papers, covering the ground of many previous scattered researches. The first gives the curious result that, to obtain the highest possible degree of magnetisation, short magnets should be tempered glass hard, but long magnets should be at the other extreme of softness. The second research gives the result that the most constant magnets are those which, after fairly hard tempering, are annealed for twenty to thirty hours by heating in a steam bath, then magnetised, finally heated in steam for five hours more.—Correction, by A. Guébhard, relative to his electrochemical figures.—Use of the method of "Schlieren" for investigating intrusions in quartz, by A. Kundt.—On absolute measure, by Prof. C. Bohn.

Journal de Physique, t. ii. No. 23, November, 1883.—A. Potier, on the experiments of Wroblewski and Oltzewski on the liquefaction of oxygen, nitrogen, and carbonic oxide.—B. Elie, electrodynamic and magnetic potentials in elasticity.—A. Terquem, description of a new cathetometer of M. Dumoulin Froment. This cathetometer is divided into two parts—a vertical standard scale mounted on three levelling feet, to be set up near the apparatus, and a levelled observing telescope sliding upon another vertical stem to be set up at a distance, this second part of the apparatus being just an ordinary cathetometer without a scale.—Bichat and Blondlot, influence of pressure on the electric difference between a liquid and a metal in contact.—Krouchkoll, on immersion currents and on those due to the movement of a metal in a liquid, and on currents of emersion.—E. H. Hall, abstracts (by M. Leduc) of papers on so-called rotational coefficient.—Aug. Righi, on Hall's phenomenon. Righi finds this phenomenon to be 5000 times as strong in bismuth as in gold. The process by which his film of bismuth, only 0·079 mm. in thickness, was procured is not stated.—H. Roiti, on Hall's phenomenon in liquids.—H. Koch, on magneto-electric rotations.

