

Ontario, the Civil Service has drawn in large measure from those who received their inspiration from the men who served Queen's on the teaching staff, and served their country later in significant administrative capacities.

Though the emphasis has been on teaching, Queen's has not failed in contribution to knowledge during these years. John Watson was for more than thirty years the exponent of speculative idealism on the American continent, and he exercised a very real influence on philosophical thought. Jordan and Scott led a school of liberal interpretation of theological dogma. Cappon, sparing in writing, was recognized to be one of our ablest Canadian literary critics. Shortt had proved himself to be an authority on banking and currency before he undertook to reorganize the Civil Service system at Ottawa. Skelton, in like manner, had become known for his researches in Canadian political history before he went to Ottawa to build up the Department of External Affairs. The economic studies of Mackintosh, and the studies in Canadian history of McArthur, Trotter and Graham, maintain for Queen's a high place in the social sciences.

In the physical and natural sciences, the Univer-

sity has gained a reputation in geology, for which Brock and Miller laid the foundation, now maintained by Bruce and his fellow-workers. The practical problems in the Canadian Northland, from the metallurgical point of view, have been faced by Kirkpatrick, who made an important contribution to the recovery and utilization of cobalt. Clark has done much work on the critical state of fluids, and Gray is well known for the contributions he and his co-workers have made to knowledge of atomic structure. One need only name the work of Humphrey in psychology, Vlastos in social ethics, Miller in pathology, Sinclair and Boyd in lipids, Reid in gas gangrene, Hebb in intelligence testing, McRae in organic synthesis, Ettinger in physiological reactions, to refer only to a few of the present-day workers, to show that in variety and—may I add—in quality of scientific research Queen's is playing its part.

Queen's celebrates its centenary by reviewing the progress of thought during the last hundred years. To that progress universities have made important contributions. In the development of knowledge during the next hundred years the universities will have an even greater part to play.

## OBITUARIES

### Dr. Walter Gardiner, F.R.S.

THE name of Walter Gardiner, whose death occurred on August 31, will always be remembered by botanists and physiologists for his epoch-making histological researches and discoveries on the continuity of protoplasm. Owing to many years of ill-health, he was unknown to recent scientific workers, except by his classic papers.

Born on September 1, 1859, he died on the eve of his eighty-second birthday and was one of the veteran fellows of the Royal Society—only three now living having been elected before 1890, the year of his election, at the early age of thirty and a half years.

He was the younger son of Mr. Stephen T. Gardiner and was born at Burwell, on the edge of the Fens, between Cambridge and Newmarket. He was educated at Bedford and was a scholar of the Royal Agricultural Society during 1874–1876, and proceeded with a scholarship to Clare College, Cambridge. In 1881 Gardiner obtained first class honours in the Natural Sciences Tripos and took his B.A. degree in 1882 and M.A. in 1885, in which year he was elected to a fellowship at Clare College; afterwards he was made an honorary fellow of the College (1915). In 1883 he was appointed science lecturer at Girton College and the following year,

University demonstrator in botany. This post he held until 1888 when he was promoted University lecturer. He resigned the lectureship in 1897. He was elected bursar of Clare College in 1895.

Gardiner was associated with the Cambridge Botany School during the last years of Prof. C. C. Babington's professorship, when botanical teaching and research was at a low ebb and was being conducted mainly on uninspiring descriptive lines. The appointment of S. H. Vines, however, as reader in botany in 1883 and his conjunction with Francis Darwin, opened a new era in Cambridge botany. Into this new atmosphere Gardiner threw himself with energy, giving remarkable lectures to the advanced students, building up the Museum—founded originally by Prof. J. S. Henslow—and carrying on his own histological researches, in which he was influenced and greatly encouraged by Michael Foster and by Thiselton-Dyer, then assistant director of Kew.

Botanical teaching in Great Britain being so unsatisfactory, as Prof. F. O. Bower has pointed out in his "Sixty Years of Botany in Britain", Gardiner, like several other young botanists, went to Germany and he worked in the Botanical Institute at Würzburg during the summer of 1882 under Prof. J. von Sachs, for whom he had a profound admiration. At

Würzburg he started his work on protoplasmic continuity, demonstrating its occurrence in the pulvini of *Mimosa pudica*. He was also able to prove the existence of connexions between the cells of the leaf of *Dionea*, between the parenchyma cells of the stamens of *Berberis*, and in many endosperm cells and in ordinary vegetable tissue. These results were given in several communications to the Royal Society, the Cambridge Philosophical Society, and the *Quarterly Journal of Microscopical Science* 1882 and 1883, and in the *Arb. a.d. Bot. Institut Würzburg*, Bd. III, in 1884. His best-known paper, with figures showing the connecting threads, is that in the *Philosophical Transactions of the Royal Society*, Part 3, 1883, pp. 817-63, with three plates. His earliest paper was on the development of the water glands in the leaf of *Saxifraga crustata*, illustrated by his own drawings (*Quart. J. Micro. Sci.*, 21, 417; 1881). Vegetable tannins, the constitution of the cell wall and middle lamella, and the mucilage-secreting cells of *Blechnum* and *Osmunda* (with Tokutaro Ito) (*Ann. Bot.*, 1, 1; 1887) were among the other subjects on which he published important papers. Protoplasmic continuity, however, was his dominant research, and he was indefatigable in attempting to perfect his methods and to demonstrate the existence of the fine protoplasmic connexions across the pit-closing membrane of all vegetable cells. Nothing but the best would satisfy him, and weeks might be spent—as the writer well remembers—before a result which he would pass could be obtained.

