

school, for each attendance of *at least* an hour's duration on the part of a student who has given not less than ten such attendances during the session. The minimum grant specified will be allowed if the inspector of the department reports that the teaching and equipment of the school are satisfactory, and that the class or classes are not too large for instruction by the staff of teachers. But these grants may be increased in any subject for efficiency up to the maximum specified; the efficiency being determined by the inspector's report and the success of the class in that subject at the May examination. The grants for science will be:—*2d.* to *6d.* for each attendance in a night science class in the elementary stage, and *4d.* to *1s. 4d.* in the advanced stage; and for each attendance of $1\frac{1}{2}$ hours' duration given to practical work in chemistry, physics, metallurgy, or biology, in a properly equipped laboratory, *3d.* to *9d.* in the elementary stage, and *6d.* to *1s. 4d.* in the advanced stage. The payments for attendance in a day science class will be at half the above rates. No student may be registered in the advanced stage of any subject until he has passed the examination of the department in the elementary stage, or has passed some corresponding examination which is considered by the department to sufficiently meet the requirements of the case. No student may be registered for more than two years for attendances in either the elementary or the advanced stage of any one subject. The grants will only be made if the student is of the industrial class as defined by the Science and Art Directory, and if the attendances for which the grant is claimed are such as can be legitimately registered under the rules. Grants for honours in the science subjects of the Department of Science and Art will continue on the same scale as at present.

AN excellent survey of the systems of technical education in Austria, Germany, France, and Switzerland, compared with what is done in England and Ireland, is contained in a pamphlet entitled "Technical Education: a National Necessity, its Uses and Advantages," by Prof. Henry Corby, published by J. Mahony, Cork. Prof. Corby shows what technical education has accomplished on the continent, and points to the comparative neglect of it in England, the result being a loss of commercial supremacy. As to Ireland, technical education is almost unknown there. There is only one technical school of note, and that has been established within the past few years in Dublin. In Cork something has been done; but it is disjointed and fragmentary. However, it tends in the right direction, and we hope with Prof. Corby that it may yet prove to be the mosaic pavement on which will be raised a large and comprehensive technical school, which will be worthy of the commercial enterprise of the capital of the South of Ireland. It is suggested that good would come if Cork were raised to the dignity of a university city. Why not have a university for the South of Ireland in the capital of the South? At present, Prof. Corby points out, there are only two universities in Ireland, both located in Dublin, while Belgium, with a population almost exactly the same, has four universities; Scotland also has four, and in scientific Germany there are as many as thirty-one universities. To show what a thorough general and technical education can do for a country, it is only necessary to refer to Switzerland, which, though only about half the size of Ireland—and, as fully one-half of its soil is entirely unproductive, it may be regarded as only about one-fourth the size of Ireland—is able to maintain three million inhabitants, whilst the population of all Ireland is little more than four and a half millions. Prof. Corby describes what some continental nations have done for agriculture, and then he asks how can the smaller farmers of Ireland—many of them poor and half-educated—attempt to compete with such rivals? It has been urged that Ireland ought to have a Minister of Agriculture, but it is suggested that a Minister of General and Technical Education, who would give special attention to agriculture, would be better. If national teachers were trained at agricultural schools, and students were given practical instruction in agriculture, if chairs of Agriculture were established in all the higher colleges, and special lectures delivered in the auxiliary sciences, such as chemistry, zoology, botany, and mineralogy, then, thinks Prof. Corby, the hope might be entertained that the vast tracts of waste land in Ireland would be reclaimed, and a large scheme for reforestation undertaken with every prospect of success. We trust that his admirable pamphlet will be the means of giving an impetus to the cause of technical education in Ireland.

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SCIENTIFIC SERIALS.

The Reliquary and Illustrated Archaeologist maintains its reputation for the beauty of its illustrations. In a late number (vol. ii. No. 2) an elegantly carved wooden Egyptian toilet-spoon of the eighteenth dynasty is reproduced in collotype.—The editor, J. Romilly Allen, has carefully studied the cup-and-ring sculptures of Ilkley in Yorkshire, and gives numerous illustrations of these still mysterious markings. All that we know about them is that they are religious symbols, and that they mostly belong to the Bronze Age, although cups only may possibly have been used at the end of the Neolithic period.—The much-discussed "Dwarfie Stone" of Hoy, Orkney, has been investigated by Mr. A. W. Johnston in a very thorough manner; he comes to the conclusion that it was originally a sepulchre with a stone door.

