

the late E. K. Muspratt, built the Muspratt Laboratory of Physical Chemistry at the University of Liverpool, and Sir Max was brought up in a scientific atmosphere. He was one of the first of the great modern industrialists to receive a chemical education. He was educated at Clifton College, and from there he went to Zurich, where he received the Swiss Government's diploma in applied chemistry.

I have the most lively recollection of lunching with Sir Max Muspratt and Prof. Donnan twenty-seven years ago, on which occasion Sir Max expressed that extraordinary interest in science, an enthusiasm for research, which never left him.

It is not too much to say that Sir Max Muspratt had a large part in bringing about the growth of the large research establishments in which Great Britain can justly pride itself. In spite of the fact that his latter years were clouded by great personal misfortunes, he was always willing and anxious to discuss any scientific subject, not so much as regards its direct practical bearing, but

in general terms. His death is regretted by a far larger number of people than he would have imagined.

F. A. FREETH.

WE regret to announce the following deaths:

Prof. H. G. Chapman, director of cancer research in the University of Sydney, president of the Linnean Society of New South Wales in 1917-18, on May 25, aged fifty-five years.

Prof. G. C. Comstock, emeritus director of the Washburn Observatory and professor of astronomy in the University of Wisconsin, on May 11, aged seventy-nine years.

Prof. Otto J. Kauffmann, emeritus professor of medicine in the University of Birmingham, on May 15, aged seventy-one years.

Prof. J. Y. Simpson, professor of natural science in New College, Edinburgh, known for his work on the re-interpretation of religion in the light of modern biology, on May 20, aged sixty years.

News and Views

King's Birthday Honours

THE King's birthday honours list includes the names of the following men of science and others associated with scientific work and development. *Baron*: Sir Hugo Hirst, chairman and managing director of the General Electric Company, Ltd. *G.B.E.*: Sir John Reith, Director-General of the British Broadcasting Corporation. *K.B.E.*: Dr. F. G. Banting, Dominion of Canada, discoverer of insulin. *Knights*: Major R. G. Archibald, director of the Wellcome Tropical Research Laboratories, Sudan; Mr. A. W. Flux, honorary vice-president (past president) of the Royal Statistical Society; Mr. Albert Howard, lately agricultural adviser to the States in Central India and Rajputana; Dr. W. H. Moberly, vice-chancellor of the University of Manchester; Dr. C. E. Saunders, lately Dominion cerealist, Dominion of Canada, discoverer of Marquis, Ruby, Reward and Garnet Wheat; Prof. G. Elliot Smith, professor of anatomy in the University of London (University College). *C.B.*: Dr. R. E. Stradling, director of Building and Road Research, Department of Scientific and Industrial Research. *C.M.G.*: Mr. A. C. Bagshawe, secretary of the Department of Agriculture and Lands, Southern Rhodesia; Prof. R. S. Troup, director of the Imperial Forestry Institute and professor of forestry in the University of Oxford, for services to forestry in the Colonies. *C.I.E.*: Mr. F. Canning, chief conservator of forests, United Provinces; Mr. P. E. Aitchison, chief conservator of forests, Bombay Presidency; Mr. W. McRae, director and Imperial mycologist, Imperial Institute of Agricultural Research, Pusa. *C.B.E.*: Dr. W. L. Balls, chief botanist, Egyptian Ministry of Agriculture; Mr. L. St. L. Pendred, editor-in-chief of the *Engineer*; Dr. L. J. Spencer, keeper of minerals, British Museum (Natural History).

O.B.E.: Dr. S. G. Barker, for research services to the Empire Marketing Board; Mr. A. D. Cotton, keeper of the Herbarium and Library, Royal Botanic Gardens, Kew; Miss E. H. Ekins, principal of Studley Horticultural and Agricultural College for Women; Miss Annie Lorrain-Smith, for contributions to mycology and lichenology; Dr. C. Raeburn, assistant director of the Geological Survey Department, Nigeria. *M.B.E.*: Mr. F. G. Harcourt, curator of the Botanical Gardens and Agricultural Superintendent, Dominica, Leeward Islands; Mr. J. D. Kennedy, sylviculturist, Nigeria. *I.S.O.*: Mr. G. E. Greig, lately senior warden of mines, Federated Malay States.

Johann Bauschinger, 1834-93

AMONG those to whom German industry and engineering owed much in the latter part of last century was Johann Bauschinger, who was born on June 11 a century ago. He began life as a school teacher, but became very widely known for his work on the testing of materials. One of a large family of an artisan, Bauschinger was born in Nuremberg and was educated at the Nuremberg Commercial School, and the Polytechnic. He was enabled to proceed to the University of Munich and, after studying mathematics and physics, at the age of twenty-three years he secured a post as teacher in the Commercial School at Fürth, where he spent nine years. He then taught for a time in the Realgymnasium of Munich, and in 1868 was appointed professor of mechanics and graphic statics in the Technical High School there, which henceforth was the scene of his activities. By 1870, he was in possession of a mechanical laboratory where, said Unwin, "Engineering experiments were carried out with a thoroughness and delicate accuracy never previously equalled".

