

but if they will take our advice, they will not waste much time in studying the history and progress of a futile and false art.

With Paracelsus (b. 1493, d. 1541), a somewhat new phase of the science of chemistry appeared. By pointing out the value of chemistry as an adjunct to medicine, he caused a number of persons to turn their attention to the subject, and to endeavour to ascertain the properties of various compounds. Thus he helped to withdraw men from the pursuit of alchemy, by asserting that the knowledge of the composition of bodies, which had necessarily been forwarded by alchemy, was of importance to the human race, for the better prevention and curing of their ills. In the way of discovery or research, Paracelsus did little. He mentions zinc and bismuth, and associates them with metallic bodies, and he makes considerable use of several compounds of mercury, and of sal ammoniac. Paracelsus compares the alchemist of his day with the physician, and speaks of the former in the following terms:—"For they are not given to idleness, nor go in a proud habit, or plush and velvet garments, often showing their rings upon their fingers, or wearing swords with silver hilts by their sides, or fine and gay gloves upon their hands, but diligently follow their labours, sweating whole days and nights by their furnaces. They do not spend their time abroad for recreation, but take delight in their laboratory. They wear leather garments with a pouch, and an apron wherewith they wipe their hands. They put their fingers amongst coals, into clay, and filth, not into gold rings. They are sooty and black like smiths and colliers, and do not pride themselves upon clean and beautiful faces."

Among the Paracelsians we find Oswald Crolius, who mentions chloride of silver under the long-retained name of *luna cornea*, or horn-silver, from its peculiar horny appearance and texture after fusion. He was also acquainted with fulminating gold.

The name of Andrew Libavius (died 1616) deserves mention, because he sought to free chemistry from the mazes of alchemy and mysticism in which it was involved. In this he to some extent succeeded; and he appears also to have been a patient worker in the field of the science which he did so much to promote. He discovered the perchloride of tin which is even now called *fuming liquor of Libavius*; he also proved that the acid (sulphuric acid) procured by distilling alum and sulphate of iron, is the same as that prepared by burning sulphur with salt-petre. Libavius was great at the making of artificial gems, and was able to imitate almost any precious stone by colouring glass with various metallic oxides. G. F. RODWELL

SCIENTIFIC SERIALS

THE *Zoologist* continues Dr. J. E. Gray's catalogue of the whales and dolphins inhabiting or incidentally visiting the seas surrounding the British Isles.—The Rev. A. C. Smith gives the results of the observations of Dr. Rey, of Halle, on the colouring of cuckoos' eggs, which are in favour of Dr. Baldamus theory.—From notes by Mr. J. Sclater and Mr. J. Gatcombe, from Castle Eden and Plymouth, we find that the glaucous gull has been obtained in both places, and the winds have driven ashore several other sea-birds, petrels, &c.

THE *Monthly Microscopical Journal* commences with the excellent address of the president of the Microscopical Society, the perusal of which, from the enthusiasm exhibited, will convince sceptics that there is a fund of enjoyment in science equal to that in other mental occupations.—Mr. Parker also contributes a paper on the development of the skull in the thrushes.—The Rev. S. L. Brackley has a paper on reduced apertures in immersion objectives, a subject on which Mr. R. B. Tolles and Mr. F. H. Wenham have a correspondence.—There is a short and severe review of Dr. Bastian's "Beginnings of Life."—Mr. S. Wells has a paper on the structure of *Eupodiscus Argus*, and G. W. Royston-Pigott one on spurious appearances in microscopic research.—Captain T. H. Lang gives a short abstract of Prof. Smith's "Conspectus of the Diatomaceæ," which has appeared in the *Lens*.

PETERMANN'S *Mittheilungen* (19 Band, 1873, ii). The first paper is another contribution to the literature of North Polar Exploration by J. Spörer, in which he shows the importance to science and humanity of records of exploration. One of the maps in this number shows the route followed by two Russians, Pawlinow and Matusowski, in their politico-commercial expedition

of 1870, in Western Mongolia. Herr Fricke, a German merchant who has extensive connections both in East and West Africa, writes, giving several interesting details concerning the state of trade with the interior of South Africa, both from the east and west coast, showing that European connections with the interior extend much further than is indicated in our geographies and maps.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, March 13.—"Note on Supersaturated Saline Solutions." By Charles Tomlinson, F.R.S.

