

ording to the author's view, organic nature could only have been evolved in the direction of man, who is the necessary result of such evolution, and a perfect epitome of nature itself.

PARIS

Academy of Sciences, Oct. 28.—M. Faye, President.—The first paper was a long reply to M. Pasteur's late paper on the production of wine, by M. Frey; at its conclusion M. Pasteur rose and defended his former position, after which M. Frey again returned to the attack, on the conclusion of which M. Pasteur contented himself with saying that he had already answered all objections. M. A. Trécul then read a note on the origin of Ferments, on the conclusion of which M. Pasteur made a few remarks, and the discussion dropped.—M. Yvon Villarceau next read a paper on a new general mechanical theory. M. Chevreul followed with the conclusion of his answer to M. A. Gruyer's report on the London International Exhibition of 1871. MM. P. A. Favre and C. A. Valson's researches on crystalline dissociation came next. They concluded this, the third paper, as follows:—"The result of solution is to give to the elements of the dissolved bodies a reciprocal independence, and the internal mechanical work necessary to produce this effect is measured by the changes of volume which accompany solution, and consequently by the quantity of heat brought into play when the same effects of force are applied directly to the dissolving liquid by means of equivalent actions."—M. Is. Pierre and E. Puchot followed with a paper entitled "New Studies on valeric acid, and on its preparation on the large scale." The authors assert that valeric acid rotates the plane of polarisation in the same direction as cane sugar, while amylic alcohol rotates it in the opposite direction. A paper on butyric acid, by the same authors followed. The acid, prepared from butyric alcohol, exerts no sensible action on polarised light; it boils regularly at 155.5, when the barometer stands at 760 M.M.—A paper on the extension of the *Phylloxera* in Europe, by M. J. E. Planchon, was then read. The author states that the insect is indigenous to America, and that it is a recent importation into Europe.—A memoir by M. Resal on the equation of movement of a funicular curve, &c., was referred to the section of mechanics, and was followed by an essay on the theory of running streams, by M. Boussinesq.—A paper by Mr. Grace Calvert on the power possessed by certain substances of stopping putrefaction and the development of protoplasmic life, was then read, after which came the second of M. Dareste's studies on the osteological type of osseous fish; it was referred to the zoological and anatomical section.—M. Dumas then read some communications from the *Phylloxera* Commission, which received at this meeting a communication from M. Loarer.—The Lightning Conductor Commission received five reports from M. W. de Fonvielle, who is charged with a mission to England by that commission. A memoir on fevers by M. P. Levers was sent to the commission for administering the Bréant legacy, and that on the preservation of articles of food received a paper from M. Lacc.—M. Yvon Villarceau then presented M. Stephan's Observations and Ephemerides of the planet 123.—Then came some new observations on Summit and Thalweg Lines, by M. C. Jordan.—A note by M. H. Delray on the purple of Cassius was then read. The author proposes the following definition of this body, the true constitution of which has not yet been satisfactorily determined. He says that purple of Cassius is a lake of stannic or melastannic acid coloured with finely divided gold, and that the latter has, by reason of its combination with the tin oxide, lost its solubility in mercury, just as many colouring matters become insoluble as soon as they encounter vegetable fibre. He adduces several experiments in support of this view.—A note from M. H. Violette on the Fusion of Platinum followed. The author has fused platinum in a wind furnace connected with the chimney-shaft of a large factory, and fed with gas-carbon in small fragments. 50 grammes were thus fused in an hour, but one of the secretaries of the Academy suggests that the platinum was contaminated with the carbon or silicon, and thus rendered abnormally fusible. M. de Quatrefages then presented a note by M. de la Blanchière on changes of colouration produced in fish by the conditions of their *habitat*, after which M. C. Sedillot presented some researches on the physiological and anti-fermentescible properties of sodic silicate, by MM. A. Rabuteau and F. Papillon; these further experiments confirm the author's previous results, with the exception that in some cases the action on ferments is only temporary. The author hopes to be able to explain this retarding action of the silicate in a future

