be neglected in practical farming, whereas his own results confirm the Rothamsted experiments, and show that the loss from fallow-lands is much greater than from lands covered with vegetation. The deduction is drawn that it is good practice to follow up crops such as wheat by some form of autumn growth.—Ultra-violet radiation of the solar corona during the total eclipse of April 16, 1893, by M. H. Deslandres. A description of a photograph of the spectrum of the corona obtained in the Senegal expedition of 1893. The photo-spectrometer used had lenses and prisms of quartz and calcite, and thus enabled a great prolongation of the ultra-violet region to be photographed. In accordance with previous observations, it was found that the ultra-violet spectrum was very feeble in intensity as compared with the red; this may be due in part to the great absorbing power of the atmosphere for light in this region of the spectrum.—Solar observations of the second, third, and fourth quarters of 1894, by M. Tacchini.—On the theory of equations to the derived partials of the second order, by M. E. Goursat.—On the sequences of circular permutations, by M. Désiré André. An analogy is pointed out between circular and rectilinear permutations, and it is shown that the former are, in general, more simple. They are not subject to the irregularity introduced into rectilinear permutations by the terminal terms.—On the application of the theory of probability of errors to levelling operations of precision, by M. M. d'Ocagne.—On gratings used in "photogravure," by M. Ch. Féry. A grating of 40 to 60 lines to the centimetre is used to enable the production of a photograph which can be directly reproduced by mechanical processes. Such a photograph must necessarily be devoid of half-tints; the device of placing a grating at a short distance before the sensitive surface replaces these half-tints by alternate black and white squares of the same size. An explanation of this effect is given by the author on the basis of the elementary theory of shadows. On the "molecular deviation" or the "molecular rotatory power" of active substances, by M. A. Aignan. The author asserts that M. Guey's formula for molecular rotatory power is inexact, and cannot be used instead of Biot's formula for the specific rotatory power in the case of solutions.—On a radiometer of symmetrical construction, turning under the action of unsymmetrical illumination, by M. G. Seguy.—An absolute electrometer for high potentials, standard and simplified types, by MM. H. Abraham and J. Lemoine.—An extremely sensitive galvanometer, by M. Pierre Weiss.—On the oldest French series of meteorological and thermometric observations, by M. l'abbé Maze. An account of the contents of a newly-discovered register, entitled "Ad thermometrum observationes anno 1658 Parisiis: Thermometrum Florentiæ fabricatum."—On the first mercury thermometer, by M. l'abbé Maze. Ismael Boulliau used a mercury thermometer together with his Florence thermometer in March 1659, or sixty-two years before Fahrenheit's invention.—Thermal study of the anhydrous barium and strontium iodides, by M. Tassilly.—On the properties of salts of nickel and cobalt, by M. de Koninck. A priority claim.—On the alcoholates of lime and baryta, by

M. de Forcrand. A thermal study of the compounds— $(C_2H_5O)_4(CaO)_3$, $(CH_3O)_4(BaO)_3$, and $(C_2H_5O)_4(BaO)_3$. The action of alcohols on the alkaline-earth oxides does not give true metallic alcoholates, but addition compounds.—On the ammonium bases derived from hexamethyltriamidodiphenylmethane and their action on the fuchsines, by M. A. Rosenstiehl.—On some new combinations of hexamethylene-amine, by M. Delépine.—On the gases of the swimming bladder of fishes, by M. Jules Richard. These consist of oxygen, nitrogen, and traces of carbon dioxide. The oxygen varies in three cases given from 78.6 to 87.7 per cent.—Action of the nervous system on the principal lymphatic canals, by MM. L. Camus and E. Gley.—On the genus *Eurya*, of the family Ternstroemiaceæ, by M. J. Vesque.—On the basic rocks occurring as narrow veins in the lherzolite of the Pyrenees, by M. A. Lacroix. There are two families of granular basic rocks, without peridotite and felspar, which are allied to the peridotites.

BOOKS and SERIALS RECEIVED.

BOOKS.—Rainfall in the East Indian Archipelago, 1893 (Batavia).—Short Studies in Nature Knowledge: W. Gee (Macmillan).—Stéréochimie: E. G. Monod (Paris, Gauthier-Villars).—Practical Microscopy: G. E. Davis, 3rd edition (Allen).—Cambridge Natural History—Molluscs and Brachiopods: Rev. A. H. Cooke, A. E. Shipley, and F. R. C. Reed (Macmillan).—Manual of Geology: Prof. J. D. Dana, 4th edition (New York, American Book Company).—The Spirit of Cookery: Dr. J. L. W. Thudichum (Baillière).—The Evolution of Industry: Hy. Dyer (Macmillan).—Horses, Asses, Zebras, Mules and Mule-Breeding: W. B. Tegetmeier and C. L. Sutherland (Cox).—Sir Samuel Baker—A Memoir: T. D. Murray and A. S. White (Macmillan).—Our Teeth—Care and Preservation: Dr. V. Ditcham (Baillière).—Clinical Lectures on the Prevention of Consumption: Dr. W. Murrell (Baillière).—La Fonctionnement des Machines à Vapeur: G. Leloutre (Paris, Gauthier-Villars).—Des Marées: P. Hatt (Paris, Gauthier-Villars).—Manchester Museum: Owens College, Catalogue of the Library: W. E. Hoyle (Manchester, Cornish).—Methodisches Lehrbuch der Elementar-Mathematik: Dr. G. Holznüller, Erster und Zweiter Teil (Leipzig, Teubner).—The Book of the Dead—Fac-simile of the Papyrus of Ani in the British Museum, 2nd edition (British Museum).—The Tifin of Africa: J. S. Keltie, 2nd edition (Stanford).
SERIALS.—Scribner's Magazine, April (Low).—Meteor Papers, No. 1: J. Calvert (London).—Natural History of Plants: Kerner and Oliver, Part 12 (Blackie).—Notes from the Leyden Museum, Vol. xvi. Nos. 3 and 4 (Leyden, Brill).—Mind, April (Williams and Norgate).—Proceedings of the Society for Psychical Research, March (Paul).—Phonographic Quarterly Review, April (Pitman).—Transactions of the Natural History Society of Queensland, Vol. 1 (Brisbane).—Bulletin of the Geographical Club of Philadelphia, March (Philadelphia).—Records of the Geological Survey of India, Vol. xxviii. Part 1 (Calcutta).—Bulletin of the New York Mathematical Society, March (New York, Macmillan).—Mathematical Gazette, February (Macmillan).—Annals of Scottish Natural History, April (Edinburgh, Douglas).—Reliquary and Illustrated Archaeologist, April (Bemrose).—Archiv für Pathologische Anatomie und Physiologie und für Klinische Medizin, Band 140, Heft 1 (Berlin, Reimer).—Himmel und Erde, April (Berlin, Paetel).—Proceedings of the Physical Society of London, Vol. 13 Part 5 (Taylor and Francis).

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