—chromidiosome or chromiole—of true cells. In support of this view, of which I am not the originator, I have set forth the reasons which have convinced me that the extraordinary powers and activities exhibited by the chromatin in ordinary cells are such as can only be explained on the hypothesis that the ultimate chromatinic units are to be regarded as independent living beings, as much so as the cells composing the bodies of multicellular organisms; and, so far as I am concerned, I must leave the matter to the judgment of my fellow-biologists.

I may point out, in conclusion, that general discussions of this kind may be useful in other ways than as attempts to discover truth or as a striving towards a verity which is indefinable and perhaps unattainable. Even if my scheme of evolution be but a midsummer night's fantasy, I claim for it that it co-ordinates a number of isolated and scattered phenomena into an orderly and, I think, intelligible sequence, and exhibits them in a relationship which at least enables the mind to obtain a perspective and comprehensive view of them. Rival theories will be more, or less, useful than mine, according as they succeed in correlating more, or fewer, of the accumulated data of experience. If in this address I succeed in arousing interest and reflection, and in stimulating inquiry and controversy, it will have fulfilled its purpose.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

BIRMINGHAM.—A portrait of Prof. Lapworth (by Mr. B. Munns) has been presented to the University by Mr. W. Waters Butler.

Dr. Elgood Turner has been appointed demonstrator in anatomy for women students in succession to Dr. Violet Coghill, who has resigned.

Dr. Mary Clarke has been appointed lecturer in hygiene to the students of the Training College for Women.

Mr. B. Lloyd has been appointed demonstrator in anatomy for the session.

GLASGOW.—Prof. John Ferguson has resigned the Regius chair of chemistry, to which he was appointed in 1874. He had previously for nine and a half years been a junior teacher in the department. He has therefore been a member of the staff for more than fifty years. During his tenure of office the chemical laboratories of the University have been greatly enlarged, and separate departments of organic chemistry, metallurgical chemistry, and physical chemistry have been instituted under the charge of special lecturers. Among Prof. Ferguson's former pupils are many distinguished chemists, including Prof. Millar Thomson, Sir William Ramsay, Sir J. J. Dobbie, Carrick Anderson, Profs. Henderson, Boyd, Long, and Parker, and Dr. A. W. Stewart.

LEEDS.—The Vice-Chancellor has received the following message from the King:—"His Majesty feels that the assistance of the universities is a great asset to the cause for which we are fighting, as science plays such a prominent part in modern warfare."

LONDON.—A course in dynamical meteorology with practical work will be given at the Meteorological Office, South Kensington, on Fridays, at 3 p.m., during the second term by Sir Napier Shaw, director of the Meteorological Office and University reader in meteorology. The fortnightly meetings at the Meteorological Office for discussion of important contributions to current meteorology in colonial or foreign journals will be resumed at 5 p.m. on Monday, October 25, and will be continued on alternate Mondays until March 27, 1916, with the exception of December 20th and January 3. Students wishing to attend should communicate with the reader at the Meteorological Office. The lectures are addressed to advanced students of the University and to others interested in the subject. Admission free, by ticket, to be obtained on application at the Meteorological Office.

A COPY of the September issue of the *Reading University College Review* has been received. It contains a revised list of the names of present members of the staff, past and present students, and present servants of the college who are serving with his Majesty's Forces, or in the French Army. The college may well be proud of its roll of honour. Mr. W. E. G. Atkinson, who was formerly a lecturer of the Department of Agriculture, has been killed in action in the Dardanelles, and Mr. T. G. Malpas, demonstrator in the physics laboratory, has been wounded. The review also contains a list of recent original contributions to science by members of the staff.

