

the bars have been magnetised without being first subjected to great variations of temperature and kept free from telluric action by being held in a vertical position.

### SOCIETIES AND ACADEMIES

#### LONDON

**Royal Microscopical Society, June 9.**—Rev. Dr. Dalinger, F.R.S., President, in the chair.—Mr. G. F. Dowdeswell described a preparation of the microbe of rabies in the spinal cord of a rabid dog, which he exhibited  $\times 400$ .—Prof. F. Jeffrey Bell exhibited a specimen (received from Prof. McIntosh) of a very young starfish, in a stage so early as to show clearly the knob-like portions of the larval organ. Prof. McIntosh has been giving some of his knowledge and skill to fishing observations, which had been rendered possible by the facilities afforded by an enlightened Fishery Board in Scotland.—Mr. F. R. Cheshire exhibited a device for the better examination of Bacteria in culture tubes, the cylindrical form of the tube so distorting the appearance of the contents that it was almost impossible to make any observations upon them under the microscope. The first plan adopted was that of placing the tube in a trough of water and then looking at it through the front of the trough. This was found to diminish the aberration very much, but it did not get rid of it altogether, and was, therefore, only available under very low powers. Water having a refractive index of about 1.333 and alcohol of about 1.374, by adding water to alcohol a mixture having a refractive index of anything between the two could be obtained according to the proportions used. Gelatine has a refractive index rather higher than that of water, and the interposition of a cylinder of glass added something to this. The trough which he employed had a front of rather thin glass, the bottom being sloped in such a way as to cause a tube placed in the trough to lie always near to the front. The tube to be examined was placed in the trough with some water, and then alcohol was added until the proper density was arrived at, and by this means it was quite possible to use a  $\frac{1}{2}$ -inch objective effectively.—Prof. Bell, at the request of the President, gave an account of what he regarded as the most extraordinary biological fact brought to light during the last twenty-five years—that of a third eye at the top of the head of certain lizards.—Mr. Crisp called attention to a new lamp for the microscope which had been sent for exhibition by Mr. Curtis, and which was so cheap and simple that it seemed likely to become the lamp of the future. It was founded on the lamp originally devised by Mr. Nelson.—Mr. A. Brachet's communication suggesting the use of a hyperbolic lens for the field-lens of the eye-piece was read. Mr. Brachet claimed that thereby the diaphragms in the eye-piece and objective could be dispensed with, and the image much improved.—Dr. Crookshank read a paper on photo-micrography, which was illustrated by the exhibition of a large number of prints, negatives, &c. Mr. Glaisher, President of the Photographic Society, said he had examined Dr. Crookshank's exhibits, and thought they were certainly very beautiful productions. He had for many years taken a great interest in the subject of photography, and had looked to it with hopes which had been more nearly fulfilled than ever before by the specimens before them. He had heard the paper with great pleasure, and could only express his admiration of it, believing as he did that it held out great promise for the future.—Mr. F. Enock exhibited sketches of some of his slides, the various parts being numbered and named and accompanied by a short explanation. It is intended to issue sketches of all the mouth organs of British bees and other interesting insects.

**Mineralogical Society, June 22.**—Mr. L. Fletcher, President, in the chair.—Mr. Andrew Taylor was elected a Member.—The following papers were read:—C. O. Trechmaine, Ph.D., on barytes from Addiewell, West Calder, N.B.—Prof. E. Kinch, on platnerite.—F. H. Butler, M.A., on dufrénite.—R. H. Solly, on anglesite from Portugal; and on apatite from Cornwall.—Mr. R. Simpson (visitor) exhibited a very large rolled crystal topaz from Tasmania.—Several interesting specimens were re-exhibited by the President, Mr. Rudler, and others.

#### PARIS

**Academy of Sciences, June 28.**—M. Jurien de la Gravière, President, in the chair.—On the theory of minima surfaces, by