Bulletins de la Société d'Anthropologie de Paris, tome vi. fasc. 3, Paris, 1883, contain :—A paper by M. Hamy, on the interpretation of an inscription on the Mexican stone tablet in the Museum of the Trocadéro, supposed by him to refer to the foundation, in 1483, of the temple of the great Aztec divinity, Hiutzilopochtli.—On the special frequency in criminals and in the insane of an anomalous medial occipital fossa, by Prof. Lombroso.—On the significance of the interlaced hearts common in the ornamentation of rings, crosses, &c., in use in La Bretagne and La Vendée, by M. Bonnemère, who regards them as of mediæval origin, and connected with marriage, while Madame Clémence Royer showed that they were of modern design, and religious in character, representing the hearts of Jesus and the Virgin, as symbolised in the convents of the Sacré Cœur.—A communication from Madame Clémence Royer, setting forth her claim to be regarded as the first person who pointed out that Lamarck was the true father of the theory of evolution, she having expounded his doctrines in a course of lectures on philosophy given by her in 1859-60.—On the explorations of the Grotto des Cottés in Poitou, by M. de Rochebrune. The finds exhibit fossil bones in great abundance, well-cut flints, and a human skeleton, which has been submitted to M. de Mortillet.—On the Chelléan deposits of Ternifine, in Algiers, by M. le Dr. Tommasini. These contain remains of so-called *Elephas atlanticus*.—On Prof. Putnam's recent explorations of Kjökkenmöddings, mounds, ash-pits, and stone-graves in Maine, Ohio, and Tennessee, by M. de Nadaillac.—On a more correct mode of classifying the colour of the eyes and hair in reference to the determination of ethnic characteristics, by M. Ikow.—On the "Er Fousen," or pit-graves in St. Pierre-Quiberon, in La Bretagne, by M. Gaillard.—On the anthropomrtric determination of the principal races of France, by M. le Dr. Collignon. A detailed and exhaustive treatise, in which the author, after setting apart a distinct group of Frenchmen, considers the rest of the French nation, somewhat arbitrarily, under four heads—Celts, Cimri, "Lorrainians," and so-called "Mediterranéens." Under the latter term he treats of those south-western races of France, whose chief source of origin is the Eastern Pyrenees, and who designate themselves as Catalans.—On the craniometric study of plagiocephalics, by M. le Dr. Manouvrier, bearing on the question af cerebral asymetry as a characteristic of superior brain-capacity.—On anomalous muscles in man, by M. le Dr. Testut.—Note on the various objects of fetish from Upper Ogooe, by M. Delisle. In the discussion to which the communication gave rise, M. de Mortillet maintained the view, to which he has frequently given expression, that in Africa originated the use of iron for industrial purposes, while the African was the only savage who knew how to extract and work the metal. In the iron projectile arms from the Congo M. de Mortillet believes we have analogous weapons to those seen in the hands of the Assyrian kings when represented as engaged in lion-hunting.—On the decrease of the population in France, by M. Lagneau. This decrease was known to amount to seven for every hundred inhabitants in twenty-six Departments, although there were only eight of these in which the deaths exceeded the births.—On the "Questionnaire de Sociologie et d'Ethnographie" of the Society, drawn up by MM. Hay, Hovelacque, and Vinson, and submitted by them to their *confrères*.—On two crania found in the Department de la Drôme, by M. le Dr. Delisle. One of these is dolichocephalic, and similar to the Cro-Magnon type; the other is brachiocephalic.—On the dangers of premature exercise of the higher intellectual faculties and of the physical powers in relation to the present excessive academic requirements and early term of military service in France, by M. Dally.—On M. Testut's elaborate prehistoric chart of La Dordogne, by M. Hamy.—On the practices and superstitions which prevail in Artois and Picardy in connection with bees, by M. E. T. Hamy. Such practices in no way differ from those described in the "Georgics," excepting in as far as concerns the aspersion of the hive with holy water by the modern peasant bee-cultivator. In Artois, as in Berry, when the master of the house dies his hives must be covered with black, and the fact of his decease whispered to the bees to avert their otherwise inevitable death.—On some cephalometric determinations on the living subject in Greece, by M. Apostolides. He consiners that the people of the Peloponnesus have best preserved the dolichocephalic type of the ancient Greeks, as shown in the crania of tombs belonging to the fourth century B.C.—The first part of a paper by M. de Ujfalvy on the "Kafirs-Siapochs," or "Black-robed" tribe of the Hindoo-Koosh.

Archives of the Physical and Natural Sciences, Geneva, Nov. 15, 1883.—Researches on the absorption of the ultra-violet rays by aqueous and vitreous humours, albuminoids, and other substances, by M. J. L. Soret.—On electrolytic condensers, by Dr. C. E. Guillaume.—Sixty-sixth session of the Helvetic Society of Natural Sciences held at Zurich in August, 1883: Report on the Geological Session, president, Prof. Suess of Vienna. Papers were read on the structure of the Alps, by the President, who rejected the theory of upheaval, denying the existence of any natural motive power capable of raising lofty mountain ranges; on the old glaciers of the northern slopes of the Alps, by M. Alph. Favre; on the climateric zones during the Jurassic and Chalk epochs, by Prof. Neumayr of Vienna; on the Kimmeridge formations of the Vaude Alps, by M. Schardt of Montreux; on the fossils of the same geological area, by M. de Loriol; on the physical and chemical changes undergone by rocks subject to glacial pressure, by Prof. Mühlberg of Aarau; on some specimens of spath fluor recently found in the dolomitic limestones of Trolerengraben, Valais, by M. Ed. de Fellenberg; on the hydrographic system of the Jura range in the canton of Neuchâtel, by M. Jaccard; on the mollasse and glacial formations of Upper Suabia, by M. Probst of Essendorff; on the gypsum formations of Vorarlberg, by M. Chavannes; on a sectional profile of the Schlossberg in the Titlis range, showing the geological dispositions of the limestone rocks of the twelfth sheet in Dufour's map, by Dr. C. Moesch of Zurich; on the fauna of the coal and limestone formations in the Permian system of Bohemia, by Dr. A. Fritsch; on an ancient post-Glacial lacustrine basin in the Soleure district, formed by three concentric frontal moraines, slight traces of which still survive in the Aar valley, by M. Alph. Favre; on the earthquake at Ischia, by Prof. Suess.