Internationales Archiv für Ethnographie (Heft 2, Bd. ix.)—The question of alleged native writing in Borneo is discussed by Mr. H. Ling Roth and Prof. H. Kern; inscriptions in one or two scripts are known, but there is no evidence that any form of writing was known to the Dyaks. Heer M. C. Schadee, in collaboration with Herr Schmeltz, has a communication on the ethnography of Western Borneo, which is illustrated in the characteristically excellent style of this journal. In the current number (Heft 3) Schmeltz continues his erudite notes on ethnographical objects from New Guinea. In a note entitled "Prudery in Scientific Matters," the same author states, on the authority of Prof. Brigham of Honolulu, that "the Government of New Zealand has not only prohibited the importation of the well-known phallic chalk idols from New Ireland, but in the Government Museum of Auckland all ithyphallic idols and figures have been castrated and mutilated." We hope that the Curator of the Museum will state how far this is or is not the case.

IN the second number of the useful *Centralblatt für Anthropologie Ethnologie, &c.*, is an article on the Necropolis of Novilara near Pesaro. According to Dr. P. Orsi the civilisation of Novilara was partly similar to and synchronous with that of Villanova. Three different culture streams have overlaid themselves, as it were, on the local substratum, and have contributed to give the Picinian culture its final form. One stream came from the north and west over the Apennines. The second came from the south, bringing with it the geometric vessels, which are wanting at Villanova, but appear in Istria; later this culture stream, which may be called the Greek one, brought Tarentinian silver coins and vases painted with black figures. The third stream is the Phœnician (partially also archaic Greek) associated with figures of Astarte, glass beads and sepulchral steles with representations of naval war. The Necropolis belongs to the ninth to the seventh century B.C.

Bulletin de la Société des Naturalistes de Moscou, 1895, No. 4.—On adhesion of different metals to glass and other substances, by J. Weinberg, second article, in German.—On the winter flora of Nice, note by H. Trautschold.—Report on herborisation in the government of Smolensk, by A. Jaczewski.—The primary skeleton of the ventral fins of the Teleostei, by N. K. Kolzoff, in German, with illustrations; based on the study of thirty-six species.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, June 4.—"The Hysteresis of Iron in a Rotating Magnetic Field." By Francis G. Baily.

By deduction from the Weber-Maxwell-Ewing theory it has been surmised that the hysteresis in magnetic metals under the influence of a constant rotary magnetic field will be less than that in an alternating field in which the magnetising force passes through a zero value. It is supposed that residual magnetism is due to the combination of molecular magnets in stable magnetic arrangements, and that the energy dissipated in any magnetic change corresponds to the work done in breaking up these arrangements. Hence any movement of the molecular magnets during which the formation of new combinations is checked or prevented will take place with considerable reduction in the energy loss due to this cause. Such a condition is realised when the magnetic substance is subjected to a rotary magnetic

field of sufficient strength to force the molecules to maintain a direction parallel to that of the field. If hysteresis is due only to the formation of new combinations and not to mechanical restraint, then under these conditions it will vanish altogether.

Experiments were carried out to verify this deduction. A finely laminated cylinder of iron was suspended on its axis between the poles of a rotating electro-magnet, but was restrained from continuous rotation by a spring. On rotating the magnet, the armature was dragged round until the restoring force of the spring equalled the force due to hysteresis, and the value of the latter could be obtained from the observed deflexions. At first the value of the hysteresis was higher than that in an alternating field for corresponding inductions, but at an induction of about 16,000 in soft iron and 15,000 in hard steel the hysteresis reached a sharply defined maximum and rapidly diminished on more complete magnetisation, until at an induction of about 20,000 it became very small with every indication of disappearing altogether. Soft iron and hard steel gave very similar curves, and in both the curve of hysteresis-induction cut the curve obtained from the values in an alternating field at a point just before the maximum. The result fully bears out the deduction from the theory, and proves in addition that hysteresis is not sensibly due to anything of the nature of mechanical restraint of the molecules. The form of the curve also gives clear indications of the three stages of molecular movement, the first stage giving a slowly rising curve, the second a straight rapid rise, and the third a straight and much more rapid descent.

