Roy. Astro. Soc., his interest being mainly in astronomy, though he published a paper on "The Dissipation of Energy by Electric Currents" (*Proc. Roy. Soc.*, **70**). A treatise on differential equations, in preparation in 1912, was never finished.

Many generations of students still recall Dale as a first-rate teacher. Problems were solved with a satisfying completeness; no untidy ends were ever left in a lecture; and his sentences were delivered in a sonorous voice, as of one speaking *ex cathedra*. Not even the second-year engineers, to whom he lectured regularly, could throw him off his balance. Once, when lecturing on hydromechanics, he said, "We now proceed to consider pitching and rolling". From a back bench came an agonized cry of "Steward!" "We are not concerned with the internal stresses and strains of the passengers", said Dale in his even voice, and went straight on with the lecture. He was always human and practical, and ready to adapt the presentation of his subject to the class before him.

After retirement Dale went to live near Chalfont St. Giles, where he remained until his death. The War made country life much more strenuous than it had been, but until he had a major operation in the winter of 1949–50 he scarcely knew what illness was. Even after this, he recovered a good deal of his strength until his last illness overtook him a few weeks before his death. J. T. COMBRIDGE

W. R. B. Battle

WALTER RAVENHILL BROWN BATTLE was drowned on July 13, in a glacier stream on Baffin Island.

"Ben" Battle, as he was known to his many friends, was born in Leeds on December 23, 1919. He was educated there and took a degree in geography at the University of Leeds. He became a keen traveller and mountaineer, and in 1948 organized and led a four-man expedition to East Greenland, where he made geomorphological and glaciological investigations on Pasterzebreen. Battle returned to the same area in 1949 and afterwards went to Cambridge as a research student to investigate the action of frost and water in the formation of cirques. During this period he twice visited Jotunheimen in Norway with parties from Cambridge. Towards the end of 1952 he went to McGill University and continued his studies as Senior Carnegie Fellow of the Arctic Institute of North America. At the time of his death he was working on Penny Highland, Cumberland Peninsula, with a party from the Arctic Institute. J. D. M. BLYTH

NEWS and VIEWS

Radar Research Establishment, Malvern

As announced by the Minister of Supply in the House of Commons on July 28, the two establishments engaged in radar research in Malvern—the Telecommunications Research Establishment (T.R.E.) and the Radar Research and Development Establishment (R.R.D.E.)—are to be amalgamated, and the new organization will be known as the Radar Research Establishment. The Telecommunications Research Establishment grew out of the Bawdsey Research Station, which was set up in the years just preceding the Second World War specifically for research on radar, a subject of which the existence and possibilities were at that time known only to very few. During the War the Establishment was responsible for the creation of the many radar devices used by the Royal Air Force and, in particular, for the development of microwaves. During the years after the War these new techniques were applied to peacetime problems, including civil aviation and more recently to the new problems of defence, notably the development of guided weapons. In addition, however, a strong physics research group has been built up which has carried out research on a variety of subjects, including the extension of the microwave spectrum to still shorter waves, low-temperature physics, semi-conductors and infra-red spectroscopy as well as advanced electronic techniques; much of this work has been published in the scientific journals. The Radar Research and Development Establishment has a much longer history and goes back to a group set up in 1917 to work on searchlights. The new radar techniques were applied during the Second World War to the problems of directing searchlights and more especially to the accurate control of anti-aircraft fire. The Establishment has since then continued to be responsible for the radar needs of the Army, including new developments in guided weapons; some interesting work on galactic and solar radiation at radio wave-lengths has also been carried out. The new Radar Research Establishment will be responsible for research for the Army, Air Force and Fleet Air Arm on defence problems in the fields of radar, guided weapons, etc., and also for fundamental research on new techniques which might lead to a solution of these problems.

Mr. W. J. Richards, C.B.E.

MR. W. J. RICHARDS has been appointed director of the Radar Research Establishment, Malvern (see above), as from September 1. After graduating in engineering at the University of Manchester, having studied under Prof. A. H. Gibson, in 1925 Mr. Richards joined the Royal Aircraft Establishment, Farnborough, where he carried out research, mainly on aircraft instruments. In 1936 he became head of the Instrument Department, a post which he held until 1942, when he became a deputy director of scientific research in the Ministry of Aircraft Production, London. There his work was mainly concerned with aircraft armaments, but in the period immediately after the Second World War he was one of the pioneers in the field of guided weapons and took part in the first British mission on this subject to the United States. In October 1946 Mr. Richards was appointed to his present post as chief superintendent of the Telecommunications Research Establishment.

I.C.I. Dyestuffs Division: Mr. G. S. J. White

MR. G. S. J. WHITE, chief colourist of the Dyestuffs Division of Imperial Chemical Industries, Ltd., has been appointed division director in charge of Technical Service Departments in succession to Dr. F. J. Siddle, who has taken up the post of managing director of the 'Terylene' Council. It is twenty-four years since Mr. White joined Dyestuffs Division's headquarters at Blackley, Manchester. He is a Londoner by birth, and went from the University of