normally considered low temperatures, *Umklapp*-processes are frequent in metallic sodium, and that at room temperatures such processes account for some 90 per cent of the resistivity.

Prof. G. O. Jones (Queen Mary College) summarized the work which has been carried out on super-conductivity at pressures of 10,000 atmospheres and above. Although the electron–phonon interaction theory of superconductivity, developed by Fröhlich and Bardeen, had appeared to account more or less exactly for the change in transition temperatures with change in isotopic mass, the effect of varying the volume is by no means straightforward. For metals which would be regarded as normal with respect to their ordinary electrical properties under high pressure, having a resistivity which varies approximately as $V^{2\gamma}$, where γ is the Grüneisen constant, the superconducting behaviour varies enormously. In some cases the transition temperature varies according to expectation as V^{γ}, but in others the variation is more nearly proportional to $V^{4\gamma}$, and in one case (thallium) there is a reversal in the sense of the variation at about 1,000 atmospheres.

In a short contribution, Dr. P. G. Klemens (Sydney) spoke of the conduction properties of monovalent metals at very low temperatures and explained a discrepancy which appears to exist between thermal and electrical conductivity. Dr. A. B. Pippard (Cambridge) in a final contribution dealt with acoustic absorption in metal crystals. He described how an analysis, by standard methods of conduction theory, of the attenuation of a longitudinal ultrasonic wave shows that, so long as the electronic free path is shorter than the wave-length, the attenuation varies as the square of the frequency, but, when the free path is long compared with the wave-length, the attenuation is proportional to the frequency and independent of free path. The transition region has been investigated by Bömmel and found to show qualitative agreement with theory. The result for a long free path is identical with that derived by the arguments used to describe electron–phonon interaction in quantum theory of conduction. It seems likely, then, that the result derived 'classically' by consideration of electron trajectories is valid over the whole range of free paths.

H. JONES

OBITUARIES

Dr. J. H. Partridge

JOHN HENRY PARTRIDGE, a senior member of the Research Laboratories of the General Electric Company, Ltd., died on November 30, 1956, at the age of fifty-three. For many years Partridge had been head of the department of the Laboratories concerned with glass, refractories and ceramics. He was a man who loved to do things with his own hands and he was always anxious to translate, as rapidly as possible, laboratory findings into works' application. He was very frequently to be found in the works both of his own Company and of other firms in the glass industry, giving his help generously. He had suffered from a heart attack some six years ago, and the restraint which his medical adviser attempted to impose upon him he found very hard to bear. It was very difficult to stop him trying to carry out a full programme of works' visits and society meetings, when in the interest of his health he should at times have been taking life more quietly. His ill-health never interfered with his great sense of fun, and he was a delightful colleague with whom to travel either to a works of the Company or to some international congress.

Partridge was a most conscientious man, and this virtue was reflected in his record of service to scientific and technical societies. He was a member of the Council of the Society of Glass Technology for several periods since 1934, and was honorary secretary of the Society during 1946–49. At the time of his death he was in office as president, having been elected in April 1956; election to this office was an honour which Partridge deeply appreciated, and he had undertaken the duties with characteristic energy. He was a member of the Ceramic Society and a Founder Fellow of the Institute of Ceramics; he had travelled much on the Continent to attend international congresses on glass.

In the G.E.C. Laboratories he had done a great deal of work on the development of new glasses and refractories; he was the author of two monographs, one on "Refractory Materials for the Glass Industry" and the other on "Glass-to-Metal Seals". He had written many papers on these and related subjects.

Dr. Partridge was educated at King Edward VI Grammar School, Birmingham, and in 1921 he entered the School of Metallurgy in the University of Birmingham, and in due course he obtained the degree of Ph.D. During the period 1925–26 he was awarded a grant from the Department of Scientific and Industrial Research, and a Carnegie Scholarship from the Iron and Steel Institute. In 1947 he received his D.Sc. for his contribution to scientific and technological knowledge in the fields of glass and refractories.

His colleagues in the General Electric Company and a much wider circle of colleagues in the glass industry in Britain and abroad will feel keenly the loss of a man whose enthusiasm and good humour had endeared him to them—a man whose enjoyment of life was so infectious. His friends will have great sympathy for his wife and three children.

R. W. DOUGLAS

Prof. Joseph Varga

PROF. JOSEPH VARGA, a member of the Hungarian Scientific Academy and professor of chemical technology in the Technical University in Budapest, died at the age of sixty-five on December 28. He received his degree in chemical engineering in 1908 at the Technical University in Budapest, and then he was appointed assistant there. In 1920 he was appointed *Privatedocent*, and in 1923 professor in the Institute for Chemical Technology. He worked in the field of the hydrogenation of coal and coal-tars and made several valuable contributions to the scientific problems involved and industrial applications. Arguing with Bergius—who first liquefied coal—he proved by classical experiments that the hydrogenation of coal is