Science News a Century Ago

Geographical Exploration

ON May 28, 1838, at a meeting of the Royal Geographical Society, six communications were read. These referred to the discovery of the outlet of the River Murray in Australia; the expedition of Thomson D'Abbadie to Abyssinia; a journey in north-west Persia by Lieut.-Colonel Shiel; some observations from Bagdad by Lieut. Lynch, who had examined the banks of the Tigris from its source to that city; a proposal from G. A. Hoskins sent in the name of the Society of Egyptian Travellers suggesting sending a native of Dongola to explore the western branch of the Nile, and a communication from Schomburgk in British Guiana dated November 18, 1837. Ascending the Rivers Essequibo, Rewa and Quitaro "we halted," wrote Schomburgk, "on the 7th Nov. in order to visit the Atáraipú, a natural pyramid, of which I had heard so many and such contradictory reports. Our road to it led through thick woods, until after a scramble of two hours we stood at the foot of a hill of gniess, barren with the exception of a few parasitic plants as Orchideæ, Cacti, Chusia, which draw their scanty nourishment from a thin layer of vegetable mould lying in the clefts of the rocks. After ascending for 300 feet, the view opened to the west, and from the abyss below rose the far-famed Atáraipú, one of the greatest natural wonders of Guayana. Its base is wooded for about 350 feet high from thence rises the mass of granite, devoid of all vegetation, in a pyramidical form, for about 550 feet more, making its whole height 900 feet above the plain . . . a little to the south of it another, almost similar of gneiss, of which, when we consider that all beyond was unknown ground, it might well be said, in the words of the poet, that they

"Like giants stand
To sentinel enchanted land."

Blowing up of a Sunken Vessel

CONSIDERABLE interest was taken in the blowing up by means of gunpowder, on May 28, 1838, of the coal brig *William*, which in 1836 had sunk in the River Thames off Gravesend, with about 300 tons of coal aboard. According to the *Mechanics' Magazine*, this was the first attempt to destroy a vessel under water. The task of destruction was entrusted to Colonel (afterwards General Sir) C. W. Pasley (1781–1861), director of the Royal Engineers' Establishment at Chatham. Two leaden cylinders each containing 2,500 lb. of gunpowder were made. These were completely enclosed in wooden cylinders of 3 in. timber, 4 ft. in diameter and 10 ft. long, bound with hoop iron. One of the cylinders was placed in position by divers and the charge was exploded by means of a fine powder hose in a flexible leaden pipe attached to the cylinder, the upper end of which was moored to a red buoy. The gunpowder train was connected with a small tin canister in the centre of the great charge. A sapper with a lighted taper set fire to the fuse, which burnt five minutes, allowing him to row out of danger. The explosion raised a dome of water 800 ft. in diameter 70 ft. high. Much the same methods were used by Pasley a year or two later in destroying the *Royal George*, except that electricity was used for firing the charge.

The Greenwich Lunar Observations

"ON May 31, 1838, the Treasury assented to the undertaking of the Lunar Reductions and allotted £2,000 for it; preparations were made, and in the autumn 7 computers were employed upon it" (Airy). "The reduction of the Greenwich lunar observations from 1750 to 1830," says Grant, "was undertaken at the public expense in consequence of a representation to that effect having been made to the Government by the British Association, agreeably to a suggestion of Sir John Lubbock's on the occasion of the meeting of the Association, which was held in Liverpool in 1837. The organization of the plan of reduction, as well as the superintendence of its execution, was confided to Mr. Airy. In consequence of the multitude of inequalities by which the moon's motion is affected, the undertaking was one of stupendous magnitude. In order to form some idea of the labour expended in its execution, it may be mentioned that upwards of 8,000 places of the moon were deduced from the observations, and compared with the corresponding places calculated from the tables. . . . The calculations connected with this great undertaking were superintended by Mr. Hugh Breen, who had the melancholy satisfaction of just living to see its completion. Mr. Airy, who bears honourable testimony to his skill and accuracy, states, at the beginning of the first volume of the published results, that after a short illness he expired on the morning of April 1, 1848, only a few hours having elapsed after the last supplementary tables had been sent to the press."

Influence of Nitrogen on Growth of Plants

AT a meeting of the Royal Society on May 31, 1838, Robert Rigg read a paper entitled "An Experimental Inquiry into the Influence of Nitrogen on the Growth of Plants". After alluding to a previous paper describing the chemical changes which occur during the germination of seeds, the author proceeded to trace the connexion between the phenomena exhibited during the growth of plants and the direct agency of nitrogen. The results of his experiments were arranged in tables indicating in about 120 different vegetable substances, not only the quantities of carbon, oxygen, hydrogen, nitrogen and residual matter, but also the quantity of nitrogen in each compound, when compared with 1,000 parts by weight of carbon in the same substance. The most important tables were those which exhibited the chemical constitution of the germs, cotyledons, and rootlets of seeds; the elements of the roots and trunks of trees, and the character of the various parts of plants, especially of the leaves at different periods of their growth. From his observations it appeared that nitrogen and residual matter are invariably the most abundant in those parts of plants which perform the most important offices in plant physiology, and the author was disposed to infer that nitrogen (being the element which more than any other is permanent in its character) when combining with residual matter, is the moving agent, acting under the living principle of the plant, and moulding into shape the other elements.

