

BURSARIES AT THE ROYAL COLLEGE OF SCIENCE.

SCIENCE scholars selected from the whole of Great Britain for their ability and promise, maintaining themselves on 17s. 9d. per week, were this year saved from much privation by secret gifts of small bursaries—see the subjoined audited account. I have no right to ask for help from the generous men who helped me last year, but I have all the sturdiness of a chartered beggar—I ask in a good cause.

It was originally intended that these bursaries should be given only to such National Scholars as required assistance, but some of the subscribers have given me power to assist other students of the college. Also one of the two City Companies has given me power to grant an occasional bursary of more than ten pounds. It is understood that every student is morally bound to repay this money to the fund at some future time.

JOHN PERRY.

October.

ROYAL COLLEGE OF SCIENCE.

BURSARIES 1904-1905.

BALANCE SHEET.

Moneys Received and Paid by Prof. Perry.

| RECEIVED | PAID |
|---|---|
| Balance from last year £24 2 0 | Dec. 16 to Feb. 28. |
| August, 1904. | 25 students received half bursaries, £5 each ... £125 0 0 |
| Dr. Sprague ... 20 0 0 | January 31, 1905. |
| R. Kaye Gray, Esq. ... 10 0 0 | 1 student received a half bursary of £7 10s. ... 7 10 0 |
| September, 1904. | February 15. |
| Prof. J. Perry (slide rules) ... 1 6 0 | 1 student received the second half of his bursary ... 5 0 0 |
| November, 1904. | March 24 to June 15. |
| Returned half bursary 5 0 0 | 22 students received second halves, £5 each... 110 0 0 |
| Sir Andrew Noble... 10 0 0 | June 5. |
| December, 1904. | 1 student received second half ... 7 10 0 |
| The Drapers' Co. ... 100 0 0 | 2 students refused their second halves |
| Prof. J. Perry (slide rules) ... 2 19 0 | Balance in hand 22 19 0 |
| January, 1905. | |
| J. Drinkwater, Esq. 1 1 0 | |
| The Goldsmiths' Co. 100 0 0 | |
| April, 1905. | |
| Prof. J. Perry (slide rules) ... 3 11 0 | |
| Total £277 19 0 | Total £277 19 0 |

Twenty-three students received 10l. each, two received 5l. each, and one received 15l.

Audited and Signed by JOHN W. JUDD.

Dated June 22, 1905.

DR. RALPH COPELAND.

ASTRONOMERS will have learned with profound regret that Dr. Ralph Copeland, Astronomer Royal for Scotland, died on October 27 at the Edinburgh Observatory in the sixty-eighth year of his age. Dr. Copeland enjoyed a more varied life than generally falls to the lot of astronomers. The love of travel and adventure seemed with him to be only second to his desire to advance the interests of astronomy.

Born in Lancashire, he early went to Australia, where, on the somewhat uncongenial soil of a sheep-run, he acquired his first telescope and diligently used it. Then he was for a short time attracted by the excitement of the gold diggings, but he forsook these to return to England, having determined to devote himself to astronomy. He matriculated at the University of Göttingen, and enjoyed the advantages of instruction from Prof. Klinkerfuss. For a while he took part in the routine work of the Göttingen Observatory, but the love of adventure still possessed

him, and we find him in 1867 taking part in an expedition to explore the east coast of Greenland, climbing mountains and otherwise distinguishing himself, so that on his return he was awarded the Order of the Red Eagle by the German Emperor. Shortly after his return to Europe he came to England, and though he was connected with both the observatory of Lord Rosse at Birr Castle and with that at Dunsink, he is better known for his work in connection with both expeditions of 1874 and 1882 to observe the transit of Venus. In the first he was a member of Lord Lindsay's (now Earl of Crawford) unsuccessful expedition to Mauritius, but on the occasion of the second transit he was more fortunate at Jamaica. Before returning to England he spent some time in the Andes of Peru and Bolivia, at altitudes varying from 10,000 feet to 15,000 feet above sea-level, where he carried out a series of researches on the transparency of the atmosphere, the spectra of planetary nebulae and of certain classes of stars.

