

Arthur Cayley, James Clerk Maxwell, Lord Kelvin, J. J. Sylvester, J. C. Adams, P. G. Tait, J. Hopkinson, and other men of science have in this way been garnered, and have taken their permanent place among the national possessions. It came as a great gratification to George Darwin when, in 1907, the syndics of the University Press signified to him their desire to become responsible for a collected edition of his scientific memoirs, to be prepared under his own supervision. In May, 1911, the last of the four substantial royal octavo volumes in which his work is thus arranged for future generations was published.

In the affairs of the University of which he was an ornament, Sir George Darwin made a substantial mark, though it cannot be said that he possessed the patience in discussion that is sometimes a necessary condition to taking share in its administration. But his wide acquaintance and friendships among the statesmen and men of affairs of the time, dating often from undergraduate days, gave him openings for usefulness on a wider plane. Thus at a time when residents were bewailing even more than usual the inadequacy of the resources of the University for the great expansion which the scientific progress of the age demanded, it was largely on his initiative that, by a departure from all precedent, an unofficial body was constituted in 1899 under the name of the Cambridge University Association, to promote the further endowment of the University by interesting its graduates throughout the Empire in its progress and its more pressing needs. This important body, which was organised under the strong lead of the late Duke of Devonshire, then Chancellor, comprises as active members most of the public men who owe allegiance to Cambridge, and has already by its interest and help powerfully stimulated the expansion of the University into new fields of national work; though it has not yet achieved financial support on anything like the scale to which American seats of learning are accustomed. Another important body in the foundation and development of which Sir George Darwin took an active part is the Cambridge Appointments Board, which, by bringing trained graduates into connection with the leaders of the commerce and industry of the nation, has worked with notable success for their mutual advantage.

Sir George Darwin's last public appearance was as president of the fifth International Congress of Mathematicians, which met at Cambridge on August 22-28 of this year. The time for England to receive the congress having obviously arrived, a movement was initiated at Cambridge, with the concurrence of Oxford mathematicians, to send an invitation to the fourth congress held at Rome in 1908. The proposal was cordially accepted, and Sir George Darwin, as *doyen* of the mathematical school at Cambridge, became chairman of the organising committee, and was subsequently elected by the congress to be their president. Though obviously unwell during part of the meeting, he managed to discharge the delicate duties of the chair with conspicuous success, and guided with great *verve* the deliberations of the final

assembly of what turned out to be a most successful meeting of that important body. But this improvement was only temporary; on their return to Cambridge a month later his friends were most deeply grieved to find that, after some weeks of illness, an exploring operation had strengthened the fears of malignant disease which had not been absent from his own mind for some time.

In the previous year there had come to him what he naturally regarded as the crowning honour of a life devoted to scientific pursuits, the award by the Royal Society in October, 1911, of their highest distinction, the Copley medal for the year. He had himself strongly advocated the claims of his kinsman, Sir Francis Galton, who was the medallist of the preceding year, unconscious that his own name had been standing on the list for consideration. Galton died within a year of the award, and his life, written by Darwin for the Dictionary of National Biography, appeared last October. The Royal Society has thus the melancholy satisfaction of having been just in time in two successive years in conferring her highest mark of distinction on the achievements of two of her distinguished sons. J. L.

#### MR. S. A. SAUNDER.

IT is with deep regret that we have to record the death, on Sunday night, December 8, of Mr. S. A. Saunder, at sixty years of age. In Mr. Saunder astronomical science has lost a devoted and conscientious worker who gave himself whole-heartedly to a line of study requiring much ability, and involving immense labour, but offering no prospect of startling results.

Mr. Saunder was an assistant master at Wellington College. He became a Fellow of the Royal Astronomical Society in 1894, and from 1907 to February last he was one of the most active and hard-working of honorary secretaries. A few years ago he was appointed Gresham Professor of Astronomy in the City of London. He gave his last course of lectures (on the tides and tidal friction) early in November, but the fatal illness was then upon him, and it was with great difficulty and pain that he brought the lectures to a conclusion.

Mr. Saunder's scientific work lay especially in the domain of selenography, in which he achieved well-deserved distinction. His paper in the Monthly Notices of the Royal Astronomical Society for January, 1900, on the determination of selenographic positions and the measurement of lunar photographs, was the first of a series of similar papers. In the fourth paper of the series he gave a first attempt to determine the figure of the moon. In the Memoirs of the R.A.S., vol. 59, he published the results of measures of four negatives taken at Paris by Loewy and Puiseux, with a catalogue of 1433 measured points on the lunar surface. All the positions were carefully reduced to mean libration, and their places given in rectangular co-ordinates. A still more extensive work was published in the R.A.S. Memoirs, vol. 60: Results of measures of two Yerkes negatives by Mr. G. W. Ritchey. The catalogue contains



2885 points, all carefully reduced by Prof. Turner's method, and forming a very valuable contribution to our knowledge of the lunar surface.

One object in view in the preparation of these extensive catalogues of lunar details was that they should be the foundation of a standard chart of the moon. Mr. Saunder had carefully studied the subject of lunar nomenclature, and was much impressed with its unsatisfactory state. He proposed that in future new names should be added very sparingly, but that objects observed should be referred to by their coordinates in the catalogue or in the chart. Charts of all the central portions of the moon, entirely based on Mr. Saunder's measures, which he plotted for the purpose, are now in progress and approaching completion.