M. G. Darboux. The results hitherto arrived at in the study of minima surfaces lead naturally to the inquiry here instituted regarding the determination of all minima algebraic surfaces contained in a given algebraic curve, or, more generally, to determine all the minima algebraic surfaces inscribed in a given algebraic curve.—On the subject of certain circumstances presented by the movement of the hydro-extractor, by M. de Jonquières. The author deals with the normal case (omitted by Poincot), in which the movement of precession is complicated and rendered irregular by movements of nutation.—On a process by means of which the oscillations of an absolutely free pendulum may be mechanically counted, by M. M. Deprez. The principle is described of an apparatus not yet constructed, which is intended to record the number of vibrations without exercising any mechanical influence on the pendulum. Without this condition the results would be worthless, as the vibrations, instead of being effected under the influence of gravitation alone, would be affected by the action of a force of unknown magnitude. The problem is solved by the aid of optics, light being the only agent which exercises no mechanical action on the bodies exposed to its influence.—On the persistence of voluntary movements in bony fishes after removal of the cerebral lobes, by M. Vulpian. The author's experiments with carp fully confirm Steiner's recent conclusions regarding the persistence of the voluntary movements in fishes thus operated upon. They also show that the faculty of sight is unaffected by the operation, as already proved by the author in 1864.—On the normal metronome, by M. Saint-Saens. Owing to the defective character of this instrument, it is found to be of little practical service to musicians. Hence the Academy is urged to supply a normal metronome mathematically regulated which, before being issued to the public, should be tested and stamped like all diapasons, weights, and measures. The matter was referred by the President to the Section for Mechanics and Physics.—On the extension of a theorem of Clebsch relating to curves of the fourth degree, by Prof. Sylvester.—A fresh series of experiments on the automatic action of the regulating apparatus constructed at the Aulois sluice, by M. A. de Caligny.—On the fluorescence formerly attributed to yttria, by M. Lecoq de Boisbaudran. By recognising the complex character of yttria and announcing the existence of new elements characterised by fluorescent bands at first attributed to yttria (NATURE, June 17, pp. 160-62), the author considers that Mr. Crookes has implicitly adopted the opinion always held by him regarding the true character of these bands. But from the fresh experiments here described it is pointed out that further interesting studies will have to be made in order thoroughly to elucidate the subject.—Remarks accompanying the presentation of a work entitled "Cosmogonic Hypotheses: an Inquiry into the Modern Scientific Theories on the Origin of Worlds, with a Translation of Kant's 'Theory of the Heavens,'" by M. Wolf. In writing this work the author's object has been to show that the theory of Laplace, completed by the labours of M. Roche and other savants, still answers best to the conditions required of a cosmogonic hypothesis. He claims to have met all the objections urged against it, and especially that of M. Faye regarding the pretended necessity of a retrograde rotation of the planets.—Report on M. Poincaré's memoir entitled "Influence of the Moon and Sun on the Northern Trade-Winds," by the Commissioners, MM. d'Abbadie and Mascart. With certain reservations this memoir is recommended to the favourable consideration of the Academy. It shows that there is some truth in the popular opinion respecting the influence of the moon on the weather, but that this influence should be referred not to the new, but to the waning phases of the moon, while account should also be taken of the antagonistic influence of the sun.—Action of an electric current on anhydrous hydrofluoric acid, by M. H. Moissan.—On the flow of gases in the case of a permanent régime, by M. Hugoniot. It is shown that M. Hirn's experiments in no way contradict either the kinetic theory or the laws of hydrodynamics, and, so far from refuting, actually confirm the well-known formula of Weisbach or Zeuner.—On the condensation of vapours, by M. P. Duhem.—On the coefficient of self-induction in the Gramme machine (three illustrations), by M. Ledebour.—On the spectra of didymium and samarium, by M. Eug. Demarçay. Some fresh results are described, which the author has obtained from the study of the photographed absorption-spectra of various products of the fractionation of didymium and samarium.—On a new double iodide of copper and ammonia, by M. A. Saglier. The process is explained by which the author has obtained this

new compound, whose formula is  $2\text{NH}_3\text{Cu}_3\text{I}_2$ , as shown by the following figures:—

	Found		Theory
Copper	24.66	24.61	24.84
Iodine	66.03	65.91	66.27
Ammonia	8.58	8.66	8.88

—On the synthesis of an inactive terpenol, by MM. G. Bouchardat and J. Lafont.—Action of anhydrous baryta on methylic alcohol, by M. de Forcrand. From the author's experiments it follows that whenever the solution of baryta takes place in methylic alcohol in the presence of a trace of water, which it is very difficult to avoid, the resulting compound should be  $\text{C}_8\text{H}_{14}\text{O}_2, \text{BaO}, \text{H}_2\text{O}_2$ .—Action of heat on the acetones, by MM. P. Barbier and L. Roux. The paper deals fully with the mode of decomposition which these substances undergo when subjected to the influence of red heat.—Decomposition of pilocarpine, by MM. E. Hardy and G. Calmels.—Researches on the development of beetroot, by M. Aimé Girard. Here the author studies more especially the tap-root and radicles, concluding that the saccharine matter is formed, not in the underground, but exclusively in the overground parts of the plant.—On the functions of the ovoid gland, of Tiedemann's bodies, and Poli's vesicles in the Asteridæ, by M. Cuénot.—On the conjunctions of the ciliated Infusoria (*Colpidium colpoda*, *Paramæcium aurelia*, and *Euploes patella*), by M. E. Maupas.—On the classification of the Thaliaceæ and some other groups of Ascidians, by M. F. Lahille.—Note on the *Amphistegina* of Porto Grande, St. Vincent Island, by M. de Folin.—On the functions of the cephalic fossettes in the Nemertæ, by M. Remy Saint-Loup.—Researches relative to the influence of the nerves on the production of lymph, by M. Serge Lewachew.—On the anatomic constitution of the Ascidians attached to the rare American plant *Heliamphora nutans*, Benth., by M. Ed. Heckel.—On the presence of a line of erratic boulders stranded on the coast of Normandy, by M. Ch. Vélain.—On the eruption of Etna during the months of May and June, by M. H. Silvestri. The discharge during twenty days of activity has been approximately estimated at 66,000,000 cubic metres.