In 1889, when the Earl of Crawford presented his instrumental equipment to the Edinburgh University, Dr. Copeland became regius professor of astronomy and Astronomer Royal for Scotland. Here his great work consisted in the re-construction of the National Observatory at Blackford Hill, the full development of the capacity of which was denied him by reason of his failing health. But he still enjoyed opportunities for foreign travel. Norway, India, Spain, were all visited in turn for the observation of solar eclipses. His favourite instrument on these expeditions was a telescope of long focal length.

Dr. Copeland's acquaintance with astronomical literature was wide and intimate, and his collection of works having reference to some departments, such as cometary astronomy, was probably unique for its completeness. In cometary observation he was particularly interested, and it will be recalled that for many years he gave valuable assistance to observers of comets by calculating and circulating ephemerides which he printed at a small press of his own. For some time he gave further encouragement to the science by editing, in conjunction with Dr. Dreyer, the periodical *Copernicus*, devoted to the publication of high-class papers. In fact, Dr. Copeland's activities were by no means limited to what may be called his official duties. He had the gift to interest by his varied knowledge and experience, and used it liberally. He was held in estimation by a large circle of friends and pupils for the picturesqueness with which he imparted his information and his readiness to assist and encourage. The writer is among those who will gratefully acknowledge the charm of his manner and the kindnesses received at his hands.

W. E. P.

CAPTAIN F. W. HUTTON, F.R.S.

NATURAL science has sustained a heavy loss in the death of Captain F. W. Hutton, curator of the Canterbury Museum, president of the New Zealand Institute, and formerly professor of biology and geology in Canterbury College, University of New Zealand. The second son of the Rev. H. F. Hutton, Rector of Spridlington, in Lincolnshire, Frederick Wollaston Hutton was born at Gate Barton in that county on November 16, 1836. He was educated at the grammar school at Southwell, and afterwards at the Naval Academy at Gosport. After serving for three years in the India mercantile marine he entered the Army, becoming ensign in the 23rd Royal Welsh Fusiliers in 1855. He served in the Crimea (1855-6), and saw further active service during the Indian Mutiny, being present at the capture and relief of Lucknow. He was made lieutenant in 1857.

In 1860 he furthered his military studies at the Staff College at Sandhurst, passing the examinations in 1861. At this date geology was taught in the Royal Military College by Prof. T. Rupert Jones, and Hutton, who had taken up the subject with enthusiasm, contributed in 1862 to the *Journal of the Royal United Service Institution* (vol. vi.) an essay on "The Importance of a Knowledge of Geology to Military Men." The importance, strange to say, does not appear to be so fully recognised nowadays. Hutton became captain in 1862, and served for a time as Deputy-Assistant Quartermaster-General at Dublin; but in 1866, having retired from the Army, he emigrated to New Zealand, and devoted himself to the study of natural history, and especially to zoology and geology. In 1871 he was appointed assistant geologist on the Geological Survey of New Zealand, in 1873 provincial geologist of Otago and curator of the Otago Museum, and in 1877 professor of natural science in the Otago University. In 1880 he settled at Christchurch, having become professor of biology and geology in the University of New Zealand, a post which he held until 1893, when he became curator of the Canterbury Museum at Christchurch. He was elected a Fellow of the Royal Society in 1892.

One of his earliest geological papers, a sketch of the physical geology of Malta, was published in the *Geological Magazine* (1866). From this date his work related mainly to the country of his adoption. He prepared official reports on the Lower Waikato district and on the Thames gold-field in 1867, and a report on the geology and gold-fields of Otago (with G. H. F. Ulrich) in 1875. To the Geological Society of London he contributed in 1885 an excellent sketch of the geology of New Zealand, which gave a comprehensive summary of the knowledge attained at that time, and in 1887 he sent to the same society an account of a recent eruption of Mt. Tarawera in North Island. He contributed many other geological papers to the Geological Society and *Geological Magazine*. While distinguished as a geologist, the importance of his researches on zoology was early recognised, and he was elected a corresponding member of the Zoological Society in 1872.

