SIR BERTRAM WINDLE, F.R.S. (1858-1929)

By SISTER MONICA TAYLOR

BERTRAM ALAN COGHILL WINDLE, the centenary of whose birth occurs on May 8 of this year, was born in Mayfield, Staffordshire. His father was the Rev. Samuel Allen Windle, whose eldest brother, William, was vicar of St. Stephen's, Wallbrook, a church considered to be Sir Christopher Wren's masterpiece. Sydney Catherine Coghill, directly descended from Sir Philip Sydney through her grandfather, Chief Justice Bushe, was his mother. When Bertram was four, the family went to Kingstons, where he began to acquire that wonderful knowledge of natural history and antiquities which made him such a delightful out-of-door companion. Intensely shy by nature, he shunned the vicarage tea-parties, finding congenial companionship among the simple fisher-folk. His private school reports were, however, most unsatisfactory.

At Wells, where his parents were next to settle, because of his father's health, Bertram was fascinated by the architecture of the cathedral and the historical monuments. He haunted the vergers and acquired their arid patter so perfectly that he was allowed to take parties around on busy days. Reports from Repton, his public school, were persistently bad; the classics had no attraction for him. In after-life, Sir Bertram confessed that his great love and knowledge of English literature were initiated by one master who, on Sunday afternoons, after construing a few lines of Greek Testament, to satisfy regulations, read aloud with comments "Lycidas" and other masterpieces. Bertram longed to go into the Navy, but was refused permission, although there had been a long tradition of service in his mother's family, her father being Admiral Sir Josiah Coghill. After a particularly bad report, Bertram, inoculated with a love of chemistry by Statham's "Box of Chemical Magic", was sent to prepare for Trinity College, Dublin, the pathway to science being, in those days, via medicine. The tide had turned. Windle's examiners for Final Medicine pronounced him to be the best student they had examined in the previous twelve years. In 1883 he obtained the M.D. degree, and fifteen years later he was elected to the Royal Society.

After a short period of practice, Windle took a post as resident pathologist in the General Hospital of Birmingham. It was not Newman's influence, although being an omnivorous reader, with an accurate, retentive memory, he had read his works, but the outcome of a scientific and logical contrast between the findings of Littledale versus Ryder on Catholicism that caused him to abandon agnosticism for Catholicism.

A professorship in anatomy having been created in Queen's College, Windle, whose *métier* was science and not medicine, was appointed. The numbers, under his able guidance—for he was a born teacher though merciless to the slacker, and a strict but just disciplinarian—rapidly increased. From the first, Windle's perspicuity and his all-round culture realized that the proper home of medicine is in the university. So he approached the Right Hon. Joseph Chamberlain with his scheme for the creation of a University of Birmingham. Many of his more

ambitious students had obtained university degrees as external students. Windle realized that these purely external examinations muzzled the curriculum, whereas a university should cater for the special needs of the particular environment in which it is situated.

The story of the development of the University of Birmingham with its then breath-taking modern trends is too long to narrate here. But the inclusion of faculties of dentistry, engineering, brewing, commerce, fine arts and music along with the traditional ones was a great innovation. Vast sums of money had to be raised—Carnegie was lavish, as were the local industrialists and city fathers. In little more than two years these two men, with their drive and enthusiasm, had secured everything necessary for the first congregation to confer degrees, medical graduates being duly entered on the General Register.

In addition to these academic pursuits, Windle gave many 'popular' lectures. Few possessed his gift for translating the terminology of research work into the vocabulary of the general public. Later, in Toronto, he was to secure packed halls of listeners to courses in anthropology, ethnology and archaeology delivered each Friday in the Lent term. These 'University Extension Lectures' were always fully reported in the Toronto Press.

His researches were in the field of myology. Many years later, Windle was gratified to find his publications being used by Osborn and Gregory for their beautiful models in the New York Natural History Museum. His love of literature and his proximity to Stratford led to the production of "Shakespeare's Country"—a best seller. "The Malvern Country" and "Hardy's Wessex" belong to his Birmingham days. Eighteenth-century literature was, however, his hobby all his life.

It was Mr. George Wyndham who put before Windle, always an ardent Home Ruler, the patriotic reasons for his acceptance of the presidency of Queen's College, Cork, which meant considerable financial loss. In Cork, gigantic tasks awaited him, taxing even his wide academic and civic experience. The University question had to be tackled at once. Briefly, his untiring energy and his political acumen secured the National University of Ireland. In Queen's College, new chairs were established and money obtained, extensive buildings were erected, the beautiful Honan Chapel endowed, hostels for men and women secured. Nor were the needs of Ireland neglected; technical schools were established and the Irish Trade Mark was the result of his civic experience.

Windle wrote more than twenty books, mainly 'apologia' on the relations of science and religion. Feeling the need of a better philosophical training, he had at Oscott College read philosophy, Monsignor Parkinson acting as his tutor. Hence, when he retired, he accepted an invitation from the University of Toronto to found a School of Philosophy and Science in St. Michael's College, where he lectured on science and Christian philosophy.

