

geology, describing the Silurian rocks of the Mendips and the Carboniferous Limestone of many areas. The stimulating association with Vaughan led to great activity in this field, and Reynolds and his co-workers continued for many years to make known the structure of parts of Somerset and Gloucestershire. His views on the Lower Carboniferous were summarized in his presidential address to Section C of the British Association in 1926.

Throughout these years his department produced a flow of men varying in special interests, but all characterized by that width of view which was so typical of their professor. An energetic traveller and an indefatigable collector, he brought together material for an admirable museum. Nor were his energies confined to the work of the University, for he did much to foster the band of amateur geologists for which the Bristol district had long been known, and the geological section of the Bristol Naturalists' Society owes much to his devotion. An excursion handbook to the Bristol district, first published in 1912, contributed to local activities, and also helped to make the area one of the most widely known for student parties.

Prof. Reynolds served for a time on the Council of the Geological Society, from which he received the Lyell Medal in 1928. Among his many services to geology mention must be made of his work as secretary of the British Association Committee on Geological Photographs, which has done so much for the illustration of geological phenomena. The efforts which he made to replace material destroyed by enemy action in order to hand over the collections in good condition will not be forgotten by his colleagues. Always modest and unassuming, charitable in his judgments and warm in his appreciation, Reynolds made many friends and lost none. He will be remembered with gratitude and affection by many besides his own students. He leaves a widow and a daughter.

A. E. TRUEMAN

106
Prof. Edward L. Thorndike

EDWARD LEE THORNDIKE was born on August 31, 1874, and died a few days before his seventy-fifth birthday. In conformity with family tradition, he took his first degree at Wesleyan University and then went to Harvard, where he worked with William James on the methods by which animals learn, a subject which was to be his life task, though in later decades it was the animal 'man' which chiefly interested him, individually and in communities. Then at Columbia University he took the Ph.D. in 1898 with a dissertation which made psychological history, and in the same year James Russell initiated Thorndike's lifelong connexion with Teachers College, Columbia, by inviting him to an instructorship.

Largely on those early experiments were based Thorndike's three laws of learning, of which that called the Law of Effect has evoked most controversy. It is that learning is due to the glow of satisfaction which accompanies success. At first he emphasized equally the importance of the dissatisfaction which follows failure; but in his experiments on humans he considered that he had definitely proved that reward is more effective than punishment, a principle naturally of great importance in school, especially when combined with his stress on the desirability of the satisfaction coming as soon as possible after the success (not to be told until a week later which of one's golf strokes had been good would seriously

delay learning!). He thought effect more important than frequency, and pointed out that in the early stages of learning to ride a bicycle we practice falling off much oftener than staying on. His psychology of learning has been attacked as mechanistic, and as not explaining sudden insight into a problem; and it is perhaps a little crude. But it works.

In 1904 his "Introduction to the Theory of Mental and Social Measurements" appeared, in the same year as Spearman's paper on the "Theory of Two Factors". Thorndike took up arms against Spearman's view, and though they approached one another somewhat in later years, they can never be said to have agreed. Thorndike's "Quantity Hypothesis", expounded in "The Measurement of Intelligence" (1926), perhaps indicates the nearest approach. In that same book appeared Thorndike's famous "C.A.V.D." tests of intelligence and his attempt at an absolute scale of intellect.

In later years Thorndike turned to the study of communities, his chief publication here being "Human Nature and the Social Order" (see *Nature*, Sept. 27, 1941). Like all his books and papers, this is too meaty to be light reading. But every here and there a striking phrase flashes out.

Thorndike received many honorary degrees, was a member of the U.S. National Academy of Sciences, and president in 1934 of the American Association for the Advancement of Science.

Early in his career he bought a wide tract of land up the Hudson, in what was then primeval woodland, built himself a house, and encouraged colleagues to settle around him, until there was quite a colony, to whom he was the tribal chieftain. He adored his wife, who survives him, as also do his daughter and three sons, all scientific workers, Robert Ladd being the psychologist among them. "Eddie" Thorndike had a great heart, as well as a great mind, and I wish that I had more space, and a readier pen, to tell of his wisdom and goodness.

GODFREY THOMSON

6
Mr. H. O. Newbould

HAROLD NEWBOULD, who died on August 11 at the age of fifty-two after a short illness, was educated at Kingswood School and served in the First World War as an artillery officer on the Italian front. He took up his mathematical scholarship at Balliol College, Oxford, after the War; his undergraduate career, which included the sharing of the junior mathematical scholarship with E. C. Titchmarsh, was all that was expected of an able and gifted mathematician. Immediately after taking finals he succeeded his tutor, J. W. Russell, as lecturer at St. John's, and in 1925 was appointed fellow and tutor at Merton.

For some twenty-five years Newbould taught the mathematicians at Merton and St. John's, acquiring a high reputation as a tutor. Throughout this time he gave lectures, which were not only exceedingly popular with undergraduates, but which became an important and essential part of the Oxford mathematical school. He also undertook much examining and an increasing burden of administrative work in his College and the University. He acted as bursar of Merton in the war years and was proctor during 1944-45. He had wide interests in both the academic and athletic sides of University and College, and was for a long time treasurer of the Greyhounds R.F.C. In 1946 he published his book on "Analytical Method