#### NOTES.

At the recent annual meeting of the Royal Geological Society of Cornwall the Bolitho gold medal was awarded by the president and council to Mr. Geo. Barrow, for his services to Cornish geology in connection with the re-survey of the west of England.

At the suggestion of Prof. Ernst Cohen, the Dutch sculptor, Pier Pander (Rome), has executed a beautiful bronze medallion of van't Hoff. We are requested to state that anyone desiring to purchase a copy of it should send (before January 1, 1913) a post-card to Prof. Ernst Cohen, van't Hoff Laboratory, University, Utrecht, Holland. The medallion will then be sent by the firm entrusted with the work. If 100 copies are sold the price will be 6.50 marks. The price will be reduced to 5.50 marks if 200 copies can be sold. The medallion has been executed after a portrait relief in marble by Pier Pander.

THE Tokyo *Asahi* announces the forthcoming formation in Japan of a society for the prevention of tuberculosis. The initiators are Dr. Baron Takagi, Dr. Baron Sato, and Dr. Kitasato. The preliminary meeting was held on October 29, when an influential committee was appointed to make the necessary arrangements. Good work has been done in the campaign against tuberculosis by minor local organisations in Japan, but the formation of the new society is the first serious public attempt to grapple with the disease. It is stated that, although no precise statistics are available, the number of persons who fall victims to tuberculosis in Japan may be estimated at no fewer than a million per annum. As the population of the country is about fifty-one million, this would indicate an annual death-rate of nearly twenty per thousand from the disease.

MAJOR E. H. HILLS, C.M.G., F.R.S., treasurer of the Royal Astronomical Society, has been appointed honorary director of the Observatory, University of Durham.

THE next meeting of the American Association for the Advancement of Science will be held in Cleveland from December 30 next to January 4, 1913. Prof. E. C. Pickering will be the new president. The address by the retiring president, Prof. Charles E. Bessey, on some of the next steps in botanical

science, will be delivered on December 30. The sections among which the business of the meeting will be distributed, with the name of the retiring president of the section and the subject of his address, are as follows:—Mathematics and Astronomy, "The Spectroscopic Determination of Stellar Velocities," Prof. Frost; Physics, "Unitary Theories in Physics," Prof. R. A. Millikan; Chemistry, "The Chemistry of the Soil," Prof. Cameron; Geology and Geography, "Significance of the Pleistocene Molluscs," Prof. Shimek; Zoology, "Section F—Is it Worth While?" Prof. Nachtrieb; Botany, "The Scope of State Natural Surveys," Prof. Newcombe; Anthropology and Psychology, "The Study of Man," Prof. Ladd; Social and Economic Science, "Comparative Measurements of the Changing Cost of Living," Prof. Norton; Education, "Educational Diagnosis," Prof. Thorndike; Physiology and Experimental Medicine, "The Function of Individual Cells in Nerve Centres," Prof. Porter. During the days of the meeting twenty-six American scientific societies will also meet.

THE Melbourne meeting of the Australasian Association for the Advancement of Science will be held on January 7-14 next. The president-elect is Prof. T. W. E. David, C.M.G., F.R.S., and the retiring president Prof. Orme Masson, F.R.S. The meeting will be held at the University, which is surrounded by large grounds, and can provide ample accommodation. Prof. Baldwin Spencer, C.M.G., F.R.S., who is spending the year as chief protector of aborigines in the Northern Territory, will deliver a lecture on some of the results he has obtained. A joint discussion of several sections will be held on the genus *Eucalyptus* and its products. A forest league is being formed in the various States, under the auspices of the association, which it is hoped will rouse public opinion to the necessity of preserving forests, especially round the head waters of the rivers. A large number of committees will present reports, and a full programme of papers is expected. The following are the presidents of sections:—Astronomy, Mathematics, and Physics, Prof. H. Carslaw; Chemistry, Prof. C. Fawsitt; Subsection Pharmacy, Mr. E. F. Church; Geology and Mineralogy, Mr. W. Howchin; Biology, Prof. H. B. Kirk; Geography and History, Hon. Thos. M'Kenzie; Ethnology and Anthropology, Dr. W. Ramsay-Smith; Social and Statistical Science, Mr. R. M. Johnston; Agriculture, Mr. F. B. Guthrie; Subsection Veterinary Science, Prof. Douglas Stewart; Engineering and Architecture, Col. W. L. Vernon; Sanitary Science and Hygiene, Dr. T. H. A. Valintine; Mental Science and Education, Sir J. Winthrop Hackett. The general secretary for the meeting is Dr. T. S. Hall.

SPEAKING at the annual dinner of the Farmers' Club on Tuesday, Mr. Runciman, president of the Board of Agriculture and Fisheries, referred to the assistance which the Development Commissioners propose to give to agricultural research. In the course of his remarks, he said:—It was not enough merely to adopt a policy of slaughter, scheduling areas, and so forth. They should adopt so far as possible all the services that science could supply. They must give their re-