He contributed articles on the fauna and flora of New Zealand, on the land mollusca, the fishes, and the birds, including the extinct moas. Some of these articles were printed in the *Transactions of the New Zealand Institute*, the *Proceedings of the Linnean Society of New South Wales*, in the *Proceedings of the Zoological Society*, in *Ibis*, and other journals.

He was an ardent student of evolution, and among other works issued in 1899 "Darwinism and Lamarckism, Old and New," and in 1902 "The Lesson of Evolution."

After an absence of nearly forty years he paid a visit to this country, and received a hearty welcome from his many scientific friends. He was returning to his home at Christchurch when the announcement of his death on October 27 was received by telegram from the Cape. We are indebted to an obituary in the *Times* for some of the above particulars.

H. B. W.

NOTES.

THE Royal Society has this year made the following awards of medals. The awards of the Royal medals have received the King's approval:—The Copley medal to Prof. D. I. Mendeléeff, of St. Petersburg, for his contributions to chemical and physical science; a Royal medal to Prof. J. H. Poynting, F.R.S., for his researches in physical science, especially in connection with the constant of

gravitation and the theories of electrodynamics and radiation; a Royal medal to Prof. C. S. Sherrington, F.R.S., for his researches on the central nervous system, especially in relation to reflex action; the Davy medal to Prof. A. Ladenburg, of Breslau, for his researches in organic chemistry, especially in connection with the synthesis of natural alkaloids; the Hughes medal to Prof. A. Righi, of Bologna, on the ground of his experimental researches in electrical science.

THE following is a list of those who have been recommended by the president and council of the Royal Society for election into the council for the year 1906, at the anniversary meeting on November 30:—*President*, Lord Rayleigh, O.M.; *treasurer*, Mr. A. B. Kempe; *secretaries*, Prof. Joseph Larmor and Sir Archibald Geikie; *foreign secretary*, Mr. Francis Darwin; *other members of the council*, Dr. Shelford Bidwell, Sir T. Lauder Brunton, Prof. J. Norman Collie, Prof. W. R. Dunstan, Prof. J. B. Farmer, Prof. F. Gotch, Dr. S. F. Harmer, Sir William Huggins, K.C.B., O.M., Prof. E. Ray Lankester, Dr. J. E. Marr, Mr. G. B. Mathews, Mr. H. F. Newall, Sir W. D. Niven, K.C.B., Prof. John Perry, Prof. E. H. Starling, Prof. W. A. Tilden.

AT a meeting of the council of the British Association on November 3 it was decided that, in consequence of strong representations by the local committee, the meeting at York next year shall be opened on Wednesday, August 1, which is earlier than the usual date of the opening meeting.

THE council of the British Association has received a gift of 50*l.* from Mrs. John Hopkinson, to be devoted to some investigation which may be suggested at the next meeting by the committee of recommendations.

THE Paris Academy of Moral and Political Sciences has awarded a prize of the value of 600*l.* to Dr. Calmette, of Lille, in recognition of his work in bacteriology and preventive medicine.

WE regret to see the announcement of the death, at forty-five years of age, of Prof. Walter F. Wislicenus, professor of astronomy in the University of Strasburg and editor of the "Astronomischer Jahresbericht."

A CHRISTMAS course of lectures, adapted to a juvenile auditory, will be delivered at the Royal Institution by Prof. H. H. Turner, F.R.S., on astronomy, from December 28 of this year to January 9, 1906.

DR. MAURITS SNELLIN informs us that he has resigned the directorship of the section of terrestrial magnetism and seismology at the Koninklijk Nederlandsch Meteorologisch Instituut. Dr. Snellin's private address is now Apeldoorn, Holland, and any papers intended for him personally should be sent to this address.

AT the inaugural meeting of the eighty-seventh session of the Institution of Civil Engineers, held on Tuesday, November 7, Sir Guilford Molesworth, K.C.I.E., the retiring president, formally introduced to the members his successor in the chair, Sir Alexander Binnie, who delivered an address to the members, in which he traced the influence of scientific thought and investigation upon the development of engineering practice. The president subsequently presented the medals and premiums awarded by the council for papers dealt with at the institution in the course of the past session.