NEWS and VIEWS

Australian Atomic Energy Commission : Prof. C. N. Watson-Munro

THE Australian Atomic Energy Commission has announced the appointment of Prof. C. N. Watson-Munro, professor of physics in Victoria University College, New Zealand, to the position of Chief of Research and Development. The Australian Government has already approved a programme of construction of a nuclear research reactor and research laboratories in New South Wales, and these will be the first objective of the scientific team to be built up under the direction of Prof. Watson-Munro. Prof. Watson-Munro, who is thirty-nine years of age, was born in New Zealand and educated at Victoria University College, Wellington. During 1936–39 he was employed by the New Zealand Department of Scientific and Industrial Research as a geophysicist ; he published a paper on a reconnaissance magnetic survey of the New Zealand thermal regions (now being used for the production of heavy water) and one on a radioactive survey of New Zealand rocks and soils. In 1939 he transferred to radar work, and after a year in 1941 with the American radar team at the Massachusetts Institute of Technology, he became director of the New Zealand Radar Development Laboratory. In addition to meeting the needs of the New Zealand Armed Forces, this Laboratory supplied the Royal Navy with thirty radar sets and the U.S. Forces in the Pacific with ten mobile radar sets. Prof. Watson-Munro went into the Pacific war theatre with the sets supplied to the United States and was given the honorary rank of major.

In mid-1944, Prof. Watson-Munro led a group of New Zealand scientists sent to join the British–Canadian group of atomic energy workers in Montreal and at Chalk River. He took a leading part in the design and construction of the first Canadian heavy-water pile (ZEEP) and was responsible for the control equipment. In 1945 Prof. Watson-Munro went to England and was in charge of the design and construction of the first pile in the United Kingdom (GLEEP). He returned to New Zealand in 1948 to take over the position of deputy secretary of the Department of Scientific and Industrial Research in charge of all the physical, geophysical and engineering activities of that Department. He was also scientific adviser to the Armed Forces and attended two meetings of the Commonwealth Defence Scientific Advisory Committee. He took up his present appointment to the chair of physics at Victoria University College in 1951.

Division of Fisheries, C.S.I.R.O., Australia : Dr. H. Thompson

DR. HAROLD THOMPSON, the founder and for seventeen years the chief of the Division of Fisheries of the Commonwealth Scientific and Industrial Research Organization, Australia, is to retire shortly at the age of sixty-four. Dr. Thompson is a Scot, born in Aberdeen in 1890, and from 1920, after service in the army during the First World War, he was for ten years scientific adviser of the Fishery Board for Scotland, gaining a D.Sc. of the University of Aberdeen in 1927 for his work on the natural fluctuations in the stocks of haddock. In 1930 he became director of fishery research in Newfoundland, a post which he left six years later to take up his present appointment in Australia. Although the Second World War halted many of the advances which he had planned, Dr. Thompson gave valuable service during this period as comptroller of fisheries in the Department of War Organization of Industry. The programme of research and exploration was resumed in 1946 and has continued with much benefit to the Australian fisheries and world fisheries science. The Division has contributed considerably to the establishment and extension of the whale, tuna, crayfish and shark fisheries ; it has shown the need to relax the fishing pressure on certain kinds of fish, while indicating others that might be used to take their place, and it has made considerable strides in the study of the movement and fertility of Australian sea-water masses on which all marine life depends. Dr. Thompson leaves behind him a large body of knowledge of Australian fisheries and a thriving Division to carry on his work.

Industrial Power from Nuclear Energy

A FRIDAY Evening Discourse was delivered at the Royal Institution, London, on December 3 by Sir Christopher Hinton, deputy controller of atomic energy (production), Ministry of Supply, his subject being "Industrial Power from Nuclear Energy". In his address, Sir Christopher explained that, whereas in the burning of hydrocarbon fuels to obtain heat only the extra-nuclear electrons of the atoms are disturbed, the production of heat from atomic fuels involves nuclear transformations, the most easily performed such transformation being nuclear fission. The only naturally occurring element which can be induced to carry out a chain reaction, whereby neutrons emitted from the fission of a nucleus cause fission in further nuclei, is the 235 isotope of uranium, and this process is used in the atomic pile, in which most of the large quantity of energy evolved is in the form of heat. The uranium pile reaction forms the artificial element plutonium, which is bred by neutron irradiation of the uranium-238 isotope and subsequent radioactive decay, and is also fissionable. To effect a balance between the neutrons used for fission and the neutrons used for breeding plutonium, a moderator is used, which slows down the emitted fast neutrons, making them more readily available to carry out the fission process. The graphite-moderated air-cooled piles at Windscale are not designed to utilize the heat evolved, the waste heat being ejected up the stacks ; but the graphite-moderated carbon dioxide-cooled piles at Calder Hall will produce heat of high enough grade to raise steam suitable for electricity generation. A further type of reactor, called a breeder reactor, is envisaged, which will use enriched fuel and fast neutrons and which, besides producing useful heat, may produce fissile material in excess of its fuel consumption. Although the estimated cost of nuclear electricity is some 50 per cent above the cost of electricity produced by the most modern power station, Sir Christopher considers that the real cost should fall as techniques improve and a reasonable price is quoted for the fissile material bred in the piles. Thus he envisages the future programme as consisting of a chain of thermal reactors producing plutonium as a by-product, followed by the use of this plutonium in the fast reactor or breeder pile.