Remarkable meteors in the night from November 6 to 7, 1893, by the same author. Several striking meteors were observed in various quarters during that night, in the constellations of Pegasus, Ursa Major, and Ursa Minor. The report of the explosion of the last was plainly audible.—On some new processes for the detection of vegetable and mineral oils, by W. de la Royère. An alkaline solution of rosaniline may be used for determining minute quantities of fatty oils mixed with mineral oils. Half a gramme of fuchsine is dissolved in half a litre of boiled distilled water. A 30 per cent. solution of caustic soda is added drop by drop until complete discolouration is just obtained. The mixture is then made up to one litre with distilled water, and kept in a well-stoppered bottle. A few drops of this are added to a small quantity of the oil in a porcelain dish, and stirred. The animal and vegetable oils quickly assume a pink colour, and mixtures of these with mineral oils are coloured red with an intensity proportional to the quantity of animal or vegetable oil present. Other coal-tar products, such as picric acid, purpurine, rosolic acid and eosine, show a similar behaviour.

Internationales Archiv für Ethnographie, Bd. vi., Heft vi. —This is the last number of the first series of this valuable journal, which has been so excellently published by Heer Trap. The first article, by Schmeltz, on a Dyak and two Japanese swords, is lavishly illustrated by three coloured plates. Baron van Hoëvell describes and figures the flattening of the skull and chest in Buool (north coast of Celebes). The chest flattening-board is always employed on the boys, but not always the head-board; both are always inflicted on the girls, the object being solely for beauty, and to improve the marriage value of the latter. It is not for the purpose of making them clever and active, for the people themselves say "Reason is the gift of God." Schmeltz adds an appendix, in which he gives the geographical distribution of the custom of skull deformation.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 1.—"An Instrument for Grinding Section-plates and Prisms of Crystals of Artificial Preparations accurately in the desired directions." By A. E. Tutton.

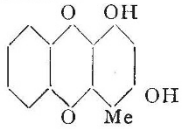
By means of this instrument a truly plane surface may be ground and polished in any desired direction in a crystal accurately to within ten minutes of arc, in a fraction of the time required for the hand grinding of an approximately true surface, and without danger of fracturing the crystal. It consists essentially of four parts. (1) A rotating horizontal divided circle, within the vertical axis of which two other axes are capable of vertical motion; the innermost carries at its lower extremity the crystal and its means of adjustment, and the other is connected with a counterpoising apparatus by which the pressure with which the crystal bears upon the grinding disc can be modified according to its relative softness and friability. (2) A series of graduated circular adjusting movements by which the desired direction (plane) in the crystal can be brought exactly parallel to the grinding surface. (3) A horizontal collimator and telescope for goniometrically observing the crystal. (4) A rotating table carrying a detachable grinding disc of ground glass, and underneath it a polishing disc of much more finely ground glass. A special crystal holder is also provided, which enables a second surface to be ground truly parallel to the first. Prisms may be ground with the same facility as section-plates.

"An Instrument of Precision for producing Monochromatic Light of any desired Wave-length, and its Use in the Investigation of the Optical Properties of Crystals." By A. E. Tutton.

This instrument enables the whole field of an optical instrument to be evenly and brightly illuminated with spectrum monochromatic light of any desired wave length. It has been devised especially for use in connection with the axial angle polariscopical goniometers, spectrometers, stauroscopes, microscopes, and other instruments employed in the investigation of the optical properties of crystals, but is capable of much more extensive application. It was suggested by the apparatus described by Abney (*Phil. Mag.* 1885, vol. xx. p. 172), but differs from that arrangement in most of its details, and particularly in the employment of a fixed instead of a movable exit slit; of a rotatory instead of a fixed dispersing apparatus, which is capable of accurate graduation for the passage of rays of definite wave-lengths through the exit slit; and in the manner of utilising the issuing line of monochromatic light, which, instead of being directed upon an opaque white screen, is diffused so as to be evenly distributed over the field of an observing instrument when that instrument is placed directly in its path.

