

was a rapid rise of temperature followed by marked improvement in the condition of the animal. This observer believes that antitoxine can be obtained by this method that will be much more suitable for the treatment of the human subject than those obtained by the ordinary methods. His experiments, however, are far too few to carry any great weight, though they open up a most interesting field for future investigation.

(To be continued.)

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The extension of the buildings of the Cavendish Laboratory is about to be undertaken, at an expense of over £4000. About half the cost will be met from the accumulated fees of students working in the laboratory.

Mr. E. Hamilton Acton, Fellow and Lecturer in Chemistry of St. John's College, died suddenly, from heart disease, on Friday night. Mr. Acton was only in his thirty-third year; but he had earned a considerable reputation as a chemist, and his researches in vegetable chemistry, in particular, were of importance. He was an able and successful teacher. His funeral on Tuesday was attended by some hundreds of the junior members of the University, and by representatives of all the scientific departments.

MR. ROBERT PERKINS, of Jesus College, Oxford, leaves England next week for Honolulu to resume his investigations on behalf of the Joint Committee appointed by the Royal Society and the British Association for the zoological exploration of the Sandwich Islands. The large collections he made there during his former stay (March 1892 to September 1894) have been submitted to various specialists, with results that show him to be an indefatigable observer in all branches of terrestrial zoology; and, since his return to England last autumn, he has been busily engaged in discovering what has yet to be done to complete our knowledge of the indigenous Fauna which is so rapidly disappearing.

THE County Councils of Northumberland and Durham are truly advancing technical education by affording assistance to Dr. W. Somerville, Professor of Agriculture in the Durham College of Science, to carry out extensive manorial trials. The experiments were begun in 1892, on nine farms in Northumberland; in 1893, when Durham joined in the work, the number of farms rose to twenty-six; while during 1894, the trials were made at no less than forty-three different centres in the two counties. The investigations must have a not inconsiderable influence upon the prosperity of the agriculture of the district to which they refer.

THE Technical Instruction Committee of the Essex County Council, with a view to promoting the spread of scientific knowledge among those engaged on the coast in the fishing industries, started a modest biological station at Brightlingsea last year, and, under the superintendence of Mr. J. T. Cunningham, a number of specimens were collected for the purposes of demonstration. Some experiments on the continental method of growing oysters were also commenced, but, owing to the unfavourable character of the season, the results could not be carried very far. We are glad to learn, however, that the Committee, in conjunction with the Borough Council of Colchester, propose to carry on the work of the station, and that the Fishmongers' Company have also shown their appreciation of the movement by giving a grant of £50 per annum for three years.

THE Manchester Town Council have accepted a tender for the erection of a technical school at a cost of £140,000.

### SCIENTIFIC SERIALS.

*American Journal of Mathematics*, vol. xvii. No. i. (January, 1895).—Sur une transformation de mouvements, P. Appell, is a treatment of Elliot's problem (*Comptes rendus*, 1893), and of a question solved by Mestschersky, in the *Bulletin des Sciences Math.* 1894, as a particular case of transformation of movements.—An extract from a letter addressed to Dr. Craig by M. Hermite, gives the result of an investigation of the asymptotic value of  $\log \Gamma(a)$  when  $a$  is large.—On the first and second logarithmic derivatives of hyperelliptic functions, by Oskar Boiza, opens with a statement of certain well-known

theorems of the theory of elliptic functions, and then extends these and some allied theorems to hyperelliptic functions.—Sur la définition de la limite d'une fonction. Exercice de logique mathématique, by Prof. Peano. The definition is one previously used by the writer, and also by two or three previous writers. It is practically given by Abel (*Works* ii. p. 199), in the form, "Pour qu'une série  $\sum u_n$  soit convergente, il faut que la plus petite des limites de  $nu_n$  soit zéro." The same general idea of a limit is given in Cauchy's "*Cours d'Analyse algébrique*" (1821, p. 13), "quelquefois . . . une expression converge à la fois vers plusieurs limites différentes les unes des autres." Prof. Peano works on this definition, and demonstrates at some length its principal properties. To this end he employs the logic of mathematics, "Cette science s'est rapidement développée de nos jours, et on l'a appliquée dans plusieurs travaux."—Dr. E. McClintock contributes an article on theorems in the calculus of enlargement (a paper read before the American Mathematical Society, August 14, 1894). It is an interesting sequel to his essay on the calculus of enlargement (vol. ii. pp. 101–161).—In his note on Foucault's pendulum, Mr. Christin considers the motion of a physical pendulum on the surface of the earth, taking into account the rotation of the earth about its axis. The initial velocity relatively to the earth of the pendulum is supposed equal to zero, as in Foucault's experiment. Hence he retains the name of "Foucault's pendulum," although oscillations of any finite amplitude are considered. The portrait which is given with this number is that of M. E. Picard.

*Wiedemann's Annalen der Physik und Chemie*, No. 2.—Fluorescence of solutions, by O. Knoblauch. There is a constant ratio between the intensity of the fluorescence and the existing light, even when the intensity of the latter is altered in the ratio of 1 to 6400. The author proves experimentally and theoretically that the effect upon the various fluorescent bodies of varying the solvent is very different.—The potential gradient in the positive portion of the glow discharge, by A. Herz. The potential gradient in the positive unstratified glow discharge of a vacuum tube decreases as the current increases, and also as the diameter of the tube is increased; but it increases with the pressure, though not as rapidly.—Unipolar induction, by Ernst Lecher. The author discusses the different aspects of the question whether, when a cylindrical magnet rotates about its axis, the lines of force due to it are stationary, or rotate with the magnet. The former was Faraday's original view, the latter has been maintained by Tolver Preston and others. After showing that all the experiments hitherto quoted as decisive one way or the other may be equally well interpreted on either assumption, he describes some test experiments which show that the lines of force stand still while the magnet rotates.—Electric dispersion, by P. Drude. A method is described for investigating the relation between the dielectric constant of a substance and the period of the electric waves traversing it, or what may be described as the electric dispersion of the substance. If the dielectric constant decreases as the period increases, there will be normal, if it increases, anomalous dispersion. For alcohol the dispersion was found to be normal, and of the same order of magnitude as its optical dispersion. Water showed abnormal dispersion with the large wave-lengths used, whereas carbonite showed no perceptible dispersion.—Effect of cathode rays upon some salts, by E. Goldstein. Lithium chloride, when exposed to Kathode rays, assumes a heliotrope or dark violet colour, which it retains for some time in a sealed tube. Chlorides and other haloid salts of potassium and sodium show similar effects. The colours are very superficial, and disappear on heating, or by the action of moisture.

### SOCIETIES AND ACADEMIES.

LONDON

Geological Society, January 23.—Dr. Henry Woodward, F.R.S., President, in the chair.—Carrock Fell: a study in the variation of igneous rock-masses. Part ii. The Carrock Fell Granophyre. Part iii. The Grainsgill Gneiss, by Alfred Harker. The augite-granophyre of Carrock Fell was first described in its normal development, special attention being drawn to the various types of micrographic intergrowths which it exhibits. The variation of the rock was next examined,