

possessed the property of spinning in only one direction upon a horizontal surface.—On the formation of cloud in the absence of dust, by Mr. C. T. R. Wilson. The cloud-formation is brought about, as in the experiments of Aitken and others, by the sudden expansion of saturated air. A form of apparatus is used in which a very sudden and definite increase in volume is produced, and in which the possibility of dust entering from the outside seems to be excluded. If ordinary air is started with, it is found that after a comparatively small number of expansions, to remove dust particles by causing condensation to take place on them, there is no further condensation unless the expansion exceeds a certain definite amount. With expansion greater than this critical value condensation invariably takes place, and the critical expansion shows no tendency to rise, however many expansions be made. The latest result for the ratio of the final to the initial volume, when the critical expansion is just reached, is 1.258 (when initial temperature = 16.7). This corresponds to a fall of temperature of 26° C., and a vapour pressure 4.5 times the saturation pressure for a plane surface of water. The radius of a water drop just in equilibrium with this degree of supersaturation = 6.5×10^{-6} cm., assuming the ordinary value of the surface tension to hold for drops of that size.

May 27.—Evaluation of an automorphic function, by Mr. H. F. Baker.—On a construction in geometrical optics, by Mr. J. Larmor.—Note on the steady motion of a viscous incompressible fluid, by Mr. J. Brill.

PARIS.

Academy of Sciences, May 27.—M. Cornu in the chair.—On an algebraical problem connected with Fermat's last theorem, by M. de Jonquieres.—A contribution to the history of the cerium earths, by M. P. Schutzenberger.—On the accumulation in the soil of cupric compounds used in the treatment of parasitic diseases in plants, by M. Aimé Girard. The evidence furnished by the author, in addition to the facts made known by other writers, completely proves that continuous treatment with copper compounds for a long period has no influence either upon the quantity or the quality of the crop obtained from the vine or potato.—Dr. Frankland was elected Foreign Associate of the Academy.—Injection of ethyl alcohol into venous blood, by M. N. Gréhan. From experiments made on a dog, it is concluded that, after the injection into the blood of a considerable volume of alcohol, the proportion of this substance in the blood five minutes after the injection and for more than eight hours afterwards becomes absolutely constant.—Spectroscopic researches on Saturn's rings, by M. H. Deslandres. The rotation of the planet and of its inner and outer rings has been measured by the methods used first by the author with the planet Jupiter, and employed by Keeler in his recently published researches on the subject of this paper. The author differs from Keeler inasmuch as he does not regard this kind of evidence as a proof of the meteoric nature of the rings.—On the reduction of nitric oxide by iron or zinc in presence of water, by MM. Paul Sabatier and J. B. Senderens. The reduction of gaseous nitric oxide or nitric oxide dissolved in ferrous sulphate solution results in the production of nitrous oxide and nitrogen, finally the nitrous oxide is completely reduced also. A small amount of ammonia is formed, and a considerable quantity of hydrogen liberated, when the reaction is permitted to go on for a considerable time.—On the reduction of silica by aluminium, by M. Vigouroux. Silicon obtained in the crystalline form by this process is described.—A study of some reactions of lead sulphide, by M. A. Lodin. Mr. James Hannay's conclusions concerning the hypothetical compound $Pb_2S_3O_2$, and the part played by it in the metallurgy of lead, are controverted. It is found that lead sulphide fuses at 935°, but exerts a considerable vapour pressure at temperatures much lower; hence the explanation of the volatilisation of galena requires no new compound to be supposed to exist. The long-admitted equations expressing the reactions taking place in the reverberatory furnace are completely verified by the author.—On campholenic derivatives, by M. A. Béhal.—On crystallised cinchonine, by M. Ferdinand Roques.—Transformation of an aniline salt into an anilido-acid. Pyruvic acid forms with aniline a condensation product, $CH_3 \cdot C(NC_6H_5) \cdot COOH$. Phenylglyoxylic acid, under the same conditions, forms the salt, $C_6H_5 \cdot CO \cdot CO_2H \cdot NH_2 \cdot C_6H_5$. On dissolving this in methyl alcohol, the condensation product, $C_6H_5 \cdot C(NC_6H_5) \cdot CO_2H$, separates out in the crystalline form in a few minutes in the cold.—On ozobenzene, by M. Adolphe Renard. By the action of

ozone on benzene a white explosive substance is produced having the composition $C_6H_6O_6$.—On the fixation of iodine by potato-starch, by M. Gaston Rouvier.—On the elimination of magnesia in the urine of infants suffering from rickets, by M. Oechsner de Coninck.—On the employment of serum from animals immunised against tetanus, by M. L. Vaillard. The antitetanic serum is able to confer complete immunity for from two to six weeks, but if the tetanus has become established, inoculation is not able to prevent progress of the disease. The toxine in tetanus is perhaps the most active of the bacterial poisons, yet the antitoxine of the serum is even more active.—The relation between relief and the frequency and intensity of earthquakes of any region, by M. de Montessus.—Atmospheric and seismic perturbations of the month of May last and their connection with solar phenomena, by M. Ch. V. Zenger.

BOOKS AND SERIALS RECEIVED.

BOOKS.—On certain Phenomena belonging to the Close of the last Geological Period and on their Bearing upon the Tradition of the Flood; Dr. J. Prestwich (Macmillan).—Fallacies of Race Theories as applied to National Characteristics; W. D. Babington (Longmans).—A Junior Course of Practical Zoology; Prof. A. M. Marshall and Dr. C. H. Hurst, 4th edition (Smith, Elder).—Handbuch für Botanische Bestimmungsübungen; Dr. F. Niedenzu (Leipzig, Engelmann).—Cours Élémentaire d'Electricité; M. B. Brunhes (Paris, Gauthier-Villars).—Verlagskatalog von Wilhelm Engelmann in Leipzig bis ende des Jahres 1894 (Leipzig, Engelmann).—The Time Machine; H. G. Wells (Heinemann).—A Text-Book of Physiology; Dr. M. Foster, 6th edition, Part 2, comprising Book 2 (Macmillan).—The Lumenian Lectures on certain Points in the Ætiology of Disease, and the Harveian Oration; Dr. P. H. Pye-Smith (Churchill).—Meteorological Charts of the Red Sea (Eyre and Spottiswoode).

SERIALS.—Proceedings of the Royal Society of Edinburgh, Vol. xx, pp. 305-384 (Edinburgh).—National Review, June (Arnold).—Humanitarian, June (Hutchinson).—Natural Science, June (Rait).—Contemporary Review, June (Isbister).—Scribner's Magazine, June (Low).—Zeitschrift für Physikalische Chemie, xvii. Band, 1. Heft (Leipzig, Engelmann).—Fortnightly Review, June (Chapman).—North American Fauna, No. 8 (Washington).—Proceedings of the American Philosophical Society, May 1893 (Philadelphia).—Ditto, July to December, 1894 (Philadelphia).—Proceedings of the Academy of Natural Sciences of Philadelphia, 1894, Part 3 (Philadelphia).—Bulletin from the Laboratories of Natural History of the State University of Iowa, Vol. 3, No. 3 (Iowa).—Geographical Journal, June (Stanford).

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