the scaled-down voltage that is applied to the recording oscillograph is obtained.

A glass-fronted chamber, built out into the laboratory at the level of the first floor, houses a desk which incorporates all the controls, and the indicators for safety interlocks, etc. The controls include means for varying the voltage, reversing polarity, setting the inter-stage gaps to a value appropriate for the stage voltage in use, firing the generator at the desired instant, and earthing the apparatus between tests. A device is provided for starting the 'time-sweep' of the oscillograph just before the generator fires, so that the front of the wave is properly recorded. The oscillograph is housed in a steel shield near the control desk.

The new generator is believed to be the largest in Great Britain, and it should be a valuable addition to the research and testing equipment of the Laboratory.

harvest of results brought him a well-earned Ph.D. in 1950. The most significant discovery was the recognition of the fact that, although the complex bears the hall-marks of an intrusion (for example, it transgresses the structures of the country rocks and shows internal vertical lineations), the materials of the marginal part of the granitic mass are transformation products of the adjacent country rocks. Rutledge also made an important tectonic study of the Fannich Forest area in the Scottish Highlands. More recently he was engaged on similar tectonic and petrogenetic problems in New South Wales.

A geologist of initiative and distinction, Harold Rutledge was fearless in spirit and endowed with great vitality and power of endurance. His sudden death, just as he was approaching a period of solid achievement, is indeed a grievous loss. Deep sympathy will be felt for his widow and four-year-old son.

ARTHUR HOLMES

OBITUARIES

Dr. Harold Rutledge

DR. HAROLD RUTLEDGE was among the ill-fated passengers who lost their lives when an air-liner *en route* to London from Sydney crashed at Singapore on March 13. The news of his tragic death at the early age of thirty-three has deeply shocked all who knew him, and not least his many geological friends in Britain and Australia. Born on December 15, 1920, at Fairfield, Darlington, he was educated at Stockton Secondary School before entering Bede College in 1939 as a student of the University of Durham. He was elected senior student of the Science Laboratories at Durham, 1941-42, and obtained a first-class honours degree in geology in 1942. He was no less distinguished in university athletics and games—becoming a rugger blue—while his obvious capacity for leadership was recognized by his appointment as sergeant-major of the S.T.C. After graduation, Rutledge entered the Royal Engineers and was soon seconded to the Royal Bombay Sappers and Miners, 1943-46, with whom he saw active service in the Burma campaign, eventually with the rank of captain.

On demobilization, Rutledge spent nearly a year on the staff of the Atomic Energy Division of H.M. Geological Survey; but wishing to return to academic life, he accepted appointment in 1947 as assistant lecturer in geology at Nottingham. A year later I invited him to join the staff of the Grant Institute of Geology, University of Edinburgh, as lecturer in geology, and there he remained until 1952, when he was appointed senior lecturer under Prof. C. E. Marshall at the University of Sydney. He was an outstanding success as teacher and lecturer, clear and vigorous in style and able to inspire in his students the enthusiasm which he brought to all his interests. During his Edinburgh days he joined the Territorial Army as captain in the Military Geology Group (Royal Engineers) and attended manoeuvres in Germany and elsewhere.

Rutledge's main research work was concerned with the structure and petrology of part of the plutonic complex of Loch Doon (Galloway) and its metamorphic aureole. His active interest in this area began while he was still an undergraduate; but it was not until he returned to university life that his wish to study it in detail was fulfilled. The first

Prof. Marston T. Bogert

By the death of Marston Taylor Bogert at the ripe old age of eighty-six, American and international chemistry has lost one of its most charming and effective personalities. Bogert was educated at Columbia University, where later he became professor and finally professor emeritus of organic chemistry. His main chemical interests lay in the synthesis of heterocyclic compounds such as the quinazolines and thiazoles. He also conducted many investigations on the preparation of derivatives of such aromatic compounds as pyrogallol, thiophene, terephthalic acid, phenacetin and cinnamic aldehyde. He was interested in pharmaceuticals and perfumes, and among the four hundred papers in his name one finds such interesting topics as the relationship between odour and molecular structure.

Bogert was president of the American Chemical Society during 1907-8, and it was during this period that he, together with C. L. Parsons, then secretary of that Society, succeeded in forming the first divisions within the American Chemical Society—a far-sighted political act which in these latter years has undoubtedly greatly assisted in maintaining the cohesion in that vast organization. During the First World War, Bogert was invited to Washington to organize and serve as first chairman of the Chemistry Committee of the National Research Council. He was elected president of the Society of Chemical Industry for the year 1912, and in the years 1918-19 he served as colonel in the U.S. Chemical Warfare Service. After the Second World War, Bogert devoted much of his time and energy to the resuscitation of the International Union of Chemistry, and he was, in fact, the first American citizen to be elected president of that body.

Although somewhat feeble physically and attended by a nurse, Bogert went through the lengthy and trying public functions which attended the seventy-fifth anniversary meeting of the American Chemical Society in New York in 1951. As a public speaker or toastmaster, he displayed a mind capable of much wit and charm, and at scientific dinners the wise always attempted to get a seat near the man with the mauve tie, a sign that Bogert had attended the New York dinner in honour of Sir William Perkin. His loss will be felt by his many friends on both sides of the Atlantic.

ERIC K. RIDEAL