

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, September 11.—**M. Camille Jordan** in the chair.—**A. Lacroix**: The constitution of the volcanic rocks of the extreme north of Madagascar and of Nosy bé; the ankaratrites of Madagascar in general. Five complete analyses are given of rocks from the north of Madagascar, four of rocks from the island of Nosy bé, and six of ankaratrites.—**E. Lebon**: A new table of divisors of numbers.—**L. Godeaux**: The involutions belonging to algebraic surfaces.—**J. Guillaume**: Observations of the sun, made at the Lyons Observatory during the first quarter of 1916. The results of observations made on sixty-one days are summarised in three tables, showing the number of spots, their distribution in latitude, and the distribution of the faculæ in latitude.—**D. Eydoux**: The modifications of the phenomena of hammering in pipes of variable thickness and diameter.—**P. Zeeman**: The drift of light waves and solar phenomena.—**A. Perot**: The influence of the wind on the conditions of audibility of sound. Gunfire has been heard at a great distance from the battlefield, with an intermediate zone of silence. It is shown that this phenomenon can be explained by assuming that at a certain altitude either there is no wind, or that it is contrary in direction to the wind near the ground-level.—**H. Pellet**: The total destruction of pentoses in the course of alcoholic fermentation. In an attempt to estimate pentoses in the presence of saccharose, by fermenting the latter with yeast, it was found that some pentoses were fermented. Alternative conditions are given under which this fermentation of pentoses can be rendered either total or reduced to negligible proportions.

WASHINGTON, D.C.

National Academy of Sciences (Proceedings No. 8, vol. ii., August 15).—**C. D. Miller**: The absorption coefficients of soft X-rays. The numerical constants in the relation between the absorption coefficients, the density, and the wave-lengths have been accurately determined. The results also indicate that the relationship holds for very much softer X-rays than those of ordinary penetrating power.—**E. F. Smith**: Further evidence as to the relation between crown gall and cancer. There are discussed: fundamental concepts, human and animal tumours for which no cause has been discovered, earlier discoveries in plants, further discoveries, other resemblances of crown gall to cancer in man and animals, possibility of the existence of carcinomas and of mixed tumours in plants, production of embryonal teratomata, and bearing of these discoveries on the cancer problem.—**G. H. Parker**: Locomotion of sea-anemones. The pedal portion of a sea-anemone, like its tentacles, must contain a neuromuscular mechanism sufficient for the activity of that part of its body.—**G. H. Parker**: The behaviour of sea-anemones. Sea-anemones are animals the momentary conditions of which are dependent upon the combined stimuli of their immediate surroundings rather than forms that are greatly influenced by their past history, and their unity is not of a pronounced type; they are more in the nature of a sum of parts than they are organic units of the type of most of the higher animals.—**J. P. Iddings** and **E. W. Morley**: A contribution to the petrography of Japan. Seventeen detailed chemical analyses are given of Japanese lavas.—**J. Loeb** and **J. H. Northrop**: Is there a temperature coefficient for the duration of life? In three series of experiments on the fruit-fly *Drosophila* it is found that the duration of life in the cases examined has a temperature-coefficient of the order of magnitude which is characteristic for life phenomena and chemical reactions in general.—**C. E. St. John**: The suggested mutual repulsion of Fraunhofer lines. The author is unable to

find evidence of the mutual repulsion suggested, and in so far as mutual influence is a necessary corollary of anomalous dispersion in the sun, evidence of this also is lacking.—**A. S. King**: An attempt to detect the mutual influence of neighbouring lines in electric furnace spectra showing anomalous dispersion. Although the material in the investigation is limited by the scarcity of suitable pairs of lines, the lines actually tested have shown no tendency towards a repulsion.—**C. A. Rouiller**: Synthesis of the base $C_8H_8ON_2$ derived from methylaminomethyl-3:4-dihydroxyphenylcarbinol. A continuation of some work by Abel, with a suggestion as to a relation to work by Curtius.—**W. M. Davis**: (1) Extinguished and resurgent coral reefs. (2) The origin of certain Fiji atolls. The two papers offer a discussion of observations made during the author's Shaler Memorial voyage across the Pacific.—**C. Barus**: Interferometer methods based on the cleavage of a diffracted ray. The prismatic method of cleaving the incident beam of white light is available for the superposition of non-reversed spectra, under conditions where the paths of the component rays may have any length whatever. It is thus an essential extension of the same method as used for reserved spectra heretofore, and also of the methods in which the paths are essentially small.—**F. M. Surface**: The inheritance of certain glume characters in the cross *Avena fatua* × *A sativa*, var. *Kherson*. A study of inheritance of certain characters, particularly directed towards revealing phenomena of linkage.—**C. Zeleny**: A comparison of the rates of regeneration from old and from new tissue. The data as a whole show clearly that there is no essential difference between the rate of regeneration from new cells and from old cells. The rate of regeneration seems, therefore, to be under central control.—**C. Zeleny**: The effect of successive removal upon the rate of regeneration. Apart from the slowing due to age, there is no indication of the amount of new material that may be produced by regeneration. The actual limitation comes, not from the using up of regenerative energy, but from changes in the non-regenerating part associated with age.—**E. Blackwelder**: The geologic rôle of phosphorus. Phosphorus appears in Nature in many forms and in many situations. Its numerous transformations, however, follow an orderly sequence—in a broad way form a cycle which is here discussed in some detail.—**J. Barrell**: Dominantly fluvialite origin under seasonal rainfall of the Old Red Sandstone. Geologists have differed so widely in their conclusions in regard to the nature of the habitat of the early vertebrate faunas the remains of which are found in the formations of the Old Red Sandstone, that the author is led to examine critically the criteria for the interpretation of the facts. He comes to the conclusion that the deposits which make up the Old Red Sandstone, although they undoubtedly contain lacustrine beds and other beds laid down in shifting, shallow, and variable bodies of water, are dominantly fluvialite in origin. The Great Valley in California may therefore in the present epoch, both in physiography and in climate, be cited as a striking illustration of the nature of the Old Red Sandstone basins.—**J. Barrell**: The influence of Silurian-Devonian climates on the rise of air-breathing vertebrates. The evidence for the hypothesis of the continental origin of fishes has been examined, and seems to prevail over that for their marine origin. The author also believes that natural selection, although discredited as a cause determining specific variations, appears nevertheless to be a major factor in evolution.—**T. W. Richards** and **C. Wadsworth** 3d: Density of radio-lead from pure Norwegian cleveite. The density of this lead is found to be 11.273, distinctly less than the density (11.280) of Australian radio-lead, and still less than that (11.337) for ordinary

