

institutions, discoveries and inventions, customs, festivals, geographical exploration and other matters appropriate to a scientific "Book of Days". We began in 1924 with "Early Science at the Royal Society", and during last year appeared a "Calendar of Geographical Exploration", which was contributed by Miss R. M. Fleming and most admirably fulfilled its purpose. With this issue begins an annual cycle of a different kind relating to natural history in a wide sense, as was understood, for example, by Gilbert White in the notes and letters which make up his famous "Natural History of Selborne". Prof. James Ritchie, Regius professor of natural history in the University of Aberdeen, will be chiefly responsible for the weekly notes in this "Calendar of Nature Topics", and Dr. C. E. P. Brooks will deal with meteorological events of topical interest. In addition, we hope to receive occasional notes on such subjects as agriculture, botany, marine biology, fisheries and similar branches of pure and applied natural history from other contributors.

It is not intended that this year's Calendar shall be of the usual type, recording aspects of Nature or country life week by week in Great Britain, but that it shall take a much wider outlook. The main idea will be to bring together, in chronological sequence throughout the year, observations and conclusions representing ascertained knowledge to-day on the subjects of the notes; and the range of the natural occurrences or phenomena may be that of the whole world. It is unlikely, therefore, that there will be any lack of suitable material; nevertheless, suggestions of topics of interest for inclusion in this new Calendar, or short notes which might be used, would be helpful and should be sent to Prof. Ritchie at the University of Aberdeen. It need scarcely be said that any such communications should be sent well in advance of the dates to which they refer.

Centenary of Legendre, 1752-1833

THE centenary occurs on January 10 of the death of the eminent French mathematician, Adrien Marie Legendre, whose labours over a period of sixty years were contemporary with those of Lagrange and Laplace, with whom he formed part of "that constellation of mathematical talent of which Paris was for more than two generations the main centre". Legendre was eighty years of age when he died, having been born at Toulouse on September 18, 1752. He was educated at the Collège Mazarin and at the age of twenty-five became a professor at the military school in Paris. He published his first important memoir, on attractions, in 1783, and in that year he was elected a member of the Paris Academy of Sciences. Four years later, with Cassini and Mechain, he was appointed to conduct the geodetical operations for connecting the Observatories of Paris and Greenwich. Through this he visited London, and was made a foreign member of the Royal Society. Unlike many of his contemporaries, he passed through the Revolution unscathed and by his writings and his work on commissions continued to add to his reputation.

In 1795 he became a member of the staff of the famous Ecole Normale. His chief works were his "Géométrie" (1794), which was translated into English by Thomas Carlyle, his "Théorie des Nombres" (1798), "Calcul Intégral" (1811-1826) and "Fonctions Elliptiques" (1825-26). A few weeks before his death he added to the last of these another volume, which contained some of the researches of the younger mathematicians, Abel and Jacobi, the value of whose work Legendre quickly recognised. Among the best-known pupils of Legendre were Cauchy and Arago. The death of Legendre took place at his house at Auteuil.

Sir Henry Roscoe, 1833-1915

AMONG those whose efforts aroused Great Britain to a realisation of the value of scientific education few did more than Sir Henry Enfield Roscoe, whose birth took place in London on January 7, 1833, a century ago. The son of a judge and a grandson of William Roscoe the historian, he got his second christian name from a great-grandfather, Dr. Enfield, a colleague of Priestley's at Warrington. He was sent first to Liverpool High School and afterwards to University College, London, where he came under the influence of Graham and Williamson. Later, he spent some time under Bunsen, working in the historic old laboratory at Heidelberg where "beneath the stone floor at our feet slept the dead monks, and on their tombstones we threw our waste precipitates". Returning from Germany, Roscoe at the age of twenty-four years was appointed to succeed Frankland at Owens College, Manchester, a position he held with conspicuous success for thirty years. He was one of the foremost in engendering a spirit of research and many of his students afterwards rose to high rank. His collaboration with Dittmar, Harden and Schorlemmer, the first professor of organic chemistry in Great Britain, led to the publication of many notable works some of which are still sought after. One of his achievements as an experimentalist was the isolation for the first time of vanadium. He was elected a fellow of the Royal Society in 1863 and awarded a Royal medal in 1874; he served as president of the Society of Chemical Industry in 1881, and as president of the Chemical Society in 1882. He was elected member of parliament for South Manchester in 1885; in 1887, the year in which he retired from Owens College, he was president of the British Association. He was a member of various Royal commissions, and from 1896 until 1902 was Vice-Chancellor of the University of London. His eightieth birthday was marked by the presentation of his bust to the Chemical Society. He died on December 18, 1915, at Woodcote Lodge, West Horsley, Surrey, and was buried four days later in Brookwood Cemetery.