Nachrichten of the Royal Society of Sciences and of the University of Göttingen, July 30, 1883.—On some historical documents connected with the history of Bavaria during the fourteenth century, by Ludwig Weiland.—Remarks on Jacobi's theory of elliptical functions, with special reference to his logarithm of theta functions (continued), by A. Enneper.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, December 20, 1883.—"Note on the Constitution of Chlorophyll." By Edward Schunck, F.R.S.

The author having for some time been engaged in examining the derivatives of chlorophyll, the question of the constitution of

that body presented itself. Whatever chlorophyll may be from a physiological point of view, for the chemist it is simply an organic colouring matter. The colouring matters occurring naturally in the organs of plants and animals are of several kinds. The greater number belong to the class of so-called glucosides, *i.e.* bodies which by decomposition with acids or ferments yield some kind of glucose or sugar as one of the products. The author was led to suspect that chlorophyll might turn out to be a glucoside, its general properties being such as characterise that class of compounds. To prove this by direct experiment was almost impossible, on account of the difficulty in preparing chlorophyll in a state of purity; but the author describes some experiments made with solutions of chlorophyll, which tend to show that when decomposed with acids it does behave as a glucoside, splitting up into glucose and other bodies, the phyllocyanin and phylloxanthin of Fremy being products that are formed at the same time.

Mathematical Society, January 10.—S. Roberts, F.R.S., vice-president, in the chair.—Messrs. D. Brockelbank and Asutosh Mukhopadhyay were elected members, and Messrs. Fortey and Heppel admitted into the Society.—The Chairman spoke upon the late Mr. C. W. Merrifield's mathematical work and upon his services to the Society, and concluded his remarks by reading the words of a vote of condolence with the family of the deceased which the Council had requested the President to communicate to them.—Mr. A. Buchheim stated an extension of Pascal's theorem to space of three dimensions, and communicated a paper on the theory of screws in elliptic space. His special object was to show that Grassmann's "Ausdehnungslehre" supplies all the necessary materials for a calculus of screws in elliptic space, and that Clifford was apparently led to construct his theory of biquaternions by the want of such a calculus.—Mr. H. Fortey read a paper on contacts and isolations, a problem in permutations.—Mr. Tucker presented a paper by Prof. H. Lamb on the induction of electric currents in cylindrical and spherical conductors, and spoke on a group of circles which are connected with the "triplicate-ratio" circle.

Edinburgh

Royal Physical Society, December 19, 1883.—Dr. R. H. Traquair, F.R.S., president, in the chair.—The following office-bearers were elected for the year 1883–84, viz. Presidents, Dr. R. H. Traquair, F.R.S., B. N. Peach, F.R.S.E., F.G.S., J. A. Harvie-Brown, F.R.S.E., F.Z.S.; Secretary, Robert Gray, V.P.R.S.E.; Assistant Secretary, John Gibson; Treasurer, Charles Prentice, C.A., F.R.S.E.; Librarian, J. T. Gray, M.A.—The following papers were read, viz.:—Notes on the genus Gyracanthus, by Dr. H. Traquair, F.R.S.—On a specimen of Pecopteris in circinate vernation with remarks on the genera Spiropteris and Rhizomopteris of Schimper, by Robert Kidston, F.G.S.—On a new species of Schutzia from the calciferous sandstones of Scotland, by R. Kidston, F.G.S.—On the structure of Sarcodictyon, by Prof. W. A. Herdman, F.R.S.E.—Notes on the islands of Sula Sgeir or North Barra and North Rona, with a list of the birds inhabiting them, by Mr. John Swinburne. Specimens of eggs from the islands were also exhibited.—Mr. J. A. Harvie Brown, F.Z.S., exhibited, with remarks, a specimen of the Little Gull (*Larus minutus*), shot in the island of North Uist.—Mr. Hoyle exhibited, with remarks, a skeleton of the extinct Moa (*Dinornis didiformis*).—Dr. Traquair exhibited a specimen of the Osprey (*Pandion haliætus*), shot in Midlothian.—Prof. Arch. Geikie, F.R.S., was elected an honorary Fellow of the Society.

