

Life" is contributed to the same review by Prof. Clifford Allbutt. There is also a paper of interest to physical geographers, its title being "The Evolution of Cities."

The current *Quarterly Review* has among its articles a sketch of the history of the Ordnance Survey, wherein we read "the scope of the undertaking exceeds any programme heretofore attempted by any Government, the mode and style of its execution are second to none, either from a scientific, artistic, or utilitarian point of view, and the cost of the work, stroke for stroke, is probably lower than that paid by any other nation for a similar purpose." Prof. Huxley's collected essays, and other works, are reviewed under the title "Prof. Huxley's Creed," and in the article "England in Egypt," the irrigation of Egypt, and the construction of the Philæ dam, are noticed.

The *Keliquary and Illustrated Archaeologist* is rich in good illustrations. Among the articles we notice an account of the exploration of a Hunnic cemetery at Czika, near Buda-Pesth. Parts of a number of skeletons have been found, and a complete skeleton of a woman, six feet three inches in length. Weapons, stirrups, earthenware vessels, and various ornaments have also been found. "The Burning of the Clavie," a ceremony still carried out on the last night of the old year at Burghhead, in the north of Scotland, is described by Mr. H. W. Young. The custom appears to have come down from the most remote ages. The natives of Burghhead assert that it is a Druidical worship, while Mr. Young believes it to be simply a revival of the worship of Baal—a remnant of that great fire worship which prevailed over the whole world as known to the ancients. In the notes is an illustration of the ancient Egyptian tomb in the island of Elephantina, discovered and explored by H. R. H. the Crown Princess of Sweden and Norway, and an illustrated description of the re-erection of those interesting pre-historic monuments, the Dartmoor menhirs. Recent investigations have yielded some evidence which connects these stone-rows with the Neolithic period.

A passing notice must suffice for the remaining articles on scientific subjects in the magazines received by us. *Good Words* contains Sir Robert Ball's concluding paper on "Sir Isaac Newton," and a brief paper "On the Anti-toxin Cure for Diphtheria," by Dr. W. J. Fleming. A visit to the tomb at Dashur, where the jewels of an Egyptian princess of the Twelfth Dynasty were found last year, is described by Mrs. St. Loe Strachey in the *National*. The *Humanitarian* has an article on "The Prevalence of Nervous Diseases," by Dr. S. Althaus. "Some Curiosities of Modern Photography" are brought together by Mr. W. G. FitzGerald in the *Strand Magazine*. The illustration he gives of an image photographed through the eye of a beetle is, however, quite eclipsed by a photograph taken by Dr. Sitta through the lenses of the composite eye of a water-beetle, and reproduced in *Knowledge* for July 1894. Mr. Grant Allen contributes a rhapsody on quails to the *English Illustrated*. *Chambers's Journal* contains its usual complement of readable articles on scientific topics.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—In a Congregation held on Tuesday, February 12, the amendments to the proposed Statute on Research Degrees came under consideration. There were sixty-three amendments, and of these only fourteen came under consideration, as the debates on some of them were of some length. The first amendment, proposed by the Provost of Oriel, and seconded by Prof. Odling and M. Strachan Davidson, proposed that the Degree of Bachelor of Arts should be substituted for the proposed Degrees of Bachelor of Letters and Bachelor of Science. After a prolonged debate the amendment was negatived by 137 votes against 33.

An amendment by Prof. Case, defining "Science" as including Mathematics, Natural Science, Mental and Moral Science, was carried by 137 votes against 34. An amendment, proposed by Mr. C. Cannon, of Trinity College, and seconded by Mr. Bourne, provided that the supervision of the candidates for Research Degrees should be vested in the Boards of Faculties, instead of in a special Delegation as proposed by the Statute under consideration. This amendment was carried by 110 votes against 49. Another amendment, by Prof. Holland, which proposed that candidates for Research Degrees, not being already Graduates of the University, should have obtained a degree in some other University, was rejected by 107 votes

against 39. The other amendments were either consequential on those already mentioned, or were of a formal character. The further consideration of the amendments was fixed for Thursday, February 21.

CAMBRIDGE.—The Sedgwick Prize in Geology has been awarded to Mr. Henry Woods, of St. John's College, Demonstrator in Palæontology. The subject proposed for the prize of 1898 is "The Glacial Deposits of East Anglia." The essays are to be sent to the Registry by October 1, 1897. Candidates must be Graduates of the University who have resided sixty days during the preceding twelve months.

Mr. M. Laurie, of King's College, has been appointed by the Special Board for Biology and Geology, to occupy the University's table in the Naples Zoological Station, for three months from March 1.

A course of lectures in Anthropology, with practical work, is announced by Prof. Macalister for the Lent and Easter Terms. The lecturer is Prof. A. C. Haddon, of the Royal College of Science, Dublin. The subject of the first lecture, on February 14, at 3.30, is "The Methods of Anthropology."

The degree of Sc.D. *honoris causa* is to be conferred on Sir William MacGregor, Administrator of British New Guinea, in recognition of his able contributions to anthropology and ethnography.

