maintained at zero potential with respect to the filament by the operation of a suitable potentiometer, the balance being tested by short-circuiting the grid resistance. If the system is balanced, short-circuiting the resistance does not alter the grid potential and the (ballistic) galvanometer does not deflect. The second method depends on the fact that, with the system unbalanced, the magnitude of the ballistic throw is proportional to the ionization current and to the capacity of the blocking condenser.

Mr. T. B. Lane described a radiation integrator designed to measure the total quantity of radiation used in a given experiment. An ionization chamber is connected to the grid of an ordinary radio valve, in the output of which a thyratron is connected. The grid of the amplifying valve is given a considerable negative bias, which is reduced by the action of the ionization current until the valve operates the thyratron, which in turn operates a counting mechanism recording the number of units of charge liberated in the ionization chamber.

In closing the discussion, Prof. J. A. Crowther said he was inclined to doubt whether the various more or less elaborate amplifier and counting mechanisms in regular use to-day really do offer advantages over the older types of electrometer, which are inexpensive and reliable, and only have the disadvantage that their use requires some experimental skill.

The seventeenth Mackenzie Davidson Memorial Lecture was delivered by Dr. J. D. Cockcroft, on the subject of "High velocity positive ions. Their application to the transmutation of atomic nuclei and the production of artificial radioactivity". Dr. Cockcroft dealt with this subject in his usual lucid and fascinating manner, describing the early work on atomic transformations carried out with alpha-particles, the later work with canal rays, accelerated by potential differences of many hundreds of kilovolts, produced perhaps by the Van de Graaff static machine or the 'cyclotron' of Lawrence. Pointing out how, while earlier experiments only succeeded in transmuting light elements, a large number of heavy elements have now been transmuted, and in particular bismuth has been changed into radium E, having the same radioactive properties as the naturally occurring element. As an example of the biological significance of the effect, he mentioned the work of Hevesy, who, by injecting into plants and animals mixtures of ordinary phosphorus and radio-phosphorus, has been able, by means of Geiger counters and otherwise, to detect the movements of the phosphorus in the plant or animal and explore with some accuracy the distribution of the element at any time.

Educational Topics and Events

CAMBRIDGE.—Miss H. G. Wanklyn (Girton College) has been appointed University lecturer in the Department of Geography and Dr. S. R. Nockolds (Trinity College) University demonstrator in mineralogy and petrology.

OXFORD.—The electors to Dr. Lee's professorship of chemistry intend to proceed to the election of a successor to Prof. Frederick Soddy on January 16, 1937. It is the desire of the sub-faculty of chemistry that, if possible, a physical chemist be appointed. To this end some changes in the statute defining the duties of the new professor were proposed in Congregation on December 1 and after discussion carried. The main difficulty of the new proposal, brought out in the discussion, is that while the new professor is to be given the direction of both the Inorganic and the Physical Chemistry Departments, there is, in fact, at present no official University department of physical chemistry, the whole of the teaching, and much of the research, in this subject being done in college laboratories.

It is now settled that Lord Nuffield's benefaction of £2,000,000 to the medical school is to be paid in thirteen equal half-yearly instalments for the next six and a half years. Mr. W. M. Goodenough of the Radcliffe Hospital and Barclays Bank has been appointed chairman of the Trustees.

THE twenty-fifth Annual Conference of Educational Associations will be held at University College, London, W.C.1, on January 4–11, under the presidency of the Right Hon. W. Ormsby-Gore, whose presidential address entitled "Some Educational Problems of our Colonial Empire" will be delivered on January 5 at 5 p.m. On January 7 at 5 p.m., a joint conference on "Problems of Education within the Empire" will be held, when the speakers will include Sir Firoz Khan Moon, the High Commissioner for India, formerly Minister for Education in the Punjab; Dr. S. F. N. Gie, South African Minister in Berlin, formerly Secretary for Education, Union of South Africa; Prof. G. V. Portus, professor of political science and history, University of Adelaide; Prof. C. A. Krug, professor of education, Mount Allison University, New Brunswick; Prof. F. Clarke, director, Institute of Education, University of London. Further information can be obtained from the Conference Secretary, 29 Gordon Square, London, W.C.1.

THE Annual Conference of the Geographical Association will be held in the London School of Economics, Houghton Street, Aldwych, London, W.C.2, on January 5–7, under the presidency of Sir Josiah Stamp, whose address, "Geography and Economic Theory", will be delivered on January 7. A symposium on "Whither Population" will be held, when Prof. C. B. Fawcett, Dr. R. R. Kuczynski and Sir William Beveridge, among others, will speak. Among the lectures to be delivered will be one entitled "Problems of the North-East Coast", by G. H. J. Daysh, and one of the discussions announced is "Broadcast Geography Lessons" in which L. Brooks, Dr. H. Thomas, and others will speak. Further information can be obtained from the Secretary, Geographical Association, c/o Municipal High School of Commerce, Princess Street, Manchester, 1.

Science News a Century Ago

Lord John Russell and the University of London

The Times of December 13, 1836, contained a copy of the Charter of the University of London signed on November 28, together with the letter of Lord John Russell to the Earl of Burlington, dated December 1, and the Earl's reply dated December 9.

In his letter, Lord John Russell said: "I have the honour to transmit to your Lordship the charter of the University of London.

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