Mathematical Society, January 11.—Mr. Thomas Muir, F.R.S.E., president, in the chair.—Prof. Chrystal delivered an address on surfaces of the second order, in which he advocated strongly the study of the properties of these surfaces from the surfaces themselves. The address was illustrated by a large number of beautiful models in wood, plaster, cardboard, and thread.—Prof. Tait communicated an analytical note, and one or two geometrical problems were discussed.

Dublin

Royal Society, December 17, 1883.—Rev Dr. S. Haughton, F.R.S., in the chair.—On the Ringhals or Cape Cobra, by M. G. R. O'Reilly. The author briefly describes some of the habits of this snake (*Sæpedon hæmachates*), called "ipimpi" by the Kafirs. He is peculiarly subject to fear, but, when compelled, fights savagely. Raising one-third of his length perpendicularly, and with expanded hood, he advances, dashing his head repeatedly to the ground and hissing furiously. Should he come close enough, he strikes repeatedly, not open-mouthed, but only with the point of the fangs that protrude lightly downwards over the lower lip. But little poison is introduced into the superficial wound produced in this way, and such wounds are not nearly so often fatal as those produced by the puff-adder. There is, however, a time when the Ringhals is much more to be dreaded. When driven to an extremity, he sometimes subsides into a kind of swoon, and lies as if dead with his mouth somewhat gaping, but woe to the man who should curiously venture his finger therein; it would be instantly locked as in a vice, the fangs would be buried in the flesh, and the poison would flow unceasingly. He will not let go, but, like a bulldog, will allow himself to be beaten to death rather than relinquish his hold. When he finds fatigue coming on, he exerts himself to hold the faster, and each new exertion causes the deadly venom to flow more and more. By degrees fatigue overcomes him, and inch by inch, from the tail upwards, his muscles lose their rigidity, till at last after perhaps a quarter of an hour, finding himself unable to hold on any longer, he lets go. Then if again attacked he fights anew, apparently as fresh as ever; but if allowed a little peace he will lie still a few moments, and then calmly glide away to feast again on the frogs in the sedges, or sun himself once more by the heated rocks on the hillside.—On more convenient equivalents for converting British into metrical measures than those hitherto in use, by G. Johnstone Stoney, D.Sc., F.R.S. Capt. Clarke's determination of the length of the British yard in metrical measure, made at Southampton in 1866 for the Ordnance Survey (see *Philosophical Transactions* for 1867), differs by a small amount from that which had previously been made by Capt. Kater, and it is noteworthy that the small difference between these excessively careful determinations is greater than the difference between Capt. Clarke's determination and the very simple equivalent,

The yard = 914·4 millimetres;

so that the outstanding error which will be incurred if this very convenient number is adopted is of an amount which is inappreciable in ordinary good scientific work. It is less than the expansion produced in iron standards of length by one degree of temperature. Again, the pound avoirdupois differs, according to Prof. Miller's determination (which is the most elaborate we possess), from the simple equivalent,

The pound = 453·6 grammes,

by only one-quarter of a grain avoirdupois in a kilogramme. This is about 1/70 of the correction which would have to be made in weighing water in order to reduce its apparent weight to its weight in vacuo, and is of small account even in carefully conducted scientific work. The value of the gallon, which follows from Capt. Clarke's determination of the metre, is 1·000027 times that adopted in Dowling's Metrical Tables, and differs from the simple equivalent,