Spanish Bells

THE issue of the *Gentleman's Magazine* for May 1838 contains the following information: "In consequence of the difficulties to which the existing

government of Spain has been reduced in the war with Don Carlos, a large quantity of bells, which were the property of the convents and were transferred from them for the relief of the Queen's cause, were sent to Marseilles and sold as old metal. About sixty were purchased by an American gentleman and shipped to New York, where the most experienced bell-founders examined them and pronounced that they are such that cannot be made in America, nor probably anywhere at this time. It is well known that the ancient Spanish bells and indeed all the old bells cast in Catholic countries were considered as sacred; the more precious their metal, the greater their sanctity, and nearly all of them are thought to have more or less silver in their composition. The art of compounding silver with the other metals entering into the composition of bells is now entirely lost. The tones are said to be inimitably beautiful; and it is stated that one of these bells weighing 100 pounds has as much power and strength of tone as an ordinary bell weighing 300. They weigh from 100 to 1700 pounds each; and are often highly ornamented with figures of the Cross, royal Arms of Spain and various devices *in alto relievo*. After being a certain time on view at New York, they were dispersed by public sale, and will now be scattered about in every quarter of the States. . . . The largest weighing 1700 pounds is already doing duty on the top of the New York City Hall."

University Events

BELFAST.—Mr. A. H. Naylor has been appointed professor of engineering as from October 1, in succession to Prof. F. Hummel, who is retiring. Mr. Naylor is at present research officer of the Institution of Civil Engineers.

LEEDS.—Dr. D. T. A. Townend has been appointed Livesey professor of coal gas and fuel industries, to take office from October next, in succession to Prof. J. W. Cobb (see p. 964).

LONDON.—Prof. H. H. Read has been appointed, as from January 1, 1939, to the University chair of geology tenable at the Imperial College of Science and Technology. Since 1931 he has been George Herdman professor of geology in the University of Liverpool.

Dr. G. R. de Beer has been appointed to the University readership in embryology tenable at University College. For the last eleven years he has been Jenkinson lecturer in embryology and senior demonstrator in zoology and comparative anatomy in the University of Oxford.

The title of professor of natural philosophy in the University has been conferred on Dr. Herbert Dingle, in respect of the post held by him at the Imperial College—Royal College of Science.

The following doctorates have been conferred: D.Sc. in biochemistry on W. T. J. Morgan, of Queen Mary College, Lister Institute of Preventive Medicine, and West Ham Municipal College; D.Sc. in botany on A. E. Muskett, of the Imperial College—Royal College of Science; D.Sc. in chemistry on H. N. Rydon, of the Imperial College—Royal College of Science.

The Dunn exhibitions in anatomy and physiology for 1938 have been awarded to Mr. S. D. V. Weller (of University College) and Mr. J. W. L. Doust (of King's College) respectively.

Societies and Academies

London

Royal Society (*Proc.*, B, 125, 187–290, April 27, 1938).

D. KEILIN and T. MANN: Polyphenol oxidase: purification, nature and properties.

J. MELLANBY and C. L. G. PRATT: The coagulation of plasma by trypsin.

A. S. PARKES and I. W. ROWLANDS: Studies on the hypophysectomized ferret. (10) Growth and skeletal development.

E. C. DODDS and W. LAWSON: Molecular structure in relation to œstrogenic activity. Compounds without a phenanthrene nucleus.

P. N. MARTINOVITCH: The development *in vitro* of the mammalian gonad: ovary and ovogenesis.

H. G. SMITH: The receptive mechanism of the background response in chromatic behaviour of Crustacea.

H. WARING: Chromatic behaviour of elasmobranchs.

LORD ROTHSCHILD: The polarization of a calomel electrode.

Dublin

Royal Irish Academy, April 25.

A. FARRINGTON: The glaciers of Mount Leinster and Blackstairs Mountain. The moraines of the local glaciers are described and their relations to one another discussed. The level of the snow-line during the late glacial period is estimated at 1,650 feet O.D.

Edinburgh

Royal Society, May 2, 1938.

R. CARRICK: The life-history and development of *Agriolimax agrestis* L., the grey field slug. Seasonal activity, copulation, oviposition, hatching and growth of *Agriolimax agrestis* are dealt with. There is no seasonal sexual cycle, but reproductive activity is controlled directly by weather conditions and is most evident during August-November. Under field conditions, the incubation period varies from 21 to 96 days. Embryological points of interest are fusion of the third tentacles, development of large contractile sacs, direct transition of blastopore into mouth, and the composite structure of larval nephridia from mesodermal bands and ectodermal invaginations. The structure and function of the modified larva, associated with development within the albuminous egg-capsule on land, are compared with less specialized gasteropods.

EDITH A. T. NICOL: The brackish-water lochs of Orkney. The brackish-water lochs of Orkney are the only Scottish localities where *Neritina fluviatilis* L. is found. The Loch of Stenness is entered by spring tides and has a salinity varying between 10·2 and 26·8 per cent. Its fauna and flora are mainly brackish in character, but many marine forms occur. The Loch of Stenness flows into the other and has a low salinity, 0·8–4·3 per cent, and many freshwater species occur along with brackish ones. The calcium contents in both lochs varies between 56 and 139 mgm. per litre, which partially accounts for the presence of *Neritina*.

MARIE E. CAMPBELL: An investigation of the Mucorales in the soil. Fifteen soil samples were taken