The instrument resembles a compact spectroscope in appearance. The two optical tubes are exactly similar. Each carries a slit, the jaws of which are made to move equally on each side of the line of contact, and a lens combination of two inches aperture, in order to pass a large amount of light. A single prism of heavy flint glass is employed, of large size and of the highest dispersion compatible with freedom from colour; it is carried upon a rotating divided circle. Either optical tube may be used as collimator. The other may be converted into a telescope for the purpose of graduating the instrument by attaching an eyepiece in front of the slit; the knife edges of the latter, which are clearly focussed by the eyepiece, serve as parallel cross wires between which solar or metallic lines may be adjusted by rotation of the prism. The readings of the circle for such positions are recorded in a table supplemented by a curve. Upon removal of the eyepiece and illumination of the receiving slit by any sufficiently powerful source of light, monochromatic light of any desired wave-length may at once be produced by setting the circle to the reading recorded for that wave-length. The issuing line of coloured light is widened just sufficiently to fill the whole field of the observing instrument by attaching a screen of very finely ground glass, carried in a short tube sliding along a bar, about one inch in front of the exit slit. Upon bringing the optic axial angle goniometer, carrying an adjusted section plate, close up so that the end of the polarising tube almost touches the ground glass, the interference figure is observed sharply defined upon a homogeneously coloured and illuminated background. The arrangement is particularly valuable for the study of cases of crossed axial plane dispersion. It is equally adapted for use in the determination of indices of refraction by the methods of refraction or total-reflection, and also in the determination of extinction angles by means of the stauroscope.

Chemical Society, January 18.—Dr. Armstrong, President, in the chair.—The following papers were read:—The molecular formulæ of some liquids as determined by their molecular surface energy, by Miss E. Aston and W. Ramsay. The molecular weights of phenol and bromine in the liquid state are somewhat greater than in the gaseous state; liquid nitric acid has approximately the molecular formula $H_2N_2O_6$. The molecule of liquid sulphuric acid below 132° has the composition $32H_2SO_4$; liquid phosphorus has the normal molecular composition P_4. Chloropicrin has the composition $CCl_2(NO_2)_2$.—Contributions to our knowledge of the aconite alkaloids. VIII. On picraconitine, by W. R. Dunstan and E. F. Harrison. The "picraconitine," obtained by Groves from the roots of *Aconitum Napellus* is merely impure isaconitine.—Contributions to our knowledge of the aconite alkaloids. IX. The action of heat on aconitine, by W. R. Dunstan and F. H. Carr. On heating aconitine it breaks up into acetic acid and pyraconitine, $C_{31}H_{41}NO_{10}$; the latter base on hydrolysis yields benzoic acid and pyracon ine $C_{24}H_{37}NO_9$.—Contributions to our knowledge of the aconite alkaloids. X. Further observations on the conversion of aconitine into isaconitine, by W. R. Dunstan and F. H. Carr.—Interaction of benzylamine and ethylic chloracetate, by A. T. Mason and G. R. Winder. The first product of the action of benzylamine on ethylic chloracetate is benzylamidoacetic acid; the latter readily condenses, yielding dibenzyl-α-γ diacipiperazine. — Condensation products from benzylamine and several benzenoid aldehydes, by A. T. Mason and G. R. Winder.—Constitution of rubiadin, by E. Schunck and L. Marchlewski. The authors assign the following constitution formula to rubiadin:—



—The monalkyl ethers of alizarin, by E. Schunck and L. Marchlewski.—Ruberythric acid, by E. Schunck and L. Marchlewski.—The colouring matter of the Indian dye-stuff "Tesu," by J. J. Hummel and W. Cavallo. The dye-stuff "Tesu" consists of the dried flowers of *Butea frondosa*; the latter contain a glucoside which on hydrolysis yields a compound of the formula $C_{15}H_{14}O_5$.