The following appointments of electors to Professorships in Natural Science and Medicine are announced. Chemistry, Dr. T. E. Thorpe; Plumian of Astronomy, Dr. A. R. Forsyth, and Mr. W. H. M. Christie, Astronomer Royal; Anatomy, Dr. Allbutt; Botany, Mr. A. Sedgwick; Geology, Prof. Newton; Jacksonian of Natural Philosophy, Lord Rayleigh; Downing of Medicine, Dr. A. Macalister; Mineralogy, Prof. J. J. Thomson; Zoology, Dr. D. Macalister; Cavendish of Physics, Lord Rayleigh; Mechanism, Prof. Osborne Reynolds; Physiology, Mr. J. N. Langley; Surgery, Dr. A. Macalister; Pathology, Dr. Maskell.

A grant of £50 from the Worts Travelling Scholars Fund has been made to Mr. P. Lake, of St. John's College, for the purpose of investigating the distribution of Trilobites in Russia and Sweden.

A PARLIAMENTARY PAPER dealing with the moneys received by the Councils of Counties and County Boroughs in England and Wales under the Local Taxation (Customs and Excise) Act, 1890, and available for technical education, has just been published. The following summary shows how the moneys have been expended:—

|  | Counties (other than London) and County Boroughs. | County of London. | Total.    |
|--|---|-------------------|-----------|
| Aggregate amount received up to March 31, 1894 ...   | 2,439,319   | 687,034           | 3,126,353 |
| Aggregate amount expended on—  |   |                   |           |
| (a) Technical and Intermediate Education ...   | 1,481,712   | 27,246            | 1,508,958 |
| (b) Purposes other than Technical and Intermediate Education ...   | 290,508   | 600,034           | 890,542   |
| Aggregate amount appropriated to Technical and Intermediate Education, but remaining unexpended at the date of the Returns ... | 635,933   | 59,754            | 695,687   |
| Residue not appropriated for Technical and Intermediate Education, but remaining unexpended at the date of the Returns ...     | 131,166   | —                 | 31,166    |
|  | 2,439,319   | 687,034           | 3,126,353 |

<sup>1</sup> £6700 of this amount had been appropriated to County buildings and museum.

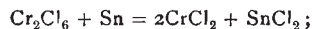
Seventy-one out of the 126 Councils had expended on, or appropriated to, Technical or Intermediate Education the whole of the moneys they had received from the residue of the Beer and Spirit Duties.

### SOCIETIES AND ACADEMIES.

#### LONDON.

**Physical Society, February 8.**—Annual General Meeting.—The chair was taken by the retiring President, Prof. Rücker. —The Treasurer, Dr. Atkinson, presented his report for the year 1894. The balance-sheet showed a somewhat larger expenditure than in previous years, the increase being partly due to the new system of publishing abstracts, partly to the rent of rooms and the expenses of tea. The balance in the bank had increased by about £33 during the year; but the Treasurer said that, strictly speaking, the Society had trenched on its capital to the extent of about £30, and that this would probably be the last report for some time to come which would show a balance in favour of the Society. The assets of the Society exceeded its liabilities by £2642 or. 5*d*. Prof. Carey Foster asked whether it would not be possible, in estimating the assets of the Society, to make some allowance for the stock in hand. Dr. Atkinson replied that that had not hitherto been done, and the difficulty would be to assign a money value to the stock. The stock of the works of Joule, and of other memoirs, was of course decreasing, while the sale of the *Proceedings* was becoming somewhat greater. As regarded the securities of the Society, their actual value would be about £200 or £300 more than appeared on the balance-sheet. Prof. Rücker said that the Society had deliberately entered upon a policy of expansion, and that they must be prepared to find the expenditure increasing. On the other hand, it was hoped that by making the Society more attractive, a greater number of persons would be induced to join. In view of the great advantages now enjoyed by members, there had been some suggestion of raising the subscription; but, in any case, he thought that they might look forward to the future with confidence. The report was then moved and adopted.—The next business was the election of Officers and Council for the year 1895-6, and Messrs. Rhodes and Yule, being asked to act as scrutators, collected the balloting lists.—Prof. Carey Foster proposed a vote of thanks to the Lords of the Committee of the Council on Education, for having allowed the Society to meet at the Royal College of Science. At the commencement of the life of the Society, its founder and first President, Guthrie, had obtained permission for the meetings to take place at South Kensington, and the Society had continued to meet there until their recent migration to the rooms of the Chemical Society. The vote of thanks was duly seconded and was carried unanimously. Major-General Festing then proposed, and Mr. Croft seconded, a vote of thanks to the auditors, Messrs. Inwards and Trotter. This also was carried. Mr. Trotter then proposed a vote of thanks to the retiring Council; they had shown an energy which was rare in such societies, and had inaugurated an active and original policy, which must prove of the greatest benefit to the Physical Society and to physical science generally. Carried unanimously.—Mr. Elder gave notice of a proposed alteration of the rules, the object being to allow the Council under certain conditions to admit persons into the Society without requiring from them the usual number of recommendations from members. It was pointed out that sometimes eligible persons, especially those resident abroad, were unable to enter the Society because they were unknown to any of the existing members. The motion to sanction the proposed alteration was put from the chair and carried, but this decision will need to be confirmed at a subsequent meeting, of which due notice will be given.—Mr. Rhodes then read the following list of the Officers and Council elected for the year 1895-6: President, Capt. Abney. Vice-Presidents who have filled the office of President: Dr. Gladstone, Profs. Carey Foster and Adams, Lord Kelvin, Profs. Clifton, Reinold, Ayrton, Fitzgerald, Rücker. Vice-Presidents: Mr. W. Baily, Major-General Festing, Prof. Perry, Dr. Stoney. Secretaries: Messrs. Blakesley and Elder. Treasurer: Dr. Atkinson. Demonstrator: Prof. Boys. Other members of Council: Mr. Shelford Bidwell, Mr. W. Crookes, Messrs. Fletcher, Glazebrook, G. Griffith, Profs. Henrici, Minchin, Mr. Swinburne, Profs. S. P. Thompson and S. Young.—Prof.

