and on linear differential equations with periodic coefficients; a tract on