Linnean Society, February 1.—Prof. Stewart, President, in the chair.—The President exhibited a remarkable specimen of a South African butterfly, *Teracolus halyattes*, from Natal, in which the wings on one side were those of a male, and on the other those of a female, and made some remarks on hermaphroditism in the Lepidoptera.—On behalf of Mr. William Borrer, of Cowfold, Sussex, there was exhibited a skull of the pine marten, *Martes sylvatica*, Nilsson, from a specimen killed near Crawley (*Zool.* 1891, p. 458), an examination of which confirmed the view of the late E. R. Alston (*P.Z.S.* 1879, p. 469), that so far as could be ascertained this is the only species of marten found in the British Islands.—On behalf of Mr. W. B. Tegetmeier, there was exhibited a drawing of a snow leopard taken for the first time from life, namely, from the animal now living in the Zoological Society's Gardens, Regent's Park. The long, thick, and soft fur, suggestive of a cold habitat, and the unusual size of the wide spreading feet, well suited for travelling over an expanse of yielding snow, were noteworthy features.—Mr. Malcolm Laurie read a paper on the morphology of the *Pedipalpi*. He considered the first two ventral sclerites of the abdomen to be appendages, and not sternites. The first of these— the genital operculum—covers the ventral surface of two segments, the genital aperture and the first pair of lung books lying beneath it. The first pair of lung books, he thought, probably represent the remains of the appendage of the second segment. The arrangement of this region resembles that in *Eurypteridæ* and in the spiders (*e.g. Liphistius*), while differing markedly from that in scorpions. The posterior end of the intestine is diluted into a large stercoral pouch which is part of the mid-gut, the malpighian tubes arising from its posterior end. The cephalothoracic portion of the mid-gut differs in structure from the abdominal portion, and in addition to lateral diverticula has two median ventral diverticula. The conal gland opens at the base of the third pair of appendages, and a sensory organ of unknown function occurs on each side of the last segment. A discussion followed, in which Mr. R. I. Pocock, Mr. H. M. Bernard, and the President took part, and Mr. Laurie replied.—A paper was then communicated, by Mr. W. West, on the fresh water algæ of the West Indies, in which several new species were described and illustrated. Mr. G. Murray, in commenting on this paper, testified to the extreme care and accuracy with which the species had been worked out.

Zoological Society, February 6.—Sir W. H. Flower, K.C.B., F.R.S., President, in the chair.—The secretary read a report on the additions that had been made to the Society's menagerie during the month of January, 1894.—Mr. Sclater exhibited a fine mounted specimen of the Riverhog of Madagascar from the Tring Museum, lent for exhibition by the Hon. W. Rothschild, and pointed out that three distinct species of this well-marked genus of *Suidæ* were now known to occur in the Ethiopian region. A communication from Mr. Last gave an account of the habits of this animal, as observed in Madagascar.—Mr. Sclater also exhibited a stuffed specimen of the Whitebilled Great Northern Diver (*Colymbus adamsi*) from Norway, which had been lent to him by Prof. R. Collett, and made remarks on the distribution of the species, and on its interest as occasionally occurring on the British coast.—Prof. Howes read a paper on synostosis and curvature of the spine in fishes, with especial reference to the Common Sole.—Mr. F. E. Beddard, F.R.S., gave an account of the development of the Tadpole of an African Frog (*Xenopus lævis*), as observed in specimens of this Batrachian hatched and reared in the Society's Gardens.—Mr. Chas. W. Andrews gave an account of some remains of the extinct gigantic bird (*Æpyornis*) which had been recently received at the British Museum from several localities in Madagascar. These were referred to three species—*Æ. muelleri*, *Æ. medius*, and *Æ. titan*, the last being of larger size than even *Æ. maximus*. Another set of remains showed differences which might eventually prove to be of generic importance, and were perhaps referable to the newly established genus *Muelleornis*.—Mr. M. Barkley read some notes on the Antelopes of the Pungue Valley, East Africa, as observed by him during a recent hunting expedition in that district.—The Marquis of Hamilton made some observations on the Antelopes met with by him during a recent excursion from the Pungue along the coast northwards towards the Zambesi.—Mr. O. Thomas read the description of a new species of Bat of the genus *Stenoderma* from Montserrat, West Indies, proposed to be called *S. montserratense*. This Bat was stated to be very injurious to the cacao plantations in that island.