Rücker then vacated the chair in favour of Captain Abney, and the meeting being resolved into an ordinary meeting, Mr. W. B. Croft gave "an exhibition of simple apparatus." An optical bench was shown which consisted of a wooden lath of rectangular section, furnished with a millimetre scale, and clamped on to the table, together with three flat wooden blocks, whose contacts with the table and the lath left them only freedom to slide in a direction parallel to the scale. Another apparatus was designed for observing anomalous dispersion. A cork supported two rectangular pieces of microscope cover-glass, which were inclined at a small angle to one another; and a drop or two of a strong alcoholic solution of fuchsine being introduced between them was maintained in position by capillary action. Photographs were shown of Chladni's sand-figures, some of the forms being of an unusual character. Mr. Croft also exhibited a polariscope in which the polariser was a thin piece of glass stuck on to cork by means of black sealing-wax, and the analyser a plate of tourmaline; as well as a miniature model of Grove's gas battery. Photographs of some curious optical phenomena were projected on the screen, including 12-rayed stars seen on looking at a bright source of light through certain specimens of mica, and pairs of intersecting or non-intersecting circles of light, obtained under similar circumstances with (doubly-refracting) fibrous calcite. These last, it was suggested, were similar in origin to the curves obtained by reflection at, or transmission through, a diffraction-grating held obliquely. Clock-springs broken by frost were also exhibited, each spring having given way in a very great number of places simultaneously. Dr. Johnstone Stoney said that many years ago he had published in the *Transactions* of the Royal Irish Academy an investigation of the circles seen in fibrous calcite, and had shown geometrically that they had nothing to do with the regularity of the fibrous structure, but were due to reflection and refraction within the crystalline plate. The distribution of the planes of polarisation round the circumferences of the circles was also accounted for by his investigations. Mr. Price said he had found that when a clock-spring during the process of hardening was kept in shape by wires, subsequent fracture was most apt to occur at those places where the wires had been in contact with the spring.—Mr. Rhodes asked if Mr. Croft had ever tried Newton's experiment of admitting sunlight between two sharp edges inclined at a small angle to one another. He had not been able to obtain the hyperbolic bands described by Newton. Mr. Croft said he had not tried the experiment exactly in that form. Captain Abney said that this experiment had succeeded very well in his hands.—Mr. S. Skinner read a paper on the tin chromic chloride cell. He said that his attention had been attracted to the cell by an account published by Mr. Case, of New York. The cell had been stated to give no E.M.F. at ordinary room-temperatures, while it gave a considerable E.M.F. at 100° C. The author had found that when the cell was directly connected up to a galvanometer, there was no current at ordinary temperatures, and some current at 100° C.; but when he had measured the E.M.F. by Poggendorff's method, he had found .44 volt at 15° C. and .40 volt at 97° C. The cell as originally described consists of a tin plate and a platinum plate immersed side by side in a solution of chromic chloride; when the temperature of the cell is near to 100° C., and the poles are connected, the following reaction occurs:—



and when the poles are disconnected and the cell cooled, the reverse change takes place. The author prefers to use as electro-positive metal an amalgam of tin and mercury instead of a tin plate, so that when the tin precipitated during cooling falls to the bottom of the solution, it is redissolved in the mercury, and the cell has regained its original state. When silver nitrate solution is added to chromic chloride, only two-thirds of the chlorine comes down as silver chloride, and this has led the author to suppose that the proper formula for chromic chloride is  $\text{CrCl}_2 \cdot \text{Cl}_2$ . Hence he works out the electrolytic action by means of a Grotthus chain. Prof. Rücker asked whether a change of polarisation would explain the behaviour of a cell at different temperatures. Prof. Carey Foster asked whether the reversed chemical action on cooling from a high temperature were accompanied by a reversed E.M.F. Mr. Skinner said no. The tin was precipitated throughout the solution, and not at the surface of the tin plate, so that no E.M.F. of the kind was to be expected. Mr. Appleyard thought that Prof. Minchin had used tin chloride cells with two tin plates for electrodes, the