BERLIN

**Physiological Society, May 28.**—Dr. Virchow made a report of his investigations into the capillaries of the vitreous body and their environment. The vitreous body, which must no longer be regarded as a tissue, but as an organ, showed different structural relations among the different groups of animals, and, in the case of fishes and the frog, was distinguished by its strong bounding cuticle, on which the capillaries formed an object of interesting examination. In regard to the structure of the capillaries the speaker had come to the conviction that they consisted of a fundamental membrane which was occupied with cells. The environment of the capillaries formed lymph-spaces, which had not yet, however, manifested themselves as standing in continuous connection with one another. On the cuticles inclosing the lymph-spaces lay cells displaying a great multiplicity in form and arrangement among the different kinds that had been examined.—Prof. Munk attacked the position taken up at the last sitting of the Society by Prof. Christiani respecting the possibility of seeing after excision of the greater brain. He challenged his opponent to show to the Society or the Association of Naturalists for this year a rabbit that was able to see after the removal of the greater brain.—Dr. Benda exhibited a series of preparations of the central nervous system which were coloured in accordance with the hæmatoxyline method as modified by him. There were in particular three advantages distinguishing his hæmatoxyline colouring from that of Weigert's: (1) the axial cylinders of the nerve fibres in the brain came out more distinctly, and their connection with the ganglia cells was directly demonstrated. (2) The structure of the ganglia came out more distinctly. In the case of those ganglia which remained clear after the hæmatoxyline colouring, there appeared with great constancy in the fibrous framework, dark concretions, which might perhaps be interpreted as a special structure, though the speaker was not yet prepared to decisively maintain that assumption as fact. (3) With still more reservation would he present the third result, which came to light in a particular structure of the medullary sheath. On the transverse section radiate drawings were seen to proceed from the axis cylinder towards the neurilemma. These markings ramified,

and perhaps formed the protoplasmatic scaffold within which was deposited the fluid nerve-medulla. The speaker next described more minutely his method of proceeding—hardening with picric acid, washing out with alcohol, laying in paraffin, treating with a sulphate of iron, colouring with hæmatoxyline, washing out with solution of alum or with a diluted acid. In conclusion Dr. Benda gave a theory of hæmatoxyline colouring, which ranged itself close in order with the colouring with logwood customary in technics. In both cases the colouring-matter was applied as lac, the tissue being first saturated with the mordant, and then impregnated with the colouring-matter, which formed in the tissue lacs insoluble in water and alcohol, and only in part capable of being resolved through washing out with the mordants or with acids. Or the colouring-matter might be used in the way of ink, which formed precipitates with the tissues.

BOOKS AND PAMPHLETS RECEIVED

"Annual Report of the Smithsonian Institution for the Year 1884" (Washington).—"The Gothic of Ulfilas," by T. le M. Dowse (Taylor and Francis).—"Recherches pour établir ses Rapports avec la Côte de France," by Prince A. de Monaco (Gauthier-Villars, Paris).—"Monthly and Yearly Means, Extremes and Sums for the Years 1883, 1884, 1885" (Tokio).—"Aus dem Archiv der Deutschen Seewarte," 7 Jahrgang, 1884 (Hamburg).—"Reichenbachia, Orchids Illustrated and Described," part 1, May, by F. Sander (Sander and Co., St. Albans).—"Encyclopædie der Naturwissenschaften," Erste Abth. 45, 46, und 47, Lief.; Zweite Abth. 34, 35, und 36, Lief. (Trewendt, Breslau).—"Mémoires du Comité Géologique, St. Petersburg," vol. ii. No. 3.—"Bulletins du Comité Géologique, St. Petersburg," v. Nos. 1 to 6.—"Bibliothèque Géologique de la Russie," i., 1885.—"Physiological Laboratory Notes," by S. W. Holman (Cushing, Boston).—"Annotated Catalogue of the Published Writings of Chas. A. White," by J. B. Marcow (Washington).

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