Entomological Society, February 7.—Mr. Henry John Elwes, President, in the chair.—The President announced that he had nominated the Right Hon. Lord Walsingham, F.R.S., Prof. Edward B. Poulton, F.R.S., and Colonel Charles Swinhoe, vice-presidents of the society for the session 1894–95.—Mr. Jenner Weir exhibited, on behalf of Mr. J. M. Adye, a specimen of *Plusia moneta*, Fabr., which had been captured at Christchurch, Hants, and remarked that this species, which had been found in this country for the first time so recently as June, 1890, was apparently becoming a permanent resident here, as it had been since taken in several of the southern counties. He also remarked that *Aconitum napellus*, on which the larva fed, though rare in England as a wild plant, was very common in gardens. Mr. Jenner Weir also exhibited a nearly black specimen of *Venilia macularia*, L., the yellow markings being reduced to a few small dots.—Mr. Hamilton Druce exhibited a female specimen of *Hypochrysops scintillans*, lately received by him from Mioko, New Ireland. He said that only the male of this species had been as yet described.—Mr. F. Enock exhibited, and made remarks on, a nest of the British Trap-door Spider, *Atypus piceus*, recently found near Hastings by Mrs. Enock.—Mr. W. F. H. Blandford stated that he had recently obtained an additional species of *Scolyto-platypus* from Japan, which, though closely allied to the species he had formerly described, showed a very distinct modification of the male prosternum.—Mr. M. Jacoby exhibited and remarked on a specimen of *Leptispa pygmæa*, Baly, which was doing much injury to sugar-cane in the Bombay Presidency. Mr. G. C. Champion stated that he had found an allied species on bamboo.—Dr. F. A. Dixey read a paper (which was illustrated by the oxyhydrogen lantern) entitled "On the Phylogeny of the *Pierinæ* as illustrated by their wing-markings and geographical distribution." A long discussion ensued, in which the President, Mr. Osbert Salvin, F.R.S., Mr. Jacoby, Colonel Swinhoe, Mr. Jenner Weir, Mr. Hampson, and Mr. Kenrick took part.—Dr. T. A. Chapman read a paper entitled "Some notes on those species of Micro-Lepidoptera whose larvæ are external feeders, and chiefly on the early stages of *Eriocephala calthella*." Mr. Hampson and the President made some remarks on the subject of the paper.—Mr. Hamilton H. Druce read a paper entitled "Description of the female of *Hypochrysops scintillans*, Butl."—The Rev. Dr. Walker communicated a paper by Mr. R. H. F. Rippon, entitled "Description of a variety of *Ornithoptera* (*Priamoptera*) *urvilliana*."

CAMBRIDGE.

Philosophical Society, January 29—Prof. T. McKenny Hughes, President, in the chair. The following communications were made:—Electricity of drops, by Prof. J. J. Thomson. The experiments and observations of Lenard were first referred to. No electrification is detected in a free falling drop, but if drops after falling be arrested by coming in collision with a plate or wire, the droplets generated in the splash are found to be electrified. Prof. Thomson, has studied the conditions more closely. The electrification on a free falling drop is masked by the opposite electrification of the air surrounding it, till by some sudden blow the drop is broken up. Special observations show that the blow does not generate the electricity, but merely separates already existing opposite electrifications. The effects produced by various liquids have been studied, and it appears that there is an obvious connection between the nature (reducing or oxidizing) of the liquid used and the kind or amount of electrification detected. A very small amount of impurity in water is enough to produce a marked change in the electrification observed. The most remarkable case is that of phenol; this substance is only moderately soluble in water, but if only ·2 cc. of water saturated with phenol is added to 100 cc. of pure water, the increase in electrification is obvious; and when 2·5 cc. of solution are added to 100 cc. of water, the effect on the electrometer is nearly seven times that due to pure water. The sign and magnitude of the electrification depend on the nature of the gas through which the drops fall before breaking up, hydrogen producing effects opposite to those produced by air. No electrification can be detected when drops of water fall through pure water-vapour, but the smallest addition of air brings about electrification.—Mr. Griffiths described an easy method of making absolutely air-tight joints between glass and metal tubes, by means of an alloy which has a low melting-point The use of this alloy was suggested by Mr. F. Thomas. An illustration was given of the ease and

