

intercrystalline free space in a complex way. Much stimulating discussion was held about the physical chemistry of the reaction zone in detonations. The importance of the intercrystalline free space is further emphasized by a contribution which described the behaviour of single crystals studied individually. High initial pressures are found to have only a slight effect on the 'runaway temperature' in the self-heating of single crystals of explosives.

Experiments on the homogeneous detonation of acetylene should in principle be simpler to interpret than the behaviour of heterogeneous systems. However, the formation of solid products of detonation leads to complications when attempting theoretical interpretations. It is not clear at what stage the 'carbon' ultimately obtained from the detonation of acetylene is actually formed; it seems unlikely, furthermore, that the crystal structure and heat content of such 'carbon' can be taken as the same as in ideal graphite. The kinetics of pyrolysis of acetylene in shock waves to give carbon offers further information about reactions at transient high pressures, which present complications due to the formation of solid products of variable physical structure and chemical composition. Extensions of such kinetic studies promise to cover ranges of high

pressure and high temperature not conveniently obtainable in other ways. The possibility of obtaining conveniently kinetic results at several hundred thousand atmospheres obviously attracts a number of research groups. However, as in other studies of transient phenomena, relaxation effects may complicate any interpretation of the results on the basis of the thermodynamics of high pressures. Detonation and shock velocities can now be measured with very considerable precision. The measurement of detonation and shock pressures still present technical difficulties, though they may become accessible from techniques such as X-ray shadowgraphy and measurements of mass flow. But in the case of detonations and shock waves there are very serious doubts about the applicability of 'temperature' at all as a significant modulus in describing the statistical distribution of various kinds of internal energy among the molecular and atomic species present. Active research in the physical chemistry of matter at high pressures receives still further stimulus from the possibility of observing transitions from insulator to conductor behaviour of various crystals when sufficiently compressed. Preliminary studies of this kind were described at the meeting and added further zest to a very lively two-day discussion.

A. R. UBELORDE

OBITUARIES

Prof. J. C. Cruickshank

JOHN CECIL CRUICKSHANK, professor of bacteriology as applied to hygiene in the University of London at the London School of Hygiene and Tropical Medicine, died on October 30 at the age of fifty-seven. Educated at George Watson's College in Edinburgh, he served in the Gordon Highlanders at the end of the First World War, and then proceeded to the University of Edinburgh, whence he graduated M.B., Ch.B. in 1921. He took the D.T.M. at Liverpool in 1923, winning the Alan H. Milne Memorial Medal, and then served in the West African Medical Service in the Gambia for seven years, gaining tropical experience which was of great value to him and to his students later in London.

Cruickshank came to the London School of Hygiene and Tropical Medicine to take the diploma in bacteriology in 1933, and remained there first as demonstrator, then as lecturer in bacteriology. During the Second World War he directed Emergency Public Health Laboratory Services laboratories, first at Horsham, later at Exeter, returning to the School in 1945 as reader in bacteriology as applied to hygiene, to re-open the Department under the part-time direction of Prof. G. S. Wilson, and to start teaching courses again. Cruickshank was a great teacher, whose wide experience of tropical and public health bacteriology fitted him uniquely well to teach in courses for the diploma in bacteriology, the diploma in public health and the diploma in tropical medicine and hygiene. Many hundreds of students will remember his excellent teaching with gratitude. In 1947 he became professor in bacteriology as applied to hygiene.

Throughout the past twenty-five years, Cruickshank had maintained a steady output of research on bacteriological topics, chiefly on brucella infections and on immunity. He acted for some years as expert

adviser to the Public Health Laboratory Service on clostridia and on brucella. He served on the Water Pollution Research Board of the Department of Scientific and Industrial Research and its Detergents Committee, and on various other public committees and bodies. He was a member of the Pathological Society, the Society of General Microbiology, and the Medical Research Club. In 1952 he gained his M.D. (Edinburgh) with a gold medal. He was loved and respected by all his colleagues and students and all others who knew him; his early death is a great blow to the School. He leaves a widow, two sons and a daughter.

E. T. C. SPOONER

Dr. John McLuckie

DR. JOHN MCLUCKIE, until recently reader in botany in the University of Sydney, died on September 27 at the age of sixty-six. He was still in harness, for he was asked to come back after his official retirement to take the advanced mycology course. He had given a lecture and a practical class on the day of his death.

McLuckie was born in Killermont, in Dunbartonshire, on August 12, 1890. He was the eldest of a family of seven. His father was a gamekeeper, and as a boy John McLuckie learnt to handle a fishing rod and a gun—skills which he practised with great distinction during his forty years in Australia. From these early days he acquired, too, an intimate knowledge of natural history and a love for the countryside.

He won a bursary to the school which is now Bearsden Academy and proceeded in 1909 to the University of Glasgow, where he was a pupil of F. O. Bower. After graduation in 1914, McLuckie sailed for Australia to serve under Prof. A. A. Lawson (also one of Bower's pupils) in the newly established Botany Department in the University of Sydney.