

constructed is of the order of $2\frac{1}{2}$ million volts. Wooden poles give additional insulation to earth, but cannot be relied on to withstand more than 100–150 kV. per foot. It seems highly probable, therefore, that practically every direct stroke to a live wire will produce some kind of flash-over.

Hence it is necessary to prevent direct strokes or to render flash-overs innocuous. The first can be done by an overhead earthed wire, which proves to be a reasonably effective interceptor; but in places where special protection is required, two earthed overhead wires should be used. In order to secure easy entrance for the current in dry soil, many modern lines are equipped with a 'counterpoise'. This consists of a length of bare cable buried in the ground and attached to the foot of the tower. Each circuit of the new Boulder Dam line in America is equipped with two parallel counterpoises, continuous from tower to tower.

The alternative to lightning-proof construction of the line is to ensure that lightning flash-overs on the line do not interrupt the supply. The best known method of doing this is to use a Petersen coil, which is in general use on the Continent but is less popular in Great Britain and the United States. Alternative methods were also mentioned. In the author's opinion, these methods will prove more popular than the overhead earthed wire, as they are much cheaper. Arc rupturing devices and lightning arrestors can be installed easily on existing unsatisfactory lines.

University Events

BIRMINGHAM.—Dr. Henry Pratt Newsholme, Medical Officer of Health for Birmingham since 1927, has been appointed to the chair of hygiene and public health in succession to the late Sir John Robertson.

CAMBRIDGE.—Prof. E. D. Adrian, Fellow of Trinity College, Foulerton professor of the Royal Society, has been elected as from October 1 to the professorship of physiology which will become vacant by the retirement of Sir Joseph Barcroft.

The subject for the Sedgwick Prize for the year 1940 is: "The Influence of the Idea of Evolution on some Branch of Geological Studies". The essays must be sent to the Registry on or before October 1, 1939.

The examiners consider that the following essays submitted by candidates for the Smith's Prizes and Rayleigh Prizes are of distinction: H. M. Cundy (Trinity College), "Motion in a Tetrahedral Field"; E. R. Love (Trinity College), "Riemann-Stieltjes Integrals"; H. R. Pitt (Peterhouse), "Tauberian Theorems". The Smith's Prizes have been awarded to E. R. Love and H. R. Pitt and a Rayleigh Prize to H. M. Cundy.

GLASGOW.—Prof. G. G. Henderson, regius professor of chemistry, has sent in his resignation, to take effect from October 1.

Dr. J. Bassil Rennie has been appointed whole-time lecturer in the practice of medicine.

SOUTHAMPTON.—Dr. N. K. Adam, research chemist in Imperial Chemical Industries, Ltd., has been appointed professor of chemistry in University College.

Science News a Century Ago

Birds of Paradise of the Arru Islands

At a meeting of the Royal Geographical Society held on March 13, 1837, a communication by W. S. Earl was read entitled "On the Key and Arru Islands". The Arru Islands, the author said, were about forty miles south-west of Papua, or New Guinea, and about a hundred miles to the north-east of Timor Laut. The Keys were a smaller group about thirty miles to the westward of the Arrus. The islands were small but closely grouped. Much commercial intercourse prevailed between the islands and the neighbouring coasts, the chief exports being tortoise-shell, bees-wax, ambergris, edible birds' nests and birds of paradise. The last were found in great numbers on the Arrus and the coasts of New Guinea. They were especially valuable, and from the numbers sent to Singapore appeared to be inexhaustible.

Valentyn, a Dutchman who wrote on the East in 1702, described seven varieties of these beautiful birds, while Le Vaillant, and later Guimard, gave descriptions of them. They were exported in great numbers to Arabia and Persia. Francois Valentyn or Valentijn, who was born in 1666 and died about 1725, was a protestant minister at Amboina, Banda and other places.

The Zoological Society

VARIOUS papers were read at the meeting of the Zoological Society held on March 14, 1837, one of them being by Darwin on the *Rhea Americana* and the newly discovered species, in which he described its mode of swimming, a fact unnoticed by earlier writers, but which he had witnessed in two instances. Their progress through the water was slow, very little of the body appearing above the surface, the necks being extended slightly forward. According to the Guachos, the males carried out incubation and not only hatched the eggs, but also attended the young until they were able to provide for themselves. Several females laid in one nest and the number of eggs deposited by each female during the season was from forty to fifty, or according to Azara, from sixty to seventy.

Physical Science in the University of Edinburgh

No one did more to further the study of physics in Scotland a century ago than J. D. Forbes, who instituted a complete working system of examining for degrees in arts in the University of Edinburgh by means of printed papers. His letters frequently contained references to his efforts to stimulate an interest in natural philosophy, and writing on March 15, 1837, to Airy, he said:

"I have been exceedingly busy, and not very well, which have been the causes of my silence. Among other occupations I have had to read five essays, which I have received in competition for a medal I proposed on the Undulatory Theory of Light, a new subject in Scotland, which I am delighted to find has stirred up our youth, and I have got some really respectable compositions. This is a proof to me that things are mending, and that exertion, private and personal, is not thrown away, even where public sympathy or support is not to be looked for.

"I have not abandoned my polarized heat, but have been much driven about this winter. I have got twelve thermometers sunk in different soils from three to twenty-six feet deep, to measure conduction."