The gallon = 4544 cubic centimetres,

by an amount which is less than a cubic centimetre in ten litres, an error which is inappreciable; measures of capacity not admitting of being compared so closely as weights and measures of length. Hence we may take as our fundamental units—

The yard = 914·4 millimetres,

with an error of less than a fifth-metret[1] in the metre, on the authority of Capt. Clarke;

The pound = 453·6 grammes,

with an error of one-quarter of a grain avoirdupois in a kilogramme, on the authority of Prof. Miller;

The gallon = 4544 cubic centimetres,

with an error of less than one cubic centimetre in ten litres, on the authority of the best previous determinations corrected by Capt. Clarke's. It is a truly remarkable circumstance that the first of these numbers happens to be divisible by 3^2 and 2^3, the second by 2^3 and 7, and the third by 2^6. Divisors more convenient could hardly have been chosen for dealing with the disorderly way in which British measures are subdivided. They furnish the following tables, which may be safely recommended:—

[1] By metrets are to be understood decimal subdivisions of the metre. The fifth-metret is the fifth of these, or the hundred-thousandth of a metre. It is about the diameter of one of the red disks in human blood.

TABLE I.—*Measures of Length.*

The yard	= 914·4	millimetres.
The foot	= 304·8	,,
The inch	= 25·4	,,

TABLE II.—*Weights.*

The pound	= 453·6	grammes.
The half-pound	= 226·8	,,
The quarter pound	= 113·4	,,
The ounce	= 28·35	,,
The grain	= ·0648	,,

[This last gives the gramme = 15·43210 grains, a number which it is singularly easy to recollect.]

TABLE III.—*Measures of Capacity*

The gallon	= 4544	cubic centimetres.
The quart	= 1136	,,
The pint	= 568	,,
The half pint	= 284	,,
The noggin	= 142	,,
The fluid ounce	= 28·4	,,

If any person using these tables wishes to carry refinement farther, he may do so by subtracting one in every hundred thousand after using Table I., by subtracting one in sixty thousand after using Table II., and by subtracting one in ten thousand after using Table III. These corrections will carry accuracy to the limit of Prof. Miller's and Capt. Clarke's determinations.—R. J. Moss, F.C.S., showed an experiment illustrating the use of Rohrbach's heavy liquid—a solution of baric and mercuric iodides. Minute garnets occurring in Dublin granite were separated from the roughly pulverised rock in a state of purity, and in quantity quite sufficient for an exhaustive analysis.