I was singularly fortunate in being asked by him in 1898 to work in his own laboratory, and here several happy years were spent with him in perfecting methods and demonstrating continuity between the cells of every plant subjected to investigation. Much of this work has never been published, but our joint papers on "The Histology of the Endosperm of *Tamus* during Germination" (*Proc. Camb. Philos. Soc.*, 11, Pt. 6; 1902) and on the connecting threads in *Pinus sylvestris* and other allied species (*Phil. Trans. Roy. Soc.*, 194; 1901) embody important aspects of his work.

Walter Gardiner was a remarkable lecturer and spared no pains fully to illustrate his lectures in an unusual and arresting manner. His afternoon lecture on "The Plant in the War of Nature" at the Royal Institution in 1888, and his evening lecture at the British Association meeting at Newcastle, 1889, on "Plants in the Struggle for Existence", were specially memorable.

Gardiner was awarded the Rolleston Prize by the University of Oxford in 1888, he and William Bateson being declared equal. In 1898 he received the Royal Medal from the Royal Society and in 1905 the degree of Sc.D. was conferred upon him by the University of Cambridge.

A keen naturalist, with a highly developed artistic sense, Gardiner had a very extensive knowledge of his subject, which was enhanced by his frequent visits to Kew, where he did much of his early work in the Jodrell Laboratory. Histological research in Great Britain suffered a great loss when he was incapacitated by illness from continuing his studies.

He married Miss I. W. Campbell, a great-niece of Sir Joseph Hooker, in 1893, to whom, and to their son, Mr. Alan Gardiner, F.L.S., and their daughter, we extend our sympathy.

ARTHUR W. HILL.

#### Prof. Otfried Foerster

PROF. OTFRID FOERSTER, one of the most prominent neurologists of the day, whose recent death has been announced, was born in Breslau on November 9, 1873. After receiving his medical education at Breslau, Kiel and Freiburg, he qualified in 1897. He studied under Prof. Dejerine at La Salpêtrière, and then became assistant to Prof. Wernicke in the psychiatric clinic at Breslau, where he was appointed professor of neurology and psychiatry in 1921.

Foerster is perhaps best known for the operation to which his name is attached for the treatment of spastic paralysis and tabes, but his most important work consisted in his studies of the motor cortex and peripheral nerves. His principal publications were on the physiology and pathology of co-ordination (1902), co-ordinated movements in health and nervous and mental disease (1903), the essence of choreic motor disturbances (1904), contractures in pyramidal lesions (1906), diseases of the central and peripheral nerves (1923), hyper-ventilation in epilepsy (1925), and the paths of conduction of pain in flaccid and spastic paralysis (1927). He was, formerly, co-editor with Prof. O. Bumke of the "Handbuch der Neurologie" and on the editorial board of the *Deutsche Zeitschrift für Nervenheilkunde*.

Foerster was a good European and therefore no friend of the Nazis, which may account for his name not appearing in *Wer Ist's*, the German *Who's Who?* A eulogy of him, however, appears in the *Deutsche Zeitschrift für Neurologie* of 1933, on the occasion of his sixtieth birthday, by Prof. Max Nonne of Hamburg. He was well known in Great Britain, where, in 1927, he was elected an honorary member of the Section of Neurology of the Royal Society of Medicine, before which he delivered the ninth Hughlings Jackson Lecture in 1935, published in *Brain*, 59, 135 (1936), his subject being "The Motor Cortex in Man, in the Light of Hughlings Jackson's Doctrines". He was elected an honorary fellow of the Society in 1933.

J. D. ROLLESTON.

WE regret to announce the following deaths:

Baron Mataro Nagayo, formerly president of the Tokio Imperial University, director of the Japanese Foundation for Cancer Research, and editor of *Gann*, the Japanese journal of cancer research, on August 16, aged sixty-three years.

Prof. Rudolf Schoenheimer, associate professor of biochemistry in Columbia University, formerly head of the Department of Pathological Chemistry in the University of Freiburg, known for his work on the application of isotopes for the study of intermediary metabolism, on September 11, aged forty-three.

Mr. M. M. Ussishkin, president of the Jewish National Fund and chairman of the Zionist General Council, one of the founders of the Hebrew University, Jerusalem, on October 2, aged seventy-eight.