and frost, and to melt snow. A control device automatically switches on the heat when the road surface is cold and wet. The control device was shown in operation. The heating system has been installed in the underpass at Hook on the Kingston by-pass road (*A*.3) and in the one nearing completion at Hangar Lane, Ealing (*A*.40), on a bridge at Basildon, Essex, and on roads in Edinburgh, Slough and Harmondsworth. The Laboratory has also assisted with the design of the heating systems for many sections of road, including the Hammersmith fly-over, the Hyde Park Corner under-pass in London and for the approach ramps to the new Clyde tunnel in Glasgow.

Tropical Section

One of the main aims of the Tropical Section is to systematize knowledge of the engineering properties and occurrence of the soils and roadmaking materials in different territories. Exhibits illustrated: the nature and engineering properties of soils in individual territories and areas, including the use of aerial photography in terrain evaluation; work on tropical gravels, their use in road building and their suitability for stabilization with Portland cement and hydrated lime; stabilization of sands—full-scale experiment in Nigeria employing bitumen and Portland cement; tests on tropical aggregates; the relation between climate and moisture conditions under roads and runways; pavement design in the tropics.

The rapid growth of road traffic in developing countries is both a factor in the development and a symptom of it. Examples were shown of investigations in Uganda and North Borneo to determine the effects of providing roads on the rate and character of agricultural development. In the expanding towns and cities overseas there are already severe traffic problems and there is at the same time opportunity to plan the future growth of the towns so that the facilities required by future traffic are integrated with the needs of the community as a whole. Examples were shown of investigations undertaken in Hong Kong, Kingston (Jamaica) and Lagos to ease present traffic problems and to plan future needs.

Scottish Branch

The Scottish Branch of the Laboratory held open days during June 7–8 at Thorntonhall, Glasgow. The Branch was established in 1949 with the view of investigating problems of particular interest to Scotland, making known to all concerned with roads and traffic in Scotland the results of work undertaken at the parent Laboratory in England, and encouraging the application of the results of research.

While many of the exhibits displayed at Thorntonhall were those originally on view at Crowthorne and Harmondsworth, there were a number that illustrated the work undertaken in Scotland.

An investigation is being carried out on the effect of the new Forth road-bridge on the traffic patterns in the region. An exhibit described with photographs and maps an origin-and-destination survey carried out during the whole of one week in August 1960. Vehicles were stopped at three survey stations and more than 8,200 drivers, or about 43 per cent of the total, were questioned to obtain information on the traffic in the region before the opening of the new bridge. Analysis of the information obtained has not been completed, but preliminary results show that 22 per cent of the journeys start and terminate in Glasgow or Edinburgh, and about 34 per cent in five major cities.

The effect of new towns on the generation of traffic and on traffic patterns is being studied using East Kilbride as a 'guinea pig'. Such studies should assist planners in predicting facilities required for new towns, for example, the number of lock-up garages that should be provided. In East Kilbride there is one car for every three families.

There is a shortage of crushed stone in certain parts of Scotland, and the Laboratory has been examining the possibility of using morainic (glacial) gravels for the construction of road bases and surfacings. For the base, glacial gravels are mixed with cement to produce a 'lean concrete', for surfacings they are mixed with bitumen to provide a reasonably cheap and durable wearing course. Since 1956 many short sections of road containing glacial gravels—each with a different composition—have been laid in various parts of Scotland. The results so far are very promising.

Peat occurs in many regions in Scotland. This soft, water-filled, organic material is compressed when a road is constructed on it and this often results in an uneven road surface with a poor riding quality. A group of exhibits showed how the Laboratory is tackling the problem of building roads on peat.

OBITUARIES

Prof. A. W. P. Wolters

PROF. A. W. P. WOLTERS, who died recently, was the first holder of the chair of psychology in the University of Reading and played an outstanding part in dissolving academic distrust of his subject and achieving its recognition. His patience in handling the problems of its acceptance in the outside world was effective as well as exemplary. As deputy president, during 1936–38, and as president, during 1939–41, of the British Psychological Society, he took a leading part in the difficult transformation of a somewhat ungainly association into an incorporated body with specific professional, as well as scientific, aims. Wolters, too, was among the first to urge the opportunity and the need to employ people with a psychological training in the event of war. Unusual hardihood and a complete lack of aggressiveness enabled him to survive the official flood of waste-paper and committee proceedings which resulted. The idea that objective study of the human organism is not irrelevant to human welfare and efficiency thus gained some degree of official recognition in war and survived to spread effectively in peace.