certainty of the method.—A compensating open-scale barometer was then exhibited and described by Mr. Griffiths. The principle of this instrument is the same as that of Prof. Callendar's long distance air thermometer. An air bulb is placed within a second bulb, and the annular space between them is filled with sulphuric acid. The air and the H_2SO_4 have a common surface in a tube connecting the two bulbs, the H_2SO_4 also communicates with the air by means of a vertical tube partially filled with acid. The masses of air and sulphuric acid are so adjusted that when the temperature of the instrument is raised, the increase in pressure due to the increased length of the sulphuric acid column in the vertical tube exactly counterbalances the increase in pressure of the contained air, and thus the position of the common surface is unchanged by alterations in temperature, although at once affected by alterations in the external pressure. The resulting scale is about six times as open as the scale of a mercury barometer, and the readings give the pressure expressed in terms of the length of a column of mercury at 0° C. in latitude 45°, without any preliminary calculations.—On the condition of the interior of the earth, by Rev. O. Fisher. The author has lately calculated the tidal deformation of a liquid earth owing to the attraction of the moon, assuming Laplace's law of density; the moon's potential is substituted for that of the centrifugal force in the usual calculation of the earth's figure by means of Laplace's functions; and the result obtained is a deformation of 3·45 feet, or 6·90 feet from highest to lowest. This value is nearly four times as great as a value used in an earlier paper "On the hypothesis of a liquid condition of the earth's interior, &c." read in May, 1892. The calculation of the new value leads the author to consider that the first three pages of the earlier paper lose their force, though the remaining portions stand unaffected. The author points out that the existence of ocean tides is not a conclusive argument in favour of rigidity, inasmuch as on the hypothesis of liquidity mountains must have "roots," sinking deep into the heavier liquid, the result being a deflection of the tidal wave in the substratum, whence would arise irregularities analogous with "establishment of ports."—On a combination of prisms for a stellar spectroscope, by Mr. H. F. Newall. An isosceles and nearly equiangular prism is polished on three faces, and light from a collimator after falling on the base and emerging from one side falls normally on the hypotenusal face of a right-angled prism, and after two reflections within the prism is made to fall upon the third face of the first prism and to emerge from its base. The spectroscope has therefore a dispersion equal to that of two prisms, and is arranged so that the light reflected from the base at primary incidence passes into the same telescope as is used to view the spectrum, and gives rise to a simple image of the slit, which can be used as a luminous pointer. For astronomical purposes it is convenient; for, when the slit is widened, an image of the star can be seen, and the star may be identified amongst its neighbours. The brightness of the pointer is proportioned to the spectrum to be observed. No double adjustment is necessary in directing the telescope.

DUBLIN.