SYDNEY

Linnean Society of New South Wales, October 31, 1883.—The President, C. S. Wilkinson, F.G.S., in the chair.—The following papers were read:—Occasional notes on plants indigenous in the immediate neighbourhood of Sydney, No. 5, by Edward Haviland.—Notes on the temperature of the body of the *Echidna hystrix*, by N. de Miklouho Maclay. This is a detailed account of some experiments made by the writer at Brisbane in July, 1879. He found, after observations carefully made on two occasions, that the average temperature of the body of the Echidna is 25° C., equal to 78° F., or very little more than that of fish, and about 25° under that of mammals generally.—On the Plagiostomata of the Pacific, part ii., by N. de Miklouho Maclay and William Macleay, F.L.S. The continuation of a paper by the same authors, written some years back, on the genus Heterodontus. The present paper gives descriptions and illustrations of a new species from Japan, named *Heterodontus japonicus*.—Notes on some reptiles from the Herbert River, Queensland, by William Macleay, F.L.S. In this paper, after enumerating all the Reptilia contained in the collection sent to him by Mr. Boyd from the Herbert River, Mr. Macleay describes as new a lizard, *Tiaris boydii*, and three snakes, *Tropidonotus angusticeps*, *Dendrophis bilorealis*, and *Herbertophis plumbeus*, the latter a new genus allied to Coronella.—Notes on some customs of the aboriginal tribes of the Albert District, New South Wales, by C. S. Wilkinson, F.G.S., president. The President read some notes furnished him by Mr. W. H. J. Slee, the Government Inspector of Mines, regarding a singular ceremony which the aboriginal tribes of the Mount Poole district perform, when, as is often the case in that arid region, they need rain. Occasionally pieces of the fibrous variety of gypsum, Satin-spar, are found by the natives, who highly value them and call them "rain-stones," for they believe that the Great Spirit uses them in producing rain. The President exhibited one of the "rain-stones" which had been secured by Mr. Slee, who witnessed the ceremony when performed two years ago by the Mount Poole and Mokley tribes.—On the brain of Grey's whale (*Kogia greyi*), by William A. Haswell, M.A.—On a new genus of fishes from Port Jackson, by Wm. Macleay, F.L.S. This paper consists of the description of a large fish taken a few days ago in a seine net at Watson's Bay. It is of the family *Cirrhitidæ*, and somewhat allied to the genus *Chilodactylus*. The generic name given to it is *Psilocranium*, from its naked head, and the specific name *Coxii*, in honour of the President of the Commissioners for Fisheries of New South Wales. This fish was exhibited by Mr. Morton, Assistant Curator, Australian Museum.

Royal Society of New South Wales, October 3, 1883.—Hon. Prof. Smith, C.M.G., president, in the chair.—Two new members were elected and thirty-five donations received.—A paper by H. Ling Roth, F.M.S., on the roots of the sugar-cane, was read.—Mr. H. C. Russell exhibited a modification of Faure's bichromate battery.—Mr. Russell exhibited several new photographs of the sun taken by him at the Sydney Observatory.

November 7, 1883.—H. C. Russell, F.R.A.S., in the chair.—One new member was elected and eighty-eight donations received.—A paper, on irrigation in Upper India, was read by H. G. McKinney, M.E.—Prof. Liversidge exhibited portions of a fossil crocodile from the Flinders River in Queensland, and other fossils.

November 14, 1883.—Hon. Prof. Smith, C.M.G., president, in the chair.—An adjourned meeting was held, and a paper, by Mr. A. Pepys Wood, on tanks and wells of New South Wales water supply and irrigation, was communicated by Mr. Warren, C.E.