lead, the decrease being almost exactly proportional to the decrease in atomic weight in these samples, so that the atomic volume (18.281) is constant.—National Research Council: A preliminary report to the president of the Academy of the Organising Committee (Messrs. E. G. Conklin, S. Flexner, R. A. Millikan, A. A. Noyes, and G. F. Hale, chairman) of the National Research Council, established by the Academy after conference with the President of the United States for the purpose of co-ordinating the research elements of the country in the interest of national security and welfare.

CAPE TOWN.

Royal Society of South Africa, August 16.—Dr. L. Péringuey, president, in the chair.—R. E. Walker: The granite of the Schapenberg, Somerset West. The granite of the Schapenberg is essentially a grey, biotite-granite-porphry intrusive in fine-grained, argillaceous grits of the Malmesbury series. It is essentially an apophysis of one or other of the two large granite masses—the Kuils River granite and the Sir Lowry's Pass granite—which occur the one to the west and the other to the east of the Schapenberg; most probably of the latter. Both fine- and medium-grained varieties occur. At certain points along the contact the granite, owing to absorption of material from the invaded formation, is andalusite-bearing. The granite, particularly near its margin, has been subjected to pneumatolytic action, which has caused the formation of a series of altered granites ranging from school granite on one hand to greissen on the other. The greissen is a quartz-mica-tourmaline rock resembling, in most respects, that of Grainsgill, described by Mr. Alfred Harker in the *Q.I.C.S.*—J. S. v. d. Lingen: The radial lines in Röntgen interference patterns. The author briefly discussed the theory of radial lines, and pointed out that on Friedrich's assumption these lines ought to be present in all interference patterns. Experiments were then described, which support the view put forward by von Laue and the author, viz. radial lines are caused by weakening of the lattice of a rigid crystal. The pattern of $Mg(OH)_2$, where the water molecules were driven off, and resublimated iodine, were exhibited, as well as the pattern of sylvine obtained by Friedrich. The pattern of this iodine shows the transition stage from a three-dimensional grating to a two-dimensional grating. MgO from $Mg(OH)_2$ shows the two-dimensional grating only. "Baurite from biotite" shows the two-dimensional grating by treating biotite with acids.—E. J. Goddard: Some observations on *Ozobranchus branchiatus*. This paper contains an account of the leech (*Ozobranchus branchiatus*). Some historical interest attaches to the form, inasmuch as it was probably the first Annulate noted from the Australasian region. The specimens were obtained as parasites on the green turtle. The somite is represented in a very primitive condition, and it is of interest to note that the limitation of the genus to Chelonia as parasites is possibly, as in that of Branchellion to Pisces, indicative of an old association, and bearing out the morphological evidence that these forms are archaic and primitive, and ancestral to the Gnathobdellida and Herpobdellida. The paper deals with the constitution of the somite in the various regions of the body, and the conclusions to be derived from the same.

BOOKS RECEIVED.

The Flotation Process. Compiled and edited by T. A. Rickard. Pp. 364. (San Francisco: Mining and Scientific Press.) 8s. 6d. net.

A Glossary of Botanic Terms with their Derivation and Accent. By B. D. Jackson. Third edition. Pp. xi+427. (London: Duckworth and Co.) 7s. 6d. net.

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British and Foreign Marbles and other Ornamental Stones. By J. Watson. Pp. x+485. (Cambridge: At the University Press.) 5s. net.

Alternating Currents in Theory and Practice. By W. H. N. James. Pp. vi+353. (Cambridge: At the University Press.) 10s. 6d. net.

The Royal Horticultural Society's True Work. By A Life Fellow of the Society. Pp. 23. (London: Simpkin and Co., Ltd.) 6d. net.

A Bibliography of British Ornithology from the Earliest Times to the End of 1912. By W. H. Mullens and H. Kirke Swann. Part iii. (London: Macmillan and Co., Ltd.) 6s. net.

Organic to Human: Psychological and Sociological. By Dr. H. Maudsley. Pp. viii+386. (London: Macmillan and Co., Ltd.) 12s. net.

Bacon's War Maps. Europe, embracing all the Countries Involved. (London: G. W. Bacon and Co., Ltd.) 6d. net.

The Student's Handbook to the University and Colleges of Cambridge. Fifteenth edition, revised to June 30, 1916. Pp. 14+704. (Cambridge: At the University Press.) 3s. net.

Memories. By E. Clodd. Pp. xi+288. (London: Chapman and Hall, Ltd.) 10s. 6d. net.

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