"Visible Direction: being an Elementary Contribution to the Study of Monocular and Binocular Vision." By James Jago, M.D. Oxon., A.B. Cantab., F.R.S.

Anthropological Society, March 11.—At this, the first meeting of this Society, the rules proposed by the Organising Committee were adopted, subject to confirmation at the first Annual General Meeting; and the following officers were elected:—President—Dr. R. S. Charnock, F.S.A. Vice-Presidents—Capt. K. F. Burton, F.R.G.S., and C. Staniland Wake. Treasurer—Joseph Kaines. Council—Dr. J. Beddoe, H. B. Churchill, Dr. Barnard Davis, F.R.S., John Fraser, Dr. G. Harcourt, Dr. Sinclair Holden, Dr. T. Inman, Dr. Kelburne King, Dr. J. Barr Mitchell, and T. Walton. Hon. Sec.—A. L. Lewis. Hon. For. Sec.—Dr. Carter Blake. This Society has been founded in consequence of a difference of opinion among the members of the Anthropological Institute, and a letter from Capt. Burton, the well-known traveller, heartily supporting the new organisation, was read.

Geologists' Association, March 7.—Henry Woodward, F.G.S., &c., president, in the chair.—"On the Geology of Brighton," by Mr. James Howell. Surface indications did not, he believed, afford evidence that the northern portion of the Downs had been submerged since its upheaval. Historical documents, submerged forests, and the shallowness of the sea's bottom, afforded abundant proof of the great encroachment of the sea along this part of the coast of Sussex during the historic period. The site of Old Brighton was stated to be seaward between East and West Streets, and not, as Lyell states, where the chain-pier now stands; and the coast line at the period when the Brighton Valley was an estuary of the sea and a river, was very different from what it is now. The geological formations at Brighton were stated to be six, viz. silt in the valley, brick-earth of Hove, the Elephant-bed, Templefield deposit, plastic clay of Furze Hill, and the upper chalk. The present paper embraced Mr. Howell's observations of the first three. In the lower portion of the silt and the coombe rock beneath it, are embedded immense numbers of water-rolled sandstones, similar to the sarsenstones distributed over the surface of the downs; but whether of Wealden or Tertiary origin is unknown. The brick-earth is a later formation than the elephant-bed upon which it everywhere rests, though the fossiliferous remains embedded in it are the same, viz., those of the mammoth, horse, red-deer, whale, and shell, of an Arctic type. If, as Mr. Godwin Austen tells us, brick-earth is the wash of a terrestrial surface, how are we to account for the marine remains embedded in it? The pebbles of Palæozoic rocks, found in the old sea-beach under the elephant-bed, were stated to have come from France, when that country was united to Britain, having travelled along a beach once extending from Brighton to Calvados. The observations of Mr. Howell, of how pebbles and pieces of rock travel along a coast, aided by sea-weed to which they may be attached, supported this opinion. The author in conclusion opposed the opinion entertained by the geological section of the British Association during their visit to the Kemp Town section of the elephant-bed, that this remarkable deposit was formed by ice-action, and adduced the fact that the materials composing it are all water-rolled as corroborating the opinions of Webster, Mantell, and Lyell.

DUBLIN

Royal Geological Society, Jan. 8.—Professor Macalister, president, in the chair.—The Rev. Dr. Haughton, F.R.S., read a paper on Stirr's Fertiliser, from New Hampden, U.S.—Rev. Maxwell Close read some Notes on the High Level Gravels near Dublin.

Feb. 12.—This was the annual meeting. The outgoing president, Professor Macalister, delivered the annual address,

selecting for the theme of his discourse, the subject of Micro-petrography—a subject in which a vast amount of work remains to be done—one, it is feared, not so much known as it deserves to be, and much misunderstood. Workers are needed to follow up the lines of research of Rosenbusch, Lasault, and Fuchs, who are working out the correlation of petrography and petrology, the structure in regard to the position of the rock mass. As an appendix to his address, Prof. Macalister gives an important bibliography of the subject of Microgeology. Prof. E. Hull, F.R.S., was elected President for the ensuing session.