PARIS

Academy of Sciences, January 7.—M. Rolland, president, in the chair.—M. Bouley was elected vice-president, and MM. H. Milne Edwards and Becquerel added to the Central Committee of Management for the year 1884.—The President reported on the papers, memoirs, and documents of all kinds issued by the Academy and received from various sources during the year 1883. The changes that took place amongst the members and correspondents during the same year were announced.—Report on the hydrographic explorations of the *Romanche* in Tierra del Fuego, by M. F. Martial. The work accomplished comprised three distinct parts—(1) the regular triangulation of a portion of Beagle Passage and of several islands, besides twenty plans of various roadsteads; (2) the survey of the north-western branch and about half of the south-western branch of Beagle Passage and the Ildefonsus Islands; (3) exploration of the north-west extremity of Talbot Passage, of the west side of the archipelago from Cook Bay to Black Head Cape, and of the various channels connecting Brecknock Passage with Whaleboat and Darwin Sounds.—Report on the climate of Cape Horn, by M. J. Lephay. Appended to the report are various meteorological tables showing the temperature, barometric pressure, atmospheric currents, direction and velocity of the winds observed at the station of Orange Bay from September 26, 1882, to August 31, 1883.—On the spectrum of the Pons-Brooks comet, by M. Ch. Trépied.—Spectroscopic observations made at Nice on the Pons-Brooks comet, by M. Thollon.—Observations at Marseilles on the same comet (one illustration), by M. E. L. Trouvelot.—On certain doubly periodical functions of the second species, by M. E. Goursat.—On the application of Vandermonde's notation to the representation of hypergeometrical polynomes in a condensed form, by M. Radau.—Calculus of the contact arc of a flexible, spiral, metallic rod, according to any given conditions, on a circular cylinder, by M. H. Léauté.—Note on the action exercised on polarised light by the cellulose solutions in the Schweizer reagent, by M. A. Levallois.—On the compound heat of the soluble fluorides and the law of substituted thermic constants, by M. D. Tommasi.—Some new sulphuretted salts derived from the trisulphuret of phoshorus, by M. G. Lemoine.—On the law of free surfaces in vegetable anatomy, by M. C. Eg. Bertrand.—On the modifications presented by the muscles after severance of the nerves communicating with them, by M. J. Babiuski.—On progressive atrophic myopathy (hereditary myopathy beginning in infancy with the muscles of the face, without change in the nervous system), by MM. L. Landouzy and J. Dejerine.—Researches on some recent pretended infallible specifics against hydrophobia (second note), by M. P. Gibier. Garlic and pilocarpine (active principles of jaborandi), tested on rats and cats, were found to be powerless to prevent the development of rabies.—Note accompanying the photographs of natural size of two children delivered by the operation of paratomy in cases of extra-uterine pregnancy by M. Championnière, of the Tenon Hospital, by M. Just Lucas Championnière.—Observations on the remarkable sunsets and dawns observed at Campan during the month of December, 1883, by M. Soucaze. No solution of the phenomenon is offered; but to the volcanic theory it is objected that the effects should be permanent if due to the permanent presence of minute igneous particles in the atmosphere.

BERLIN

Physical Society, December 14, 1883.—Prof. Börnstein described an apparatus for measuring the momentum of

the wind, constructed and set up by him in the High School of Agriculture. Hitherto, as is well known, in order to compute the momentum of the wind, people had either registered its velocity by means of the Robinson anemometrical scale, or its pressure by means of the so-called pressure table. The cross-cup instrument laboured, however, under this disadvantage, that it was incapable of following a rapid change of the wind's velocity, being neither able, under an increase of velocity, to pass at once to the duly accelerated pace, nor in the case of an abrupt abatement of the wind's speed, to fall back, till after a considerable time, to the commensurately slower rate. The pressure-table, again, was attended with this disadvantage, that on each occasion it had to be placed in the direction of the wind, and in the case of a relief of pressure, performed oscillations of its own, which registered themselves on the writing apparatus. Prof. Börnstein's instrument consisted essentially of a ball, 126 mm. diameter, affixed to a vertical descending rod, which by an axle-system, at four-fifths of its length, was rendered freely movable on all sides. To the lower end of the rod was fastened a long wire, likewise movable on all sides, and suspended inside a tube 4 metres long. At a still greater distance was placed a quadrilateral vertical prism, movable between rollers, so that each lateral movement of the ball became converted into an up and down movement of the prism. To the prism there hung a frame with a pencil, which marked in curves on a passing strip of paper the movements produced by the pressure of the wind on the ball. At the lower end, again, there was fixed a horizontal plate, by way of a damper. Several of the curves described by this measurer of wind-pressure were shown by Prof. Börnstein, among others that of December 4, a day distinguished by a very low minimum (730 mm.), which passed over Europe from west to east. The observer perceives in this curve a very great rise of the wind's momentum during the day, then at about seven to nine in the evening he sees the curve descend almost to the line of zero, remounting thence in the later hours of the night to its maximum. This showed that the centre of the barometric minimum had passed exactly over Berlin, two periods of intense wind-momentum being separated by a lull of considerable duration.—Dr. König added some supplementary notes to the address recently delivered by him before the Society, setting forth the results of his investigations into the state of the colour-blind (see NATURE, vol. xxix. p. 168). Among other things he read a passage in Goethe's "Theory of Colours," showing that Goethe had already examined a colour-blind person, regarding whom he was of opinion that he was blue-blind, or *akyanoblept*. From Goethe's statements, however, it was plain that the individual in question was red-blind, and it would accordingly appear that this was the first real observation of a case of colour-blindness.