Royal Dublin Society, December 20, 1893.—Prof. D. J. Cunningham, F.R.S., in the chair.—Dr. G. Johnstone Stoney read a paper upon vision, with special reference to vision with compound eyes. The most interesting points brought out by this investigation are the two following:—(1) The amount of detail that is visible by human beings is limited by the spacing of the cones in the macula lutea of the human eye, by the limited size of the pupil, and by spherical and chromatic defects in the eye regarded as an optical instrument. In persons with the best vision, these three limiting causes concur in fixing about one minute of arc as the smallest angular interval to be subtended by two objects at the eye, in order that they may be visible as two. With an insect's compound eye a corresponding limit is placed by the spacing of the lenses over its cornea, and by the small aperture of each lens. Judging from these, we learn that predatory insects, such as dragonflies, which have the largest number of lenses, see so much less perfectly than we do that the angular interval at which two objects must stand to be seen as two, is nearly a degree; while in moths, butterflies, bees, ordinary flies, &c. which have not this great number of facets, the angular interval that is requisite rises to be two degrees or more: so that such insects do not see details upon their own antennæ, close to them as they are, so distinctly as we can see them from the great distance from which we are obliged to view them. Moreover, when the number of facets has to be increased, as it is in predatory insects, in order to improve their vision, it is necessary at the same time that the aperture of each lens should not be unduly diminished. This accounts for why the compound eyes of such insects are of excessive size when compared with their other features. (2) Again, our eyes see distinctly only a small central patch of the field of vision, but can be directed towards various objects in succession by rotating the eye in its orbit, and can be accommodated to the distance of each. There is no such motion of rotation possible to insects, but in compensation they seem to be able to see distinctly throughout the whole of the field of vision, and to have the remarkable power of being able simultaneously to adjust the different parts of their compound eye to see distinctly at different distances, so that, for instance, a wasp hovering over a breakfast-table can accommodate his eyes to see with as much distinctness as the insect can see, the several objects on the table, though they may be at very different distances from him.—Dr. J. Joly, F.R.S., read a paper on the effect of temperature upon the sensitivness of the photographic dry plate, of which the following is a brief abstract: The visible spectrum photographed upon plates one-half of which were maintained at a low temperature (about − 30° C.) and the other half kept warm, showed that the loss of sensitiveness is in the case of isochromatic plates confined almost entirely to the yellow-green and green-blue. In fact the sensitiveness ordinarily conferred by the action of the dye is annulled save for some survival of the very strong band in the green, which is continued, much weakened, from the warm half across the cold half, and without shift. It appears from this that the use of orthochromatic plates in cold climates out of doors offers little or no advantage over ordinary gelatino-bromide plates. The spectrum taken upon a cold region on the ordinary gelatino-bromide plate shows a very slight weakening throughout, but most markedly in the rays of lowest refrangibility. The feeble action of the dye at low temperatures seems to confirm Abney's view that the action of the dye is mainly of a chemical nature.—At the meeting held January 17, Prof. J. Mallet Purser in the chair, the following communications were presented:—Dr. J. Joly, F.R.S., demonstrated some simple methods in teaching elementary physics. By the use of a floating piston (a contrivance enabling a wide column of mercury to be supported without friction or risk of falling out in a tube), the author uses as a "Boyle's tube" a uniform straight tube about 1 metre long, closed at one end. The tube is placed vertical with the closed end downwards, a certain volume of air v_1 (defined by linear measurement upon the tube) is enclosed by a short column of mercury; the length of this added to the height of the barometer affords P_1. The air is now further loaded with mercury; and v_2 and P_2 measured as before. The operations are evident at a glance, and very accurate results may be obtained. To show the rate of thermal expansion of air and to convey the meaning of absolute zero, by gas therometer, the end of the tube—all as above—is placed in melting ice, and mercury added till the air occupies 273 mm. of the tube. It is then dipped into a flask of boiling water having a long neck. The column of air now increases to 373 mm. when the usual inferences may be drawn.—Prof. D. J. Cunningham then gave a magic-lantern demonstration of the development of the convolutions and fissures of the human brain

PARIS.

Academy of Sciences, February 5.—M. Lœwy in the chair.—On the propagation of sound against various resistances in a fluid, by M. J. Boussinesq. An analytical determination of the problem discussed in several recent communications.—On the propagation of electromagnetic waves, by M. Mascart. The mean speed of propagation is given as 302,850 km. rejecting the more doubtful results. No regular variation with the length of the waves is apparent.—On the theory of the satellites of Jupiter, by M. J. J. Landerer.—On the temperature of the higher regions of the atmosphere, by M. Alfred Angot. A reply to a recent criticism by M. G. Hermite.—On the thermal value of the replacement of phenolic hydrogen in orcin, by M. de Forcrand. The heat of solution for 1 mol. of anhydrous orcin in 2 litres of water at 10° C. is − 2·64 Cal. The mean value for replacement of one atom of hydrogen by one atom of sodium is + 39·68 Cal., a number very near those given by other plenols. —On campholene, by M. Guerbet. The author obtains a 73 per cent. yield by distilling $C_{10}H_{17}ClO$ in presence of a trace of phosphoric anhydride. Campholene yields a a hydrocarbon