North Atlantic Gale

THE last day of the old year and the first few days of the new have proved remarkably tempestuous on the North Atlantic. During the near approach to Ireland on December 31 of an exceptionally intense

cyclonic depression, a destructive gale occurred in Ireland. At Valentia Observatory the pressure tube anemograph registered a gust of 96 miles an hour, which is the highest gust recorded there for at least sixteen years. Barometric readings in Iceland were unusually low during the three first days of 1933. On January 3, pressure at sea-level was less than 928 millibars (27.4 in.) near the centre of a depression lying off the south-west coast of Iceland, but it is not possible to say by how much it fell below that value. That depression was certainly among the deepest of which we have any record since daily synoptic weather charts of the North Atlantic were first begun. On those prepared and published by the Danish and German Admiralties, there is only one depression which looks to have had such a low reading, that of February 24, 1903, which had been preceded five days earlier by another only slightly less intense.

Earthquake in South-East Africa

THE strong earthquake that occurred shortly after 8.30 A.M. on December 31 in south-east Africa possesses some interest as it visited a region in which destructive shocks are almost or quite unknown. Its epicentre seems to have been in Zululand, for damage to buildings was caused at Eshowe and other places. The shock was felt all over Zululand and Natal, in various parts of the Transvaal and the Free State, and from Lorenzo Marquez on the north to the Transkei on the south. Its disturbed area must therefore have contained about a quarter of a million square miles, which is more than that shaken by the great Japanese earthquake of 1923.

Ancient Man in Palestine

It is reported that Miss Dorothy Garrod, director of the Joint Expedition of the School of Archæology in Palestine and the American School of Prehistoric Research, has discovered further remains of Palestine man. A massive and powerful lower jaw has been found in the cave of the Oven at the foot of Mount Carmel. In an announcement of the discovery by Dr. Grant MacCurdy, of Yale University, director of the American School of Prehistoric Research, it is stated that the character of the newly discovered jaw fully conforms to the view, based upon the evidence previously discovered in the caves of Mount Carmel, that Palestine man, while presenting Neanderthaloid characters, is of a distinct type. It is also announced that a cap or veil made of dentalia shells has been discovered in an adjacent cave. It will be remembered that in the course of the excavations of 1931, Miss Garrod found a cap of dentalia shells still attached to a skull from a mesolithic series in one of the Mugharet el-Wad caves.

Cave Paintings in the Pyrenees

FURTHER details of an interesting discovery of the prehistoric painting of a horse in a cave in the Pyrenees, briefly announced some weeks ago, are now supplied by Science Service, Washington D.C. The cave, to be known as La Grotte de la Bastide, is situated near the village of La Bastide, Hautes

Pyrenées, and was discovered by M. Norbert Casterat, pupil of Count Bégouen. At the entrance of the cave were intact Magdalenian hearths, and on the walls were a number of engravings and polychrome paintings, including human figures, and as the central object, a polychrome painting of a horse. The horse is described as 'superb' and is an artistic production comparable with the famous horse of the Altamira cave at Santander. The figure is more than six feet long, and is executed in red with black muzzle. The mane is erect; the eye, ear and nostril being delicately engraved. High lights are indicated on shoulders, stomach and flanks. Judging from this description, the painting would appear in every way to be an exceptionally fine example of cave art.

Lightning Investigation

MR. W. H. F. TREDRE, honorary technical secretary of the Educational Section of the South African Institute of Electrical Engineers, Kelvin House, 100 Fox Street, Johannesburg, has favoured us with some interesting particulars relating to the organisation which has been established for the study of lightning in South Africa. The movement was initiated by Mr. T. P. Pask in a paper read before the South African Institute of Electrical Engineers in April 1930; as a result a committee was formed under the chairmanship of Mr. Pask. The present organisation consists of a main committee and three subsidiary committees dealing with each of the subjects research, statistics and education. With regard to the research, the chairman is Dr. B. F. J. Schonland, of Capetown—the scope of the work it is proposed to undertake includes the collection of photographs of lightning strokes and their effects taken by means of revolving lenses of the type suggested by Prof. Boys, of klydonograms and cathode ray oscillograms of lightning waves, point discharge work, etc. The activities of the statistical section may be illustrated by the fact that there are 3,500 observers throughout the Union who are collaborating by making notes on the history of storms. These observers are working under the supervision of Mr. G. W. Cox, acting chief meteorologist of the Union. The educational section will disseminate information on protective measures through the medium of the Press, schools, pamphlets, etc. During the 1933 session it has been arranged for certain of the investigators to read papers on the subjects of their work before the South African Institute of Electrical Engineers. It is anticipated that interesting results will be obtained at the end of the present lightning season.

Electrification of Railways in Britain

IN a paper by F. Lydall to the Institute of Transport road on December 12, the electrification of railways is considered under two headings, 'suburban passenger' and the 'general' electrification usually referred to as main line electrification. The main characteristics of the former type of traction are rapid acceleration and increased terminal capacity due to the elimination of locomotives and the ability