THE various courses of instruction to be given at the North of Scotland College of Agriculture during the present session are set out in detail in the current calendar of the college. The courses are designed to prepare students for the degree of B.Sc. in agriculture in the University of Aberdeen, the university diploma in agriculture, the national diplomas in agriculture and dairying, the degree of B.Sc. in forestry, and the certificate in forestry granted by the Highland and Agricultural Society of Scotland. All courses are open to women as well as to men. With the aid of a grant from the Development Commission, a research department has been instituted. In accordance with the conditions under which the grant is received from the Commission, this department is managed by a joint committee representing the governors and the University Court. We notice the governors have acquired a college farm. Experiments and demonstrations will be carried out. Experimental plots, an experimental and demonstration garden, and a horticultural department, are in course of construction. It is also intended to carry on feeding and other experiments upon stock. The farm is conveniently situated about five miles from Aberdeen. It is proposed to institute a school of rural domestic economy for girls. There is a large mansion house on the college farm estate which will be equipped as a residence for the girls attending the school, and in which classes will be carried on.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, October 4.—M. Ed. Perrier in the chair.—J. **Boussinesq**: The correct calculation of the influence of climatic inequality on the velocity of increase of terrestrial temperatures with depth from the surface.—H. **Douvillé**: The orbitoids of the peninsula of California. A study of material arising from the geological explorations of Arnold Heim. Some specimens belong to the genus Orthophragmina, and it is the first time these have been discovered in this region. Some rare Foraminifera include specimens of *Amphistegina Niasi*.—E. E. **Barnard**: Some supposed movements in stars near the cluster Messier 11 = N.G.C. 6705. The observation of J. Comas Solá on movements of stars in the neighbourhood of this cluster do not appear to be well founded. They were based on the stereoscopic examination of photographs taken at an interval of three years. The author has examined photographs of the same

region separated by an interval of twenty-two years, making use of a Zeiss stereo-comparator, but no movement of the stars in question can be observed.—J. Comas **Sola**: The approximate positions of a small planet, apparently new.—C. **Camichel**: Hammering in water pipes entirely free from air. Experimental determinations of the velocity of wave transmission in an 80 mm. iron pipe, 154 metres long, and of the pressures produced by sudden closing of a tap in the main.—Alb. **Colson**: The heat disengaged by a solid body passing to the state of saturated or dilute solutions. Details of experimental studies by a new method on the heats of solution of common salt.—B. **Bogitch**: The reciprocal solubility of copper and lead. Copper and lead form a double layer when the amount of copper exceeds 34·5 per cent., and is below 87 per cent. This double layer can only exist between the temperature of solidification of the upper layer (940° C.) and 975° C.—Arnold **Heim**: The geology of the southern part of lower California.—MM. **Debierne** and **Regaud**: The use of the condensed radium emanation in closed tubes in the place of radium compounds, and the estimation (in millicuries of emanation destroyed) of the energy used up in radio-active applications in general. An account of the advantages, from the points of view of economy and ease of application, of condensed radium emanation for biological purposes.

NEW SOUTH WALES.

Linnean Society, August 25.—Mr. A. G. Hamilton, president, in the chair.—R. J. **Tillyard**: The physiology of the rectal gills in the larvæ of anisopterid dragon-flies. The minute structure of the rectal gill was studied to find evidence for a solution of the difficult problem of the physiology of respiration in these organs. Seven separate elements are recognisable in the gills. The argument excludes four of these, leaving only three, viz., the cuticle, the epithelial syncytium of the gill, and its tracheal capillary loops, as the agents of respiration. These are suited for respiration by diffusion of gas from the rectal water-supply through the cuticle and syncytium into the capillaries. The old objection to this diffusion theory, viz., that it can be understood easily when once started, but that there is no explanation of how it could begin in the newly-hatched nymph, is disposed of by observations on the process of hatching, which prove that the tracheal gas is not derived in the first instance from the rectal water-supply, but from some unknown source in the anterior end of the larval body.—T. G. **Sloane**: Studies in Australian entomology. No. XVII.—New genera and species of Carabidæ. This instalment treats of the tribes Pamborini, Migadopini, Broscini, Cuneipectini, Nomiini, Pterostichini, Platynini, Oodini, Harpalini, and Lebiini. Four genera and thirty-two species are described as new; among the most noteworthy being—a new species of Pamborus, a new genus of the Antarctic tribe Migadopini, an additional species of the genus Cuneipectus (the type of a tribe confined to western Australia), and a species of Phorticosomus, which has the submentum bearing two horn-like processes, a character known only in the allied genus Dioctes from the Steppes east of the Caspian Sea.—O. B. **Lower**: Descriptions of new Australian Lepidoptera. Twenty-one species, referable to the Geometridæ, Monocteniadæ, Selidosemidæ, Limacodidæ, Ocneriadæ, Zeuzeridæ, Pyraustidæ, Œcophoridæ, and Xyloryctidæ, are described as new; with one exception, all are from Pinnaroo, South Australia, or from Broken Hill, N.S.W., or from both localities.