communication.—This paper was followed by one on some chemical researches on the leaves of *Eucalyptus globulus*, by M. Rabateau. These leaves are used as an antiperiodic, and the author endeavoured to find in them an alkaloid, but did not succeed.—M. Ch. Grad then read a paper on the quaternary formations of the Algerine Sahara, and was followed by M. A. Béchamp with a paper on some researches on the physiological theory of the alcoholic fermentation produced by beer yeast. The researches of the author tend to support the physiological and not the chemical theory.—M. Jacquez then demanded the opening of two notes deposited by him on the 23rd November, 1857, and 4th January, 1858. The notes related to the action of borates in preventing putrefaction and the growth of mould, and their use as an injection for subjects for dissection; the conclusion arrived at in the first note is, that these salts are extremely efficacious for the above purposes.—A note by M. Guynemer, deposited on the 3rd of January, 1870, and relating to the November meteorites, was next opened.—A note by M. Malessart on a new motive power obtained by a particular disposition of electro magnets, was submitted to M. E. Becquerel for examination.—M. Lamson presented some drawings of a machine, the motive power of which was produced by the action of gravity. They were submitted to M. Dupuy de Lôme.—M. F. Thomas sent a note on the production of fluorine by the action of cupric sulphate on an anhydrous fluoride, which was submitted to M. Balard.

BOOKS RECEIVED.

ENGLISH.—The Forms of Water in Clouds and Rivers, Ice and Glaciers: J. Tyndall (H. S. King and Co.).—Elementary Treatise on Natural Philosophy: A. Privat Deschanel, translated by Prof. J. D. Everett (Blackie and Son).—Notes on River Basins: E. R. Williams (Longmans).

DIARY

THURSDAY, NOVEMBER 14.

LONDON MATHEMATICAL SOCIETY, at 8.—Remarks on some Recent Generalisations of Algebra: the President.—Sur les Fonctions Circulaires: M. Hermite.—Investigation of the Disturbance produced by a Spherical Obstacle on the Waves of Sound: Hon. J. W. Strutt.—On the Mechanical Description of a Cubic Curve: Prof. Cayley.—A Series of Models of Cubic Surfaces to Illustrate their Different Forms: Prof. Henrici.—On a Theorem Relating to the Polyhedra with Triangular Faces, with Illustrative Models: Prof. W. A. Clifford.

SUNDAY, NOVEMBER 17.

SUNDAY LECTURE SOCIETY, at 4.—On the Dawn of the Sciences in Europe: Prof. W. K. Clifford.

MONDAY, NOVEMBER 18.

ENTOMOLOGICAL SOCIETY, at 7.

TUESDAY, NOVEMBER 19.

ZOOLOGICAL SOCIETY, at 8.30.

ANTHROPOLOGICAL INSTITUTE, at 8.—The Moabite Jars, with a Translation: Rev. Dunbar I. Heath, M.A.—Human Remains from Iceland: Capt. Burton and Dr. Blake.—The Atlantean Race of Western Europe: the late J. W. Jackson.

WEDNESDAY, NOVEMBER 20.

GEOLOGICAL SOCIETY at 8.—On the Geology of the Thunder-Bay and Shabendown Mining Districts, on the North Shore of Lake Superior: Dr. Alleyne Nicholson, F.G.S.—On the Relations of the supposed Carboniferous Plants of Bear Island with the Palæozoic Flora of North America: Dr. J. W. Dawson, F.R.S.—Further Notes on Eocene Crustacea from Portsmouth: H. Woodward, F.G.S.—On a New Trilobite from the Cape of Good Hope: H. Woodward, F.G.S.

METEOROLOGICAL SOCIETY, at 7.—On the Storms experienced by the Submarine Cable Expedition in the Persian Gulf, Nov. 1 and 2, 1869: Latimer Clark, M. Inst. C.E.—On the Meteorology of Southland, New Zealand, in 1871: C. Rous Marten.—On a Self-registering Tide-gauge and Electrical Barograph: H. C. Russell, Government Astronomer, Sydney.

THURSDAY, NOVEMBER 21.

LINNEAN SOCIETY, at 8.—On the *Composite* of Bengal: C. B. Clarke, F.L.S.—On Diversity of Evolution under one set of External Conditions: Rev. J. T. Gulick.

CHEMICAL SOCIETY, at 8.

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