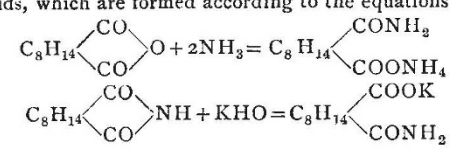
C_9H_{18} by reduction with HI at 280°. It boils at 132°–134° and has the sp. gr. 0·783 at 0°. It is saturated and very insert; it yields trinitropseudocumene with difficulty when treated with fuming nitrosulphuric acid. It is identical with the hexahydropseudocumene obtained from Baku petroleum.—Attenuation of viper poison by heat and vaccination of the guinea-pig against this poison, by MM. C. Phisalix and G. Bertrand. The authors conclude that the toxic substances present in the poison of the viper include (1) a diastasic substance—echidnose; (2) a nerve poison—echidnotoxine. These are considerably modified if not destroyed by a temperature of 75°, and the product acquires vaccinating properties.—On the utilisation of ligneous products for the feeding of cattle, by M. Emile Mer.—Physiological observations on the kidney of the snail (*Helix pomatia*, L.), by M. Paul Girod. The snail possesses, in its urinary vesicule, a special alkaline gland which transforms the uric acid excreted by the kidney into sodium urate.—On the salivary glands of Hymenoptera, by M. Bordas.—On an aquatic stridulating Hemipteron, *Sigara minutissima*, L., by M. Ch. Bruyant.—On the relation between marine encroachments and the movements of the earth-crust, by M. A. de Grossouvre. The movements occurring in Europe during the secondary era are traced.—On the chances of obtaining artesian waters along the Wady Ighargar and the Wady Mya, by M. Georges Rolland.—On a possible relation between the frequency of storms and the position of the moon. A letter from M. A. Barrey pointing out the relation between the age of the moon and the frequency of storms in France, in which the possibility of a connection between the perturbations of the earth's path due to the moon and the frequency of storms is shown.

BERLIN.

Physiological Society, January 12. — Prof. du Bois Reymond, President, in the chair.—Dr. D. Hausemann, on the various forms of mitotic nuclear divisions, which he divided into two groups, pathological and physiological. The first kind he further divided into three classes, according to the behaviour of the chromosomata, viz. hyperchromatic, normochromatic, and hypochromatic, of which examples are found in carcinomata and sarcomata. He had also observed differences of the chromosomata in physiological cell division, according to the tissue from which they were taken.—Prof. Munk spoke on the tactile areas of the cerebral cortex, which he had found in the well-known motor areas, whereas other observers had located them either in the hippocampal convolution (Ferrier) or the gyrus fornicatus (Horsley and Schäfer), or in the parietal regions (many clinicians). The hippocampal convolution had been soon given up as the seat of the tactile areas for the skin. The speaker had shown that it is impossible to operate on the gyrus fornicatus, owing to its position, without injury to the motor regions, and since the localisation of the tactile areas for the skin in the motor regions of the brain can only be determined by extirpation of the latter, he regarded the experiments of Horsley and Schäfer as inconclusive. With regard to the parietal lobes, experiments on monkeys and dogs showed that its removal did not upset their tactile sensibility. It is important in these observations to discriminate sharply between touch, perception of contact, pressure, &c. and the general sense of pain. The perception of the cuticular sense is connected with the motor regions, and is permanently lost when these are destroyed, whereas, on the other hand, general sensibility can be done away with by many different injuries to the brain, but reappears after a short time. The temperature sense of the skin belongs to the sense organ, and is permanently destroyed by removal of the motor areas.

AMSTERDAM.

Royal Academy of Sciences, January 27.—Prof. van de Sande Bakhuyzen in the chair.—Messrs. Hoogewerff and van Dorp gave the results of their investigations on some derivatives of camphoric acid. They succeeded in isolating two camphoramic acids, which are formed according to the equations:



These substances are both derivatives of the same camphoric acid. The formation of these camphoramic acids was explained by the authors in the following way. Camphoric acid being dissymmetrical, the atom of oxygen, linking together the two groups of carbonyl in the camphoric anhydride, and also the group NH, linking together the two groups of carbonyl in the imide, will not be attracted with equal force by the two carbonyls. The carbonyl exerting the smallest attraction towards the O in the anhydride, will also exert the smallest attraction towards the NH in the imide. In the reactions, represented by the above equations, the rings in the anhydride and imide will therefore be opened in corresponding places, whereby two camphoramic acids must be formed.—Mr. Franchimont communicated a paper in his name and that of Mr. H. van Erp. The authors have compared the zinc and copper salts of the dinitromethylic acid of Frankland with the corresponding salts of the methylnitramine, because it seems that many chemists think the two bodies were identical. Treated with diluted sulphuric acid and ether, the methylnitramine salts yield the methylnitramine with the known properties; the salts of the dinitromethylic acid yield in the same manner an acid body, which melts ± 20° higher than the methylnitramine, and differs in form and solubility. The authors intend to investigate the chemical structure of the dinitromethylic acid.

BOOKS AND PAMPHLETS RECEIVED.

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