School (see *Nature*, **160**, 704; 1947). Dr. Greenfield was a scholar of St. Mary's Hospital, and obtained first class honours in physiology in the B.Sc. examination of the University of London. After holding posts at St. Mary's in both medicine and pathology, he was appointed to the Department of Physiology, under the direction of Prof. A. St. G. Huggett. A year ago he became senior lecturer in experimental physiology. Dr. Greenfield at first worked with Dr. Killick (now Professor) on acclimatization to chronic carbon monoxide poisoning. More recently, he has shown great ingenuity in devising methods for the study of the circulation both in man and animals. During the War, these were used on behalf of the R.A.F. to study the effect of variations of g on the blood pressure. Since then Greenfield has worked with Huggett on fœtal physiology and found a method for determining the rate of the blood flow in the umbilical cord. At a recent meeting of the Physiological Society he showed how the movements of a large bubble could be photographed and used to indicate the rate of the blood flow in a part of the body, as, for example, the hand. Dr. Greenfield's special knowledge of the physiology of the circulation will be of great value in Belfast, where work in this field has been in progress for some years.

Anatomy at the University of Glasgow: Prof. G. M'C. Wyburn

GEORGE M'CREATH WYBURN has been appointed regius professor of anatomy in the University of Glasgow in succession to Prof. W. J. Hamilton, who has been appointed to the chair of anatomy at Charing Cross Hospital Medical School, London. Dr. Wyburn is a pupil of the late T. H. Bryce, and graduated at Glasgow in 1925: after holding appointments in various hospitals, he returned to Glasgow as demonstrator in 1929. He became senior lecturer in anatomy in 1936, and was acting head of the Department during 1944–45. His researches include work on embryology, with special reference to bone formation, on the endocrinological aspects of reproduction, and on tissue-grafting (of skin, cartilage and cornea in particular). He was awarded the Struthers Gold Medal and Prize in 1939 for embryological research, and again in 1947 (with Dr. Paul Bacsich) for work done during the War on the repair of peripheral nerve injuries.

Mathematics at Queen Mary College, London: Dr. G. C. McVittie, O.B.E.

THE appointment of Dr. G. C. McVittie to the new chair of mathematics at Queen Mary College, University of London, is of considerable interest, not only because he will be the first professor of mathematics at this College, but also because his appointment will go a long way towards strengthening the present somewhat meagre representation of applied mathematicians among the appointed teachers of the University. In pre-war days, Dr. McVittie was well known for his researches into relativistic theories and in particular for his trenchant criticisms of some aspects of certain forms of the cosmological theory. During the Second World War, Dr. McVittie was seconded for special service with the Meteorological Office. Here he was engaged in a number of important problems. As a result of his successful activities both as a man of science and as an administrator he was recently awarded the O.B.E. Since his return to academic life, Dr. McVittie has developed a new interest in the theoretical basis of meteorology and has been made a member of the Meteorological Research Committee. He has also become, with Prof. Ferraro, one of the editors of the new *Quarterly Journal of Applied Mathematics and Mechanics*, the first number of which has recently appeared, and which seems destined to have an important influence on the future development of applied mathematics in Great Britain. Dr. McVittie has also been very actively interested for many years in problems of theoretical astronomy and has been one of the editors of *The Observatory*.

Mathematical Statistics at the University of Sao Paulo: Mr. W. L. Stevens

MR. W. L. STEVENS has been appointed professor of mathematical statistics in the University of Sao Paulo, Brazil. Mr. Stevens worked under Prof. R. A. Fisher, at the Galton Laboratory, University College, London, during 1935–41. He then joined the staff of the Statistical Department, Rothamsted Experimental Station, for a few months on urgent war work prior to leaving for Portugal to take up a lectureship in statistics at Coimbra at the request of the British Council and the Foreign Office. In 1944 he returned to Britain and took a post as statistician with Imperial Chemical Industries, Ltd., Billingham. In 1947 he joined the staff of the Admiralty Statistical Department under Mr. H. L. Seal. He has been chiefly concerned with the development of statistical methods in the fields of biological and agricultural experimentation, and has also made contributions to the methods applicable to quality control of industrial products.

New Atomic Pile at Harwell

RATHER less than a year has passed since the Atomic Energy Research Establishment at Harwell put into operation 'Gleep', the first atomic pile to be built in Great Britain. Now a second and more powerful pile has been completed and put into operation. Its rated output is 6,000 kW., and it has been designed primarily as an experimental tool, to provide as many facilities as possible without unduly complicating the engineering of the structure. In addition, when operating at rated output, the pile should be able to produce, by transmutation of inactive elements, all the artificial radioactive isotopes required in Britain by medical and other research workers. Like 'Gleep', the new pile is a graphite-moderated air-cooled pile. The uranium rods are enclosed in aluminium cases which lie in channels in the graphite. Cooling air is drawn through the channels by several large electrically driven exhausters. The whole pile is surrounded by a concrete shield several feet thick, to protect workers from radiations, and the cooling air is discharged up a chimney stack 200 ft. high. There are about forty holes in the shield, giving access to the strong fluxes of neutrons in the interior of the pile. These neutron fluxes, many times more intense than can be obtained in any other way, are required for many experiments in nuclear science, both in fundamental and in applied research. Thus, for example, the applied research programme will include an investigation of the effect of irradiation by neutrons on the properties of materials, to provide information about materials used in the construction of piles. The experimental holes are also the means by which inactive elements are placed in the pile for transmutation into radioactive isotopes. Surrounding the pile structure are the control rooms and laboratories used by the

scientific and operating staff. The operation of the pile is controlled by two sets of neutron-absorbing rods; the first set of rods is adjusted to keep the pile operating at a constant-power level, and the second set is available to shut the pile down in any emergency. The basic calculations for the Harwell pile were begun in 1945 by a team working under Sir John Cockcroft in the laboratories of the National Research Council of Canada, and were continued when the team moved to the newly formed Atomic Energy Research Establishment at Harwell. It was the first task of the Department of Atomic Energy at Risley, under the direction of Mr. C. Hinton, to undertake the design of the pile, based on the information provided by the Harwell team. This work began in April 1946. The actual construction of the pile was made the responsibility of the Ministry of Works, assisted by their contractors, Messrs. Chivers.