These were his happiest years. Freed from administrative duties, he had leisure. His fame as a public

lecturer spread and he undertook extensive journeys in Canada and the United States to lecture. The Tennessee legislation had made 'evolution' a topic of burning interest. Windle wrote in all sixteen pamphlets on the subject, and his broadcasts were heard by millions of people, all to demonstrate that

Christians have nothing to fear from this hypothesis.

His best-loved book, "The Church and Science", considering the rapid advance of science, remained useful for a comparatively long time. He died in Toronto on February 14, 1929.

AUSTRALIAN ATOMIC ENERGY COMMISSION

REPORT FOR 1956-57

THE fifth annual report of the Australian Atomic Energy Commission, covering the year ended June 30, 1957 (pp. 68. Sydney: Government Printer, 1957), is the most informative it has published. It shows that in the field of atomic energy, activity in Australia has been continually expanding, and though in the early days the mining of uranium was the predominant occupation, to-day atomic energy is also of considerable interest to commerce and industry.

For the first time, figures and details concerning the operations at Rum Jungle are given. Consolidated Zinc Pty., Ltd., through its wholly-owned subsidiary, Territory Enterprises Pty., Ltd., has continued to operate the Rum Jungle undertaking as agent for the Commission, and during the year under review the production of uranium oxide not only was greater than in the previous year but also exceeded the budget estimate and the rated capacity of the plant. Ore reserves at the end of June were 197,000 tons of uranium ore with a uranium content of 6.0 lb./ton; 138,000 tons of uranium-copper ore with a uranium content of 6.7 lb./ton. and copper content of 3.9 per cent; and 286,000 tons of copper ore with a copper content of 2.8 per cent.

A substantial reduction in the activities of prospecting and mining companies and of individual prospectors searching for uranium is reported. Formerly, eighteen companies were active in this field, but several have transferred their interest to other minerals, and now only five companies—four in the Northern Territory and one in Queensland—and a few syndicates are occupied exclusively with uranium. The Mary Kathleen deposit near Mount Isa in Queensland is being developed by Mary Kathleen Uranium, Ltd., which is under contract to supply its uranium oxide to the United Kingdom Atomic Energy Authority, and considerable progress is reported with the construction and development of the township and the plant for uranium production.

Since 1955 a team of the Commission's scientists and engineers have been working at Harwell, but now most of the scientific research staff have returned from the United Kingdom and resumed at the Commission's research laboratories at Lucas Heights the work commenced at Harwell. The high-temperature gas-cooled system and the liquid-metal fuel system were the two types of power reactor selected for investigation, and the results so far obtained vindicate the original choice of these systems. Both of them will eventually operate most economically on the uranium-233-thorium breeder cycle, though they may well be started with uranium-235 or plutonium. Part 5 of the annual report deals with the research programme, and Part 6 with the research establishment at Lucas Heights. Many of the buildings are now nearing completion and the erection of the High Flux Australian Reactor (HIFAR), though somewhat delayed by a variety of causes, is proceeding. This thermal reactor, which is similar to

DIDO, contains a highly-enriched uranium, is cooled and moderated with heavy water, and has a heat output of 10 megawatts and a maximum flux of 10^{14} neutrons/cm.²/sec. The fuel elements and heavy water are being obtained from the United Kingdom and the United States, respectively. The aluminium tank enclosing the central core of fuel elements, heavy water and control rods is surrounded by a 2-ft. graphite reflector, followed by a thermal shield, reactor steel tank and lead shield, and finally a biological shield of 5 ft. of concrete. [The reactor was started up on April 18 by the Prime Minister of Australia, Mr. Menzies.]

In addition to the research work carried out by the Commission's staff, twenty-one extra-mural research projects dealing with a variety of physical, metallurgical, engineering, chemical and biological problems are being undertaken by a number of Australian universities. The Commission has continued to give financial support for undergraduate training in those subjects important to nuclear technology in which serious shortages of trained staff exist, and eight new undergraduate scholarships were awarded in 1957 in geology, geophysics, chemical engineering and metallurgy, in addition to eighteen new postgraduate research studentships. The names of the holders of the scholarships and studentships, together with details of the research contracts; the principal publications of members of the Commission, its advisory committees and scientific staff; and the financial accounts of the Commission are listed in appendixes to the annual report.

The Isotopes Section, which was begun in July 1956, has been almost entirely confined to advising on industrial and scientific applications of radioactive isotopes, and some 200 inquiries were dealt with during the year under review. Plans for the development of the Section include the production of isotopes and research into certain aspects of technological irradiation. The illustrated booklet, "Radioisotopes in Industry and Research", by Dr. J. N. Gregory, was published in July 1956, and more than 4,000 copies have been distributed. In addition to sixteen lectures on various aspects of radioisotopes, six radio broadcasts, and television commentaries and demonstrations, "Isotopes for Industry" displays were held in Sydney and Melbourne early in 1957, which were attended by about 20,000 visitors and which aroused widespread interest. The Commission also presented a large and comprehensive display, including static and working models, and demonstrations, and covering all aspects of atomic energy, at the Royal Easter Show, in Sydney, during April 1957. The new, revised edition of the booklet, "Prospecting and Mining for Uranium in Australia", recently published by the Commission, is noteworthy for its entirely new set of colour plates of uranium minerals, and for its value to prospectors and others engaged in field operations. S. WEINTROUB