He designed a new form of testing machine and applied Gauss's method of reading by reflection in instruments for measuring deformation of bodies when strained, made tests of cement, mortar, timber, cast iron, wrought iron and steel, and for the railway authorities made investigations on defective axles, rails, etc. Much of his work was inspired by the labours of his famous countryman August Wöhler (1819-1914). An important outcome of Bauschinger's labours was the formation in Germany of a society for exchanging views on investigations similar to his own, and this led to the foundation of the International Association for Testing Materials. In his own particular line, he was regarded by Unwin as "the prince of observers". He died at Munich on November 25, 1893.

Preparations for New Ascents into the Stratosphere

THE National Geographic Society, Washington, D.C., is co-operating with the U.S. Army Air Corps and other donors in a new ascent to the stratosphere to be made this month. According to the *National Geographic Magazine* of April, the balloon to be used will have a capacity of 3,000,000 cubic feet, and will be manned by Maj. William E. Kepner and Capt. Albert W. Stevens. The balloon fabric is of cotton impregnated with rubber, and the spherical gondola, which is made of a magnesium-aluminium alloy, is 8 ft. 4 in. in diameter. The total weight to be raised, including balloon, gondola, equipment and crew, is nearly eight tons. It is estimated that when the balloon rises from the earth partly inflated, the top will be 295 ft. from the ground; at its 'ceiling', the balloon will be a sphere 180 ft. in diameter. Hydrogen is to be used for inflating it. The gas valve in the top of the balloon will be operated from the gondola by compressed air. The programme of scientific work includes the collection of samples of the atmosphere of the stratosphere, determination of electric gradient, observations of cosmic rays and of ozone content and photography at great heights. According to the Brussels correspondent of the *Times*, Dr. Max Cosyns, who accompanied Prof. Piccard on his second ascent to the stratosphere, has completed his preparations for a new ascent (*NATURE*, Nov. 25, 1933, p. 812). The gondola of the Belgian balloon has been constructed of aluminium.

New Paris Zoo

The lures of Paris are many. Its latest is a new zoo at Vincennes which should be well worth seeing. Hagenbeck, in Germany, was one of the first to abolish the old and hideous system of keeping birds and beasts in cages. The Zoological Society of London, when Sir Peter Chalmers Mitchell took over the reins of government, followed suit, starting with the fine sea-lions pond, and the now famous Mappin Terraces. These last seem to have inspired the director of the new Paris Gardens, Prof. Urbain, and the architect, M. Charles Letrosne, for the dominant feature of the Gardens, we are told, is a towering mass of reinforced concrete, 200 ft. high, shaped and coloured to look like reddish-brown rock, with ledges for sheep, goats, and antelopes. The interior of this

mass contains two large reservoirs for the storage of water to supply pools in various parts of the Gardens. In the London Mappin Terraces similar reservoirs supply the wonderful Aquarium—the finest in Europe. Another noteworthy feature of the Paris Gardens is a great aviary giving the birds plenty of room for flying. Occupying an area of about 23 acres, it would seem to be reminiscent of the Gardens of the Zoological Society in London and at Whipsnade, and there is no doubt they will be as much appreciated. The new Gardens occupy the site of the Colonial Exhibition in the Bois de Vincennes. They were opened on June 2 by the President of the Republic, M. Lebrun.

The Indian Earthquake of January 15, 1934

THIS great earthquake is being studied by officers of the Geological Survey of India. Their investigations in the central area are expected to last for several weeks longer, and their results will be published by the Survey at an early date. In the meantime, three papers of some interest have appeared. Sir E. Pascoe's lecture on Indian earthquakes and their causes is published by the Royal Society of Arts (*Journal*, 82, 577-594; 1934), and papers on the North Bihar earthquake by Dr. M. S. Krishnan and Dr. S. K. Banerji in *Current Science* (2, 323-326, 326-331; 1934). From the observations so far made, it seems, according to Dr. Banerji, that the earthquake fault reaches from Motihari to Monghyr, a distance of about 135 miles. There is probably also a second fault, branching from near the middle of the latter and running in the direction of Purnea. Most of the seismographs in India were thrown out of action by the shock, but good records were obtained, and are here reproduced, at Colaba (Bombay) and Agra. From the great preponderance of the surface waves compared with the primary and secondary waves, Dr. Banerji concludes that the focus was at a very slight depth below the surface. All three writers agree in attributing the earthquake to a disturbance of the isostatic compensation.

After-Shocks of the Bihar Earthquake

AT the end of May, the after-shocks of the Bihar earthquake of January 15 increased in frequency and strength. The strongest, which occurred at about 1 A.M. on May 31, seems to have originated within the focus of the principal earthquake, for it caused alarm at Muzaffarpur, Patna and other places in its epicentral area. So far as is known, there was no loss of life and no damage except that walls injured in January collapsed, while fissures that had become filled with dust reappeared. Shocks were also felt about noon on the same day in Assam, the first of which is reported to have lasted two minutes and to have been felt in Calcutta.

Element No. 93

THE Rome correspondent of the *Times* states, in a short communication published in the issue of June 5, that an article in the *Giornale d'Italia* which surveys recent work on induced radioactivity by Prof. Enrico Fermi, of the Royal University, Rome,