CAPE TOWN.

Royal Society of South Africa, August 18.—Dr. L. Péringuey, president, in the chair.—J. W. **Bews**: The growth forms of Natal plants. The author gives a detailed description of his work on the growth forms of Natal plants. The investigation of the growth forms of plants in relation to their environment is being recognised as a very important, if not the most important, branch of plant ecology. The study of the various plant communities and their determination by the environmental factors presents a more general aspect of the subject, and has hitherto perhaps on the whole received more attention from plant ecologists, though, of course, it includes a certain amount of the study of the separate growth forms. It is, however, in the more detailed study of the "epharmony" of the species of plants that a deeper insight is gained into the cause and effect relationship existing between the environment and plant life.—I. B. Pole **Evans**: The South African rust fungi. I. The species of Puccinia on Compositæ. Descriptions and accompanying notes are given of the species of Puccinia based mainly upon material which the author and his colleagues have collected during the past ten years in South Africa, and which is now represented in the Mycological Herbarium of the Union of South Africa at Pretoria. The material has been collected primarily with the object of elucidating the life-histories of the various rusts which are so destructive to many of our economic crops, and it is hoped that the descriptions of these parasites, of which this is the first instalment, may promote a more widespread interest in this group of plants, and may be the means of adding considerably to our present very imperfect knowledge of these fungi.—J. Steph. v. d. **Lingen**: Heating and cooling apparatus for Röntgen crystallographic work. The apparatus described has been devised by the author in order to facilitate the work of those who wish to carry on research on the determination of the energy of an atom at zero temperature and at very high temperatures. The energy of atoms and its relation to temperature is one of the many problems of modern physics. Since the publication of de Bye's extension of Laue's theory of Röntgen interference, several experiments have been performed with a view to determine, first, the validity of de Bye's theory, and, secondly, the variation of atomic energy due to "heat motion."

BOOKS RECEIVED.

Memoirs of the Geological Survey, England and Wales: The Coals of South Wales, with Special Reference to the Origin and Distribution of Anthracite. By Dr. A. Strahan and Dr. W. Pollard. Second edition. Pp. vi+91. (London: H.M.S.O.; E. Stanford, Ltd.) 2*s*.

Stars of the Southern Skies. By M. A. Orr (Mrs. J. Evershed). Pp. xii+92. (London: Longmans and Co.) 2*s*. net.

An Introduction to Applied Mechanics. By E. S. Andrews. Pp. ix+316. (Cambridge: At the University Press.) 4*s*. 6*d*. net.

Botany. By D. Thoday. Pp. xvi+474. (Cambridge: At the University Press.) 5*s*. 6*d*. net.

In Pastures Green. By P. McArthur. Pp. xi+364. (London: J. M. Dent and Sons, Ltd.) 5*s*. net.

Quantitative Laws in Biological Chemistry. By Dr. S. Arrhenius. Pp. xi+164. (London G. Bell and Sons, Ltd.) 6*s*. net.

Key to Geometry for Schools. By W. G. Borchardt and Rev. A. D. Perrott. Pp. 294. (London: G. Bell and Sons, Ltd.) 8*s*. 6*d*. net.

An Untamed Territory: The Northern Territory of Australia. By E. R. Masson. Pp. xii+181. (London: Macmillan and Co., Ltd.) 6*s*.

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