Physiological Society, December 21, 1883.—Prof. Fritsch gave a demonstration of the model of a brain, prepared according to the directions of Prof. Aeby in Zurich, and acquired by the Physiological Institute. By means of differently coloured wires and of coloured balls of different sizes, it shows the situation of the cerebral ganglia, and the course of the nerve-fibres in connection with them. The nerve-cords and the ganglia pertaining to them are without exception of the same colour. The connections between the spine and the separate sections of the cerebrum and cerebellum, the cerebral cavities and fissures, come out very clearly in the skilfully fashioned model.—Dr. Falk spoke of the transference from mother to fœtus of corpuscular and chemical poisons, and brought prominently to notice the different results yielded by observations on man and experiments made on animals with a view to obtaining knowledge on this subject. Infectious diseases, such as small-pox, syphilis, &c., were conveyed from the mother. Other diseases, such as inflammation of the spleen, were not so conveyed. With respect to chemical poisons, the case was likewise various. The statements of different authors respecting the oxide of carbon did not agree. Dr. Falk had quite recently had occasion to dissect a woman who died from the poison of oxide of carbon. Her body displayed all the symptoms characterising this form of death, showing in a singularly perfect manner the bright colour of the skin, of the muscles, and of the blood. The dead fœtus of the deceased woman, which was of eight months' growth, had, on the other hand, normally coloured muscles and dark blood, in which neither chemical reagents nor spectral analysis discovered a trace of the oxide of carbon. A case having, however, been elsewhere observed of the passage of the oxide of carbon into the blood of a fœtus six months old, Dr. Falk conjectured that the age of the embryo, more particularly the greater or less thickness of the partition dividing the mother's system of blood-vessels from that of the child, formed a considerable item in the account. This point he would study by experiments on the osmosis of gases.—Dr. Blaschko communicated the results of his investigations into the structure and embryological development of the outer skin in the palm of the hand of man and apes. On the under side of the epidermis he not only found protuberances corresponding with the regular furrows visible on the surface, but, answering to the prominences of the surface, were also found protuberances on the under side connected with the former by transverse swellings. The study of the histological development of the outer skin further taught Dr. Blaschko that the epidermis, with its protuberances and depressions, was first fully formed before the cutis came into shape, attaching itself to the epidermis.—Dr. Salomon has endeavoured to fill a gap which was yet perceptible in our knowledge of the urine of domestic mammalia. In particular there existed but four analyses of the urine of the pig, which, as an omnivorous animal, stood specially near to man, and of these four, three were of earlier date than 1845. These four analyses, moreover, all concurred in denying that the urine of swine contained any uric acid, a circumstance very remarkable in face of the fact of the universal diffusion of this substance among all the other higher animals that had yet been examined. Its place was supposed to be supplied in the pig by guanine. As the result of his examinations, Dr. Salomon found that in all cases the urine of swine contained uric acid, and that in no inconsiderable quantities. The proportion of uric acid in the urine was, in swine, as 1 to 150; in man, 1 to 50. Guanine, on the other hand, could not be indisputably proved to be present in the urine of swine; but a crystalline substance, very closely related to guanine, and showing similar reactions, was found; lactic acid, the presence of which in swine had been maintained, could not be discovered, although succinic acid, which comes near to it, was found. Creatine and creatinine, as also other xanthine substances, were likewise searched for in the urine of swine.—In connection with this subject, Dr. A. Baginski stated that in the urine of a diptheritic child suffering from nephritis he had found a substance very nearly related to guanine, as also xanthine, both in perfectly perceptible quantities. Both these substances, however, decreased in quantity with the abatement of the disease.

CONTENTS