material they are assembled in mosaic walls. To overcome the effects of self-annealing at room temperature, measurements on lead alloys strained at 4° K. and on a harder metal, niobium, strained at room temperature, were made by Mr. P. M. Rowell (Clarendon Laboratory, Oxford). The thermal resistivity due to initially straining a niobium specimen varies as the 0·8th power of the strain, and as the niobium and lead alloy specimens are strained progressively, the extra thermal resistivity varies with temperature as $T^{-2\cdot0}$, as expected from the work of Klemens and of van Bueren on dislocations. Pure lead specimens do not show a similar behaviour.

The last three papers dealt with various aspects of scattering by impurities.

The electrical resistance of molybdenum and tungsten specimens irradiated at 77° K. has been measured at helium temperatures by Mr. M. W. Thompson (Atomic Energy Research Establishment, Harwell). Increases in resistance are found to recover after thermal annealing, and activation energies have been determined for the principal recovery processes; these occur at − 170° C. and + 150° C. in molybdenum, and at − 80° C. and + 320° C. in tungsten. It was suggested that recovery in the lower temperature-ranges is due to interstitial atoms being released from traps, whereas that at higher temperatures is due to migration of vacancies. A resistance minimum observed in molybdenum near 10° K. became less pronounced after irradiation and recovered its original form only after annealing at 1,500° C. Miss J. N. Lomer (Clarendon Laboratory, Oxford) described work carried out with Dr. H. M. Rosenberg on a method for determining dislocation densities in α-brass by measurements of lattice thermal conductivity at liquid-helium temperatures. It was found that the dislocation densities introduced by strain are independent of the percentage of zinc alloyed, but depend only on whether the deformation is by single or multiple slip. The dislocation densities reach saturation at strains corresponding to the flattening-out of the stress-strain curves, and these saturation values increase with increasing zinc content. The method is useful for fatigued materials, where the dislocation densities for cyclic stress are found to be the same as for the equivalent tensile stress.

Experiments to determine the thermal resistance due to isotopes in crystals of isotopically enriched lithium fluoride were described by Dr. R. Berman (Clarendon Laboratory, Oxford). The scattering of single phonons can be calculated with reasonable certainty, but it is difficult to deduce the resultant thermal resistance, because the amount of mutual phonon interaction is uncertain. For low concentrations of either lithium-6 or lithium-7 the resistance is two to three times less than for the limit of very strong mutual phonon interactions; it is hoped to measure crystals with high concentrations of isotopes to determine the thermal resistance when mutual interactions are relatively weak. J. A. CARRUTHERS

NEWS and VIEWS

National Physical Laboratory : Dr. J. A. Pople

DR. JOHN ANTHONY POPLE has been appointed superintendent of the newly created Basic Physics Division at the National Physical Laboratory. Dr. Pople, who was born in 1925, graduated from Trinity College, Cambridge, being a 'wrangler' in the Mathematical Tripos. After a short period with the Bristol Aeroplane Co., he returned to Cambridge as a research student under the late Sir John Lennard-Jones. His work in this field led to the award of a Smith Prize in 1950 and election to a fellowship at Trinity College in 1951. Since 1954 he has been a lecturer in mathematics at Cambridge. This year he has been awarded the Marlow Medal of the Faraday Society. Dr. Pople has made theoretical contributions to a number of branches of molecular physics. Working with Lennard-Jones, he took part in the general development of the molecular orbital description of the electronic structure of molecules and has since been concerned with its application to specific problems. In addition, he has worked on the statistical mechanical theory of thermodynamic, dielectric and transport properties of liquids and gases. More recently, he has spent some time in the laboratories of the National Research Council of Canada at Ottawa, working on the interpretation of nuclear magnetic resonance spectra. The present physics programme of the National Physical Laboratory has its origin in the Laboratory's responsibility for measurement of physical constants and has a strong classical flavour; measurement of high pressures, ultrasonics, thermal conductivity and strength of materials are typical items. New fields to which consideration is being given are nuclear magnetics resonance, high polymer physics, and other aspects of molecular physics, including biophysics.

Chemistry at Khartoum : Prof. J. Miller

DR. JOSEPH MILLER, who is at present reader in physical organic chemistry in the University of Western Australia, has been appointed to the chair of chemistry in the University of Khartoum. Prof. Miller is a graduate of University College, London, where he obtained first-class honours in chemistry in 1939. On the outbreak of war, he entered the armed services and obtained a commission in the Royal Engineers. He served throughout the War in chemical warfare units and in various theatres in the Mediterranean, and was discharged in 1946 with the rank of captain. He returned to University College and completed his doctorate in 1948 with a thesis dealing with the hydrolysis of oxime esters. He then joined the staff of the University of Western Australia, where he built up an active research school in physical organic chemistry, the work of the group being directed mainly to the investigation of nucleophilic substitution in aromatic compounds. During 1954, he visited the United States as a Fulbright Visiting Lecturer and spent extensive periods at both the University of California and the University of South Carolina as well as visiting a number of other centres. Prof. Miller, who is married and has three children, proposes to take up his duties at Khartoum at the beginning of the academic year this month.