PARIS

Academy of Sciences, March 10.—M. de Quatrefages, president, in the chair.—M. Berthelot took his seat as a member of the Academy. The following papers were read:—On Father Secchi's new hypothesis by M. Faye. The author replied to the Rev. Father's late note by proving that he had first stated that the solar spots were craters of eruption, and next that they were not eruptions, but were caused by them being in fact the erupted matter cooled by its passage above the chromosphere, the faculæ being the centres of eruption.—M. Faye showed this to be incompatible with the observed facts, the spots being surrounded with faculæ, whereas, according to Secchi's last theory, they ought to surround faculæ.—On the circulation of solar hydrogen, with an answer to some remarks by M. Tacchini, by M. Faye, treated of the spot phenomena; the author thinks that hydrogen is drawn down by the cyclones and returns to the surface around them. He also suggested that D₃ would probably be found to belong to a very rarified hydrocarbon of the acetylene series.—On the density of the vapour of phosphoric chloride, by M. Wurtz, who found that when precautions were taken, to prevent dissociation, the normal two volumes was occupied, experiment giving 7·226, and theory requiring 7·217.—On the springs of the Seine basin by M. Belgrand.—Researches on the action of the tympanic chord on the circulation in the tongue, by M. A. Vulpian.—On the industrial production of cold by the detention of permanent gases and of air in particular, by M. Armengaud.—On the production of silent electric discharges and on their mode of action, by M. Boillot.—Experiments on putrefaction, &c., by M. Lajourrois.—On the assimilability of phosphates, by M. H. Joulie.—A note on the unity of force and of matter, by Madame C. Royer.—On the theory of solar spots, by M. Tacchini, was an answer to M. Faye. The author contends that the hydrogen carried down by the cyclones ought to return up their axes, and not around them; and as this is not the case, he thinks that his criticisms remain un rebutted.—A paper on the trajectories of points, &c., by M. Mannheim.—On benzylated naphthalin, by M. Ch. Frotte. The body in question is produced by the action of benzylic chloride on naphthalin in the presence of powdered zinc.—On a combination of urea with acetylic chloride, by M. D. Tommasi. An atom of hydrogen in urea is replaced by the acetyl compound.—On the composition of guanos, &c., by M. A. Baudrimont.—On asphyxia and on the causes of the respiratory movements in fishes, by M.M. Gréhan and Picard.—On the influence of ammonia in manufactories where mercury is employed, by M. J. Meyer. The author asserts that he has succeeded in stopping all the terrible effects of mercurial poisoning in the silvering rooms of the Saint Gobain glass works by watering the floors every evening with half a litre of commercial ammonia. He states that since 1868 he has not had a single workman attacked.—On the saccharine matter of mushrooms, by M. A. Müntz.—On the normal microzymes of milk as the cause of the coagulation and alcoholic, acetic, and lactic fermentations of that liquid, by M. A. Béchamp.—On the quaternary fossils collected by M. Clert at Louvernè (Mayenne), by M. A. Gaudry.—On the existence of man in Alsace during the glacial epoch, by M. Ch. Grad.—On the movements of the atmosphere as regards the prediction of weather, by M. de Tastes.—On the use of vermouth, by M. E. Decaisne. The author thinks that the use of this liquid as a drink ought to be abandoned.

DIARY

THURSDAY, MARCH 20.

ROYAL SOCIETY, at 8.30.—On the Distribution of Vertebrata in Relation to the Theory of Evolution: Dr. J. D. Macdonald.—On the Temperature at which Bacteria, Vibriones, and their supposed Germs are killed when immersed in Fluids or Exposed to Heat in a Moist State: Dr. Bastian.—Some New Theorems on the Motion of a Body about a Fixed Point: E. J. Routh.

SOCIETY OF ANTIQUARIES, at 8.30.—On the Hunnebedden of Drenthe in the Netherlands; Miscellaneous Antiquities: Governor Gregory.

ZOOLOGICAL SOCIETY, at 4.

LINNEAN SOCIETY, at 8.—On the "Take-all" Corn Disease of Australia: Dr. Mücke.

CHEMICAL SOCIETY, at 8.—On Iron and Steel: C. W. Siemens.

ROYAL INSTITUTION, at 3.—The Chemistry of Coal and its Products: A. V. Harcourt.