Further experiments were carried out on the effect of speed of rotation. In an alternating field the speed of reversal has been shown to be without sensible effect on the hysteresis, and theory points to this result as a natural deduction. From an extremely slow speed up to seventy revolutions per second no definite change was found in the value of the hysteresis. At the same time several small modifications were noted, produced by rapid variations in the speed of rotation or magnetising force. The effect lasted through many revolutions, but ultimately the same steady condition was arrived at. At and near the maximum value the hysteresis was very variable. The effects were much more marked in soft iron than in hard steel, as would be anticipated from the theory of their constitution.

June 11.—“The Relation between the Refraction of the Elements and their Chemical Equivalents.” By Dr. J. H. Gladstone, F.R.S.

This paper is intended to give a preliminary account of some recent investigations into the specific refraction of the elements. The first part contains the atomic weights, with the specific and atomic refractions of fifty-five of the elements.

The specific refraction cannot claim a constancy equal to that of the atomic weight. Several of the elements exhibit two or more values, besides many smaller variations scarcely, if at all, beyond the limits of experimental error, which depend upon differences of physical condition or chemical combination.

The second part deals with a law previously suggested by the author, namely, that the “specific refractive energy of a metal is inversely as the square root of its combining proportion.” The product of these two quantities as determined from their compounds is found to be for 5 univalent metals about 1.3, for 10 bivalent metals about 0.99, for 7 trivalents about 1.01, for 6 quadrivalents about 1.06, and for one quinquivalent 0.98.

The observations show: First, that the metals which have the same valency, have the same, or nearly the same, constant of refraction for equivalent weights. Secondly, that the constants of the bivalent, trivalent, quadrivalent, and apparently quinquivalent groups are practically the same, ranging about 1.01. Thirdly, that when a metal combines in a proportion that indicates a lower valency than that ordinarily assigned to it, its constant is somewhat elevated.

The relation involved is not between the optical property and the atomic weight, but between it and the electro-chemical equivalent.

It is proposed to give this product the descriptive name, “Refractive constant of equivalent weights.” It may be represented by—

$$SE^{\frac{1}{2}} = \text{constant, or by } S^2E = \text{constant,}$$

where S is the specific refraction, and E the chemical equivalent of the metal.

The Lorenz expression for S may be equally used if preferred.

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This is suggested as a first approximation to a law, which holds good, however, only for the metallic elements, and that when they are electro-positive radicals.

“The Effects of a strong Magnetic Field upon Electric Discharges in Vacuo.” By A. A. C. Swinton.

This paper deals with some effects of a strong magnetic field upon electric discharges in vacuo.

A pear-shaped Crookes' tube was suspended with the cathode terminal uppermost above the pole of a very powerful electro-magnet.

When the magnet was not excited the walls of the tube showed everywhere green fluorescence, which was especially strong over the rounded end of the tube opposite the cathode. When the magnet was magnetised, the whole appearance of the discharge was found to alter immediately to what is shown in the illustration (Fig. 1). Excepting for a little near the cathode and