Earthquakes in Japan

AT about 8 p.m. local time on June 28, four severe earthquakes affected the sea and land areas around the town of Fukui, on the west coast of Honshu Island, Japan. The epicentres of the shocks appear to have been near lat. 36·1° N., long. 136° E., though news from the Japanese observatories has not yet been received. An area within a radius of about 30 miles from Fukui was destructively affected. The population of Fukui (about 85,000) was largely engaged in the textile industry (mostly silk), as more than one quarter of the looms of Japan were in the town. There were some ferro-concrete buildings in the town, but most of the buildings were made of wood and these were soon set alight by the fires scattered by the shocks. The fires were difficult to check owing to earthquake damage to the water supply, and it is estimated that nearly 40,000 buildings were damaged beyond repair. A cinema collapsed, burying alive a large number of people, and many casualties were caused by falling debris at the railway station. Six other towns and thirty-nine villages in the neighbourhood were severely affected, including Marouka, Mikuni, Matsuoka, Daishoji and Kanaza. Communications were severely affected and an important railway bridge was destroyed, making relief work difficult. Huge waves lashed the coast. Altogether, some 3,200 people are believed to have lost their lives, and there are thousands of others injured. Aftershocks continued for some days.

In the whole of the densely peopled islands of Japan, there are about five hundred earthquake shocks of varying intensity every year, and although probably the greatest of the world's earthquakes have not happened there, yet there have been tremendous Japanese disasters from time to time. Examples include the Mino-Owari earthquake just after 6 a.m. local time on October 28, 1891, and the shock which almost destroyed Tokyo and Yokohama on September 1, 1923. The present shock is estimated to have been about three quarters of the strength of the latter. Between the smaller shocks of July 16–17, 1941, in the Nagano Prefecture and the shock of May 9, 1947, in Hida, there has been little news, and for part of the time some of the Japanese observatories closed down. Mr. Ernest Tillotson states that news of this period is, however, beginning to arrive: thus between December 18, 1943, and December 1945, to the accompaniment of hundreds of seismic disturbances, a 1,200-ft. high mountain called the 'New Showa Mountain' arose with volcanic eruptions on the fringe of Lake Toya, Hokkaido, similar to the Paricutin Mountain in Mexico. Further news of these tremendous earth movements is awaited.

Scientific Advisory Council to the Minister of Fuel and Power

THE Minister of Fuel and Power has appointed the following to be members of the Scientific Advisory Council which will advise him on the scientific aspect of his statutory duties: Sir Alfred Egerton (chairman), Eng. Vice-Admiral Sir Harold Brown, Dr. H. Roxbee Cox, Sir Charles Ellis, Prof. F. H. Garner, Sir Charles Goodeve, Dr. E. S. Grumell, Mr. J. Hacking, Dr. H. Hollings, Prof. D. M. Newitt, Sir Harry Ricardo and Prof. S. Zuckerman. The terms of reference of the Council will be: (1) to advise the Minister of Fuel and Power on the scientific aspect of problems which he may remit to them in connexion with his statutory duty of securing the effective and co-ordinated development of coal, petroleum and other sources of fuel and power in Great Britain, and of promoting economy and efficiency in the supply, distribution, use and consumption of fuel and power, whether produced in Great Britain or not; (2) to advise the Minister of new scientific knowledge or developments which in the opinion of the Council should be taken into account in the performance of his statutory duties; (3) to keep the whole field of fuel and power under continuous review with the object of identifying problems needing scientific investigation and advising the Minister of those problems.

Ordnance Survey Maps of Britain

THE initiation of an entirely new ordnance map series on a scale of 1 : 25,000, or about 2½ inches to the mile, was one of the chief recommendations of a departmental committee set up in 1935. It was felt that the gap between the 1-inch and 6-inch was too wide for many users. In the areas already covered there are signs that the new scale is growing in popularity. Some five hundred sheets, or about one fifth of the projected total, are now published, and it is hoped that the remainder will be ready in about three years time. The new map is based on the old six-inch map, to which has been added certain revisions made for war purposes. In this sense only is it provisional: the final edition will incorporate 50-in. re-surveys of built-up areas, now in hand in many towns, and an overhaul of 25-in. plans in rural areas. The sheet edges lie along the 10 kilometre grid lines of the national grid, and each sheet is known by the 10 km. grid reference of its south-west corner. The new map is sold in three styles, the fully coloured, the outline and the administrative areas. In the first, contours and main roads are in brown, water in blue, black for outlines of roads, buildings and railways, and solid black for public buildings. The outline edition is in grey monochrome without contours and is printed on specially heavy paper suitable for drawing offices. The administrative areas edition has all such boundaries shown by a red overprint on the outline edition; apparently it is being considered whether or not to continue the production of this edition. The following areas are now in the course of being covered by the 1 : 25,000 map: Greater London, Edinburgh, Glasgow, Dundee and Aberdeen; Plymouth and Dartmoor; Purbeck, New Forest, Southampton and Portsmouth, and most of the south coast; South Wales and Bristol; Gloucester, Oxford, Reading and Luton; East