FRIDAY, MARCH 21.

ROYAL INSTITUTION, at 9.—On the Mythology of India: E. D. Lyon.

OLD CHANGE MICROSCOPICAL SOCIETY, at 6.30.—Annual Meeting.

ROYAL COLLEGE OF SURGEONS, at 4.—Extinct Mammals: Prof. Flower.

QUEBKETT CLUB, at 8.—Conversazione.

SATURDAY, MARCH 22.

ROYAL INSTITUTION, at 3.—Darwin's Philosophy of Language: Max Müller.

SUNDAY, MARCH 23.

SUNDAY LECTURE SOCIETY, at 4.—The Theory of Stringed Musical Instruments: W. H. Stone.

MONDAY, MARCH 24.

GEOGRAPHICAL SOCIETY, at 8.30.—Notes on Khiva, and Routes leading to that country: Major-Gen Sir H. C. Rawlinson, K.C.B., President.

LONDON INSTITUTION, at 4.—Fungoid Organisms: Prof. Thielton Dyer.

ROYAL COLLEGE OF SURGEONS, at 4.—Extinct Mammals: Prof. Flower.

TUESDAY, MARCH 25.

ROYAL INSTITUTION, at 3.—Forces and Motions of the Body: Prof. Rutherford.

WEDNESDAY, MARCH 26.

ROYAL COLLEGE OF SURGEONS, at 4.—Extinct Mammals: Prof. Flower.

LONDON INSTITUTION, at 7.—Courts of Special Commercial Jurisdiction: N. H. Paterson.

SOCIETY OF ARTS, at 8.—On the Edible Starches of Commerce: P. L. Simmonds.

GEOLOGICAL SOCIETY, at 8.—Synopsis of the Younger Formations of New Zealand: Capt. F. W. Hutton.—On the Tree-ferns of the Coal-measures and their Relations to other living and fossil forms: W. Carruthers.—Notes on the Geology of Kazirûn, Persia: A. H. Schindler.

ARCHÆOLOGICAL ASSOCIATION, at 8.

ROYAL SOCIETY OF LITERATURE, at 8.30.—The Rhodian Law, and its connection with the Laws of Mediæval Europe: W. S. W. Vaux.

SOCIETY OF TELEGRAPH ENGINEERS, at 7.30.—On a new method of testing short lengths of highly insulated wire: Prof. Fleeming Jenkin.—On some points in connection with the India Government Telegraphs: W. E. Ayrton.

THURSDAY, MARCH 27.

ROYAL INSTITUTION, at 3.—Coal and its Products: A. V. Harcourt.

ROYAL SOCIETY, at 8.30.

SOCIETY OF ANTIQUARIES, at 8.30.

BOOKS RECEIVED

ENGLISH.—A Manual of Metallurgy: G. H. Makins (Ellis & White).—The Atmosphere, Ed by J. Glaisher (Sampson & Low).—The University Oars: Dr. J. E. Morgan (Macmillan).—Chauveau's Comparative Anatomy of the Dome-ticated Animals. 2nd edit. Translated by G. Fleming (Churchill).—The Scientific Bases of Faith: J. J. Murphy (Macmillan).—Mensuration: D. Munro (Chambers).—Essay on the Physiology of the Eye: S. H. Salom (S. H. Salom).—The Year Book of Facts, 1873: J. Timbs (Lockwood).—Steam in the Engine; its Heat and its Work: P. Kaulfer (Blackie).—Results of Meteorological Observations made in the Royal Observatory, Cape of Good Hope: Sir Thos. Maclear (Solomon).—Chemistry for Schools; an Introduction to the Practical Study of Chemistry. 2nd edit: C. H. Gill (Stanford).—Handbook for the Physiological Laboratory: Bruntton-Foster, Klien, and Sanderson.

AMERICAN.—One Law in Nature: Capt. H. M. Lazelle (D. V. Nostrand, New York).

PAMPHLETS RECEIVED

AMERICAN.—United States Commission of Fish and Fisheries, Pt. 7. Report on.—Condition of the Sea Fisheries of the South Coast of New England in 1871-2: S. F. Baird.—On the Glacial and Champlain Eras in New England: J. Dann.—Proceedings of the Academy of Natural Sciences, Philadelphia.

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