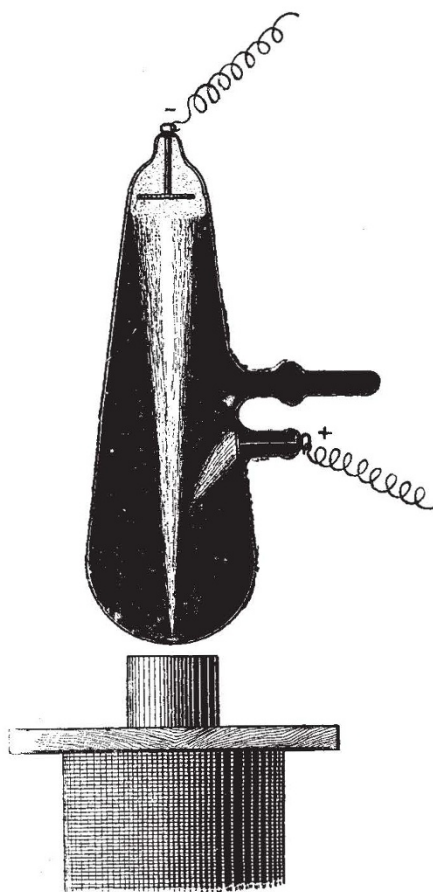


FIG. 1.

a very bright spot at the bottom immediately over the centre of the magnet pole, all the green fluorescence disappeared, while extending from near the cathode to the bright spot at the bottom of the tube a very bright cone of blue luminescence made its appearance.

When under these conditions the tube was moved sideways, the bright spot at the apex of the cone and the cone itself moved, the spot and apex always maintaining a position exactly over the centre of the magnet pole.

At the same time, while the magnet was excited, the internal resistance of the tube as measured by an alternative spark gap was found to be very greatly diminished.

On demagnetising the magnet the appearance of the discharge and the resistance of the tube immediately reverted to what they had been previously. The effect was quite independent of the polarity of magnet pole, and when the position of the tube was

reversed, so that the kathode was next the magnet, the excitation of the magnet reduced the resistance of the tube as formerly, the green fluorescence at the same time disappearing; but the blue luminescence, instead of being concentrated into a cone, was diffused throughout the whole interior of the tube.

[Since the above paper was written, further experiments have revealed the following additional facts.

With a tube of the form shown, exhausted to an extent that gave X-rays plentifully under ordinary conditions, and supported over an electro-magnet as shown in Fig. 1, the X-rays disappeared as soon as the magnet was excited, but reappeared the moment the magnet was demagnetised.

With another tube of similar form but furnished with an inclined platinum plate forming the anode placed near the bottom of the tube, similar results were obtained. This tube being kept on the pump was further exhausted to a degree that allowed the electric discharge to pass with difficulty when the magnet was not excited, and under these conditions gave X-rays of a character that penetrated the bones of the hand almost as easily as the flesh with but little contrast. With this exhaustion the excitation of the magnet not only caused the kathode rays to focus on the platinum, thus giving sharper shadows, but at the same time had precisely the same effect as lowering the vacuum in so far as the moment the magnet was excited the X-rays became more plentiful, and became of such a character as to penetrate the flesh with much greater ease than the bone, so that the contrast between bone and flesh was exceedingly marked. A photograph of the hand taken with one minute's exposure with the tube in this condition, and with the magnet excited, though considerably over-exposed, proved to be a very good one. Further investigations are in progress, but the application of a strong magnetic field in the manner described, gives promise of having considerable practical utility, not only in so far as it facilitates the accurate focusing of the rays proceeding from a flat kathode upon any desired point of the platinum anode, but also and more especially because by employing a high exhaustion and by varying the intensity of the magnetic field, it is possible at will to arrive with ease at the exact conditions requisite to produce a maximum of X-rays of exactly the penetrative character that may be best for any given purpose, a result which hitherto has been difficult of attainment.—A. A. C. S., [July 7.]

June 18.—“A Magnetic Detector of Electrical Waves, and some of its applications.” By E. Rutherford, 1851 Exhibition Science Scholar, New Zealand University, Trinity College, Cambridge.

The effect of Leyden jar discharges on the magnetisation of steel needles is investigated, and it is shown that the partial demagnetisation of strongly magnetised steel needles offers a simple and convenient means for detecting and comparing currents of great rapidity of alternation.

The partial demagnetisation of a collection of fine steel wires, insulated from each other, and over which is wound a small solenoid in series with the receiving wires, was found to be a sensitive means of detecting electrical waves at long distances from the vibrator. A small but quite marked effect was obtained at a distance of half a mile from the vibrator.

A fine steel wire detector was found to be of the same order of sensitiveness as a bolometer for investigating waves along wires.

This detector has the property of distinguishing between the first and second half oscillations of a Leyden jar discharge, and may be readily used for determining the damping of oscillations. The absorption of energy of spark gaps of different lengths is investigated.

The resistances of iron wires for high frequency discharges are quantitatively determined. The permeability of the different specimens is deduced, and it is shown that the calculated value of the permeability varies greatly with the diameter of the wire and the intensity of the discharge.

A method of experimentally determining the period of oscillation of a discharge is based on the division of a rapidly alternating current in a multiple circuit, one arm of which is composed of a standard inductance, and the other of a variable electrolytic resistance.

PARIS.

Academy of Sciences, June 29.—M. A. Cornu in the chair. —Some properties of the secondary roots of prime numbers, by M. de Jonquieres.—Formule for the coefficient of internal friction in gradually varied flow of liquids, by M. J. Boussinesq.—Remarks by M. Appell on presentation of his work on “The principles of the theory of elliptic functions and their applica-

tions.”—M. Albert Goudny announced the death of Sir Joseph Prestwich, correspondent of the Academy in the Section of Mineralogy.—M. Bakhuyzen was elected a correspondent for the Section of Astronomy.—Report on a memoir of M. Bazin, entitled “New experiments on the distribution of velocities in pipes.”—Control of the results obtained by the dynamometric pedal of the bicycle, by M. Bouny. Experiments in which the work done was measured at the same time on the brake and by the dynamometric pedal, showed that about 95 per cent. of the work exerted on the pedals was shown by the brake, the remaining 5 per cent. being absorbed by the friction of the axes of the pedals, the chain, and the axis joining the cranks.—Actinometric experiments made on Mont Blanc with a view to determine the solar constant, by M. J. Vallot. Simultaneous observations were made at Chamounix and at the summit of Mont Blanc. Two types of instrument were used, the absolute actinometer of M. Violle, and the mercury actinometer of M. Crova. Extremely concordant results were obtained, giving as a mean value 1.70 for the solar constant.—On rays when $\lambda = 0$. by M. C. Maltézos.—On the spectrum of phosphorus in fused salts and in certain metallurgical products, by M. A. de Gramont. Fused phosphates submitted to the action of a condensed spark, give a fine spectrum of the lines of phosphorus of greater clearness and intensity than the spectrum given by a Glueker tube containing phosphorus. The same method showed easily the presence of phosphorus in alloys, as little as 2 per cent. being readily recognised by the characteristic triplet in the red.—On the blue nitrodisulphonic acid and some of its salts, by M. Paul Sabatier.—Action of iodine upon stannous chloride, by M. V. Thomas. Mixed addition products, similar to those obtained with bromine, were not found, the reaction taking a different direction according to the equation



Thermal researches on the uranium compounds, by M. J. Aloy. The heats of solution and formation of some of the commoner uranyl salts.—New method for the preparation of aromatic aldehydes, by M. L. Bouveault. The hydrocarbons are converted into glyoxylic acids by means of ethoxalyl chloride in presence of aluminium chloride, and these heated with aniline give nearly quantitative yields of phenylimides, the condensation to the phenylimido-acid and elimination of CO_2 from the latter proceeding simultaneously. A good yield of the corresponding aldehyde is obtained on hydrolysing the phenylimide by boiling with dilute sulphuric acid. The aldehyde group has in this way been introduced into toluenes *m*-xylene, cymene, anisol, di-methyl ether of resorcinol, and of di-methyl-hydroquinol.—Researches on the chlorination of gallic acid. Formation of dichlorogallic acid and of trichloropyrogallol, by M. A. Biétrix.—Crystallographic properties of benzylidene, methylsalicidene, ethylsalicidene, and anisol camphors, by M. J. Minguin.—On isaric acid, a new unsaturated fatty acid, by M. A. Hébert.—Digestive apparatus of *Brachytrypes membranaceus*, by M. Bordas. This has many points of resemblance with the *Gryllotalpa*, but differs from this species by the atrophy of the œsophagus, the reduction of the intestinal appendices, and especially by the great length and numerous circumvolutions of the intestine proper.—On a coloration of hepatic origin in the oyster, by M. J. Chatin.—Petrographical study of the meteoric stone that fell at Madrid, February 10, 1896, by M. Gredilla y Gauna. In the metallic portion schreibersite, ivollite, and chromite were recognisable, whilst the stony portion contained the minerals peridot, enstatite, augite, plagioclase-oligoclase feldspar, and olivine.—The grotto of Spelugues, by M. E. Rivière. This cave was discovered during the construction of a railway near Monte-Carlo, and contained human bones, apparently from nine individuals. Other bones represented the remains of animals resembling fox, hare, and sheep. The conclusion is drawn that the race of men represented by these remains lived in the Neolithic period, and are quite distinct from the race whose remains have been found in the cave of Mentone.—On an electric variation determined in the acoustic nerve when excited by sound, by MM. H. Beauregard and E. Dupuy.—Action of diverse substances upon the movements of the stomach, and the enervation of that organ, by M. F. Battelli. Of all the substances examined, muscarine, pilocarpine, and physostigmine exercised the most energetic effect upon the movements of the stomach. Less energetic are nicotine and other alkaloids, alcohol, and peptone; whilst purgatives, strychnine, and pepsine were without action.—On specific heats, by M. J. Taupin.

PHILADELPHIA.

Academy of Natural Sciences, June 9.—Papers under the following titles were presented for publication:—"Contributions to a knowledge of the Hymenoptera of Brazil," by Wm. J. Fox; "The Correct Position of the Aperture of Planorbis," by Frank C. Baker; "The Mesenteries of the Lacertidia," by E. D. Cope; "Revision of the Slugs of North America—Ariolimax and Aphallarion," by Henry A. Pilsbry and E. G. Vanatta.—Dr. Harrison Allen made a communication on forms considered specific, but which were merely instances of arrested development. He referred in illustration to certain species of *Vespertilio*, claiming that *Lucifugus* is merely an arrested form of *Gryphus*, the species *Aibescens* also being based on similar characters. He had applied the term pædomorphism to the condition which had been worked out, he believed, only among the bats, and by himself. He held that the specific names of such forms were not valid, and should be dropped. Dr. George H. Horn stated that many such instances of arrested development were found among insects. He referred to the dimorphic males of *Eupsalis minuta*, a rhyngophorous beetle on which a French writer had founded three species. The egg-depositing habits of the female, and the assistance rendered when necessary by the male, were commented on.

June 8 (Botanical Section).—A paper was read from Mr. Thomas Meehan on *Erigeron strigosus*. A tendency of the ray florets to become discoidal, together with an acceleration from the lingulate to the discoid condition, was noted. The hermaphroditic state of the flower is not established until the tubular condition becomes permanent.—Dr. Ida A. Keller recorded the fact that if a cold alcoholic solution of chlorophyll be treated with benzol, the chlorophyll will be extracted and float as a green film on the surface of the liquid.

NEW SOUTH WALES.

Linnean Society, May 27.—Mr. Henry Deane, President, in the chair.—Observations on Peripatus, by Thomas Steel. In this paper was embodied an extended series of observations on the habits and characteristics, food supply and life-history, with remarks on the individual range of colours, and relative proportions of the sexes, based on the examination of numerous living specimens of various ages kept under continuous observation for more than a year.—Descriptions of new Australian Fungi, (No. 1), by D. McAlpine.—Description of a new species of *Astridium* from New Britain, by C. Hedley and Dr. Arthur Willey. *A. moniliferum* (n. sp.), allied to the Japanese *A. triumphans*; dredged in 30 to 40 fathoms on a shelly bottom.—On a rare variation in the shell of *Pterocera lambis* (Linn.), by Dr. Arthur Willey. A series of sixty-seven specimens of this common tropical species from New Britain and the Eastern Archipelago of New Guinea has been examined. Numerous instances of substantive variation were met with, the more striking of which relate to the curvature of the digitations, their length, the intervals between them, and the extent to which the apical whorls of the shell are involved in, concealed by, or fused with the posterior digitation. There is also much variation as to the stage of growth at which the deposition of callus on the outer lip of the shell takes place.

AMSTERDAM.

Royal Academy of Sciences, May 30.—Prof. van de Sande Bakhuyzen in the chair.—Prof. Hubrecht gave a description of the embryonic vesicle of *Tarsius spectrum*, and pointed out its close resemblance to that of man and monkeys. From this and from the placentation the author concluded that the order of Primates should henceforth embrace only the Hominidæ, the Simiæ, Tarsius, and the fossil Anaptomorphus. He was, moreover, disinclined to admit the possibility of deriving the placental arrangements, and the peculiarities of the clastocyst of the Primates from what is presented by the *Lemures*. The Primates should be derived from certain unknown insectivorous mammals of the Mesozoic period, of which the recent *Erinaceus* and *Gymnura* might perhaps prove to be the least distant relatives.—Prof. Pekelhaar described a new method of preparing pepsin.—Prof. Schoute read a paper on the area of parabole of higher order, and, on behalf of Prof. Holleman, a communication to the effect that already some months ago he obtained the isophenylnitromethane recently described by Hantzsch and Schulze, and that his results were identical with those arrived at by these chemists. Mr. Holleman has also studied the reaction between benzoylchloride and the sodium compound

of phenylnitromethane, and in doing so obtained dibenzohydroxyamic acid.—Prof. Franchimont described isomers of neutral nitramines. They were obtained by Mr. van Erp both from the potassium compounds and the silver compounds of the acid nitramines; in the first case as a secondary product, in the second case as the principal product. Their boiling points and their specific gravity are lower than those of the nitramines; moreover, they are strongly affected by sulphuric acid, with the formation of gases, which is not the case with nitramines. By decomposition with alkali solutions, butylmethylnitramine yielded butylamine, while the isomer produced butyl alcohol; so that it seems as if in the first case butyl is united with nitrogen, in the second with oxygen. By the action of methyl-nitramine potassium upon allylbromide, Dr. H. Umbgrove obtained, besides allylmethylnitramine, also an isomer with a lower boiling-point, and acting violently upon sulphuric acid. A similar isomer seems also to be produced, in addition to ordinary dimethylnitramine, when methylnitramine is heated by itself, while nitrous oxide escapes. When heated with β -naphthol nitrogen escapes, and β -naphtholmethyl ether is formed, besides colouring matters.—Prof. Kamerlingh Onnes presented a communication concerning the measurement of low temperatures, and (on behalf of Mr. E. van Everdingen, jun.) (1) remarks on the method of observing Hall's effect; (2) measurements on the dissymmetry of Hall's effect in bismuth, and on the average Hall-effect in bismuth and antimony, carried out in the Leyden physical laboratory.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—Skertchly's Physical Geography, revised edition (Murby).—Practical Radiography: H. S. Ward ("Photogram," Ltd.).—Beginner's Guide to Photography, 6th edition (Perken).—The Universal Law of the Affinities of Atoms: J. H. Loader (Chapman).

PAMPHLETS.—Absolute Oder relative Bewegung? Dr. B. and J. Friedlaender (Berlin, Simion).—The Position of Argon and Helium among the Elements: Prof. W. Ramsay (Frowde).

SERIALS.—Lloyd's Natural History. Butterflies: W. F. Kirby, Part 2 (Lloyd).—Scribner's Magazine, July (Low).—Humanitarian, July (Hutchinson).—Journal of the Royal Agricultural Society of England, Vol. vii Part 2, No. 26 (Murray).—A Monograph of the Land and Fresh-water Mollusca of the British Isles: J. W. Taylor, Part 3 (Leeds, Taylor).—Bulletin de la Société de Géographie, 4^e Trimestre, 1895 (Paris).—Astronomical Journal, April and June (Chicago).—Fortnightly Review, July (Chapman).—Sitzungsberichte der Physikalisch-Medicinischen Societät in Erlangen, 27 Heft. 95 (Erlangen).—Proceedings of the Society for Psychical Research, June (K. Paul).—Westminster Review, July (Warne).—Geographical Journal, July (Stanford).—Annals of Scottish Natural History, July (Edinburgh, Douglas).—Mind, July (Williams).

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