Wolters learnt his psychology, both academic and practical, the hard way. As a fourteen-year-old pupil-teacher, he had charge of the mental defectives "who littered the enormous classes" of the Board School where he taught. Perhaps this experience stood him in good stead later on. His catholic intelligence responded to such education as came the way of a pupil-teacher, and in due course he

entered University College, Reading, where he was to live and work for almost the rest of his life. W. L. de Burgh, the professor of philosophy, gave him such scope as was available to introduce psychology, and the good judgment with which Wolters handled this admirable but hazardous opportunity ensured a much earlier start for an independent department and honours school at Reading than was possible in many other places. His quiet advocacy, too, prevailed among manifold claims and restricted resources and somehow saw to it that a specially designed laboratory was built. Here, in the years which followed the War, he built up a school of psychology modest in size, but the quality of which aroused the envy and admiration of his colleagues elsewhere. At the same time his self-effacing talents were devoted to his University—he became deputy vice-chancellor in 1947—then preparing for complete removal to Whiteknight's Park, and beset by the difficulties of post-War expansion. His moderation and his constructiveness in meeting these problems were indispensable.

Wolters's modesty and simplicity were inherent and free of contrivance, his perceptiveness unforced. His qualities stirred young people much, but himself only a little, to intellectual achievement. His main explicit contribution to psychology—an extension of Head's concept of *Schema* into the field of conceptual thinking—is an original contribution the full implications of which probably remain to be appreciated. But the inspiration of his teaching and the gentleness with which he deflated the pretentious will long be remembered and admired.

R. C. OLDFIELD

Prof. A. F. Kapustinsky

ANATOLY FEDOROVICH KAPUSTINSKY was born in Zhitomir on December 19, 1906, and died in Moscow on August 26, 1960. He studied chemistry in the University of Moscow, from which he graduated in 1929. His main field of research was in physical chemistry and thermodynamics. He was particularly interested in work on the energetics of chemical reactions, in the energy of the crystal lattice, in crystallochemistry and its application to geology. In 1933 he proposed the second principle of crystallo chemistry, namely, that the energy of the crystal with its attendant properties is determined by the number of ions, their radii, their valencies, and their degree of polarization. At the same time he proposed a simplified equation for the energy of the crystal lattice in ionic crystals, and in 1943 he produced a revised equation, which enabled him to calculate the energy of the crystal lattice of compounds with complex ions. Still later, he produced a number of equations applicable to various crystallochemical problems.

Besides these problems, Kapustinsky tried to solve many others, especially in thermodynamics. In collaboration with B. A. Shmelev, he devised a new method of physico-chemical analysis which enabled them to study complex equilibrium systems. He also published numerous papers dealing with thermochemical methods, with ionic compounds, electrolytes and chemical technology. By introducing the zero period into the Periodic Table he developed the idea of secondary periodicity which he linked with the periodic structure of atomic nuclei. This led him to discuss matter subjected to high pressure and then to apply these ideas to his new "Theory of the Earth" (see *Nature*, 180, 1245; 1957).

During his busy life, Kapustinsky occupied the following posts: professor of physical chemistry at the University of Gorky (1933–37); the same post at the Moscow Steel Institute (1937–41) and also at the University of Kazan (1941–43); professor of general and inorganic chemistry at the Chemical-Technological Institute in Moscow (1943–60). In 1939 he was elected corresponding member of the Academy of Sciences of the U.S.S.R.

Kapustinsky's publications are varied and numerous. Besides pure research, he published some thirty papers dealing with topics related to the history of chemistry. He also edited many books translated into Russian.

In private life Kapustinsky was a most jovial fellow and a very versatile conversationalist, and his death at the early age of fifty-four was deeply felt by his friends, of whom he had many.

S. I. TOMKEIEFF

NEWS and VIEWS

Applied Mathematics at Manchester: Dr. F. Ursell

THE Beyer professorship of applied mathematics at the University of Manchester is to be filled by Dr. F. Ursell from October 1, following the departure of Prof. M. J. Lighthill for the Royal Aircraft Establishment in 1959. Dr. Ursell is at present a lecturer in the Department of Applied Mathematics and Theoretical Physics, University of Cambridge. He took the Mathematics Tripos at Cambridge during the early years of the War (in company with his predecessor in the Beyer professorship), and spent the remainder of the War at the Admiralty Research Laboratory, Teddington. The introduction which he gained there to problems associated with water waves evidently made a deep impression, for he has pursued such problems steadily and successfully since that time, and has done much to revive interest in a 'classical' subject which—like so many others—was thought to be well understood and well tilled until war needs revealed deficiencies. In 1947, he was elected to a research fellowship at Trinity College, Cambridge, for a dissertation embodying his research on water waves. A short time later, he proceeded to the University of Manchester, where he held an I.C.I. Fellowship, returning to Cambridge to take up a lectureship in 1951. He was eventually elected to a research fellowship at King's College, and has received other tributes to his research, which is characterized by great analytical power. He is interested in a wide variety of mathematical techniques, and can be expected to maintain the high reputation of Manchester as a centre of teaching in applied mathematics.

Electrical Engineering at Birmingham: Prof. J. T. Allanson

MR. J. T. ALLANSON has been appointed to the recently established second chair in the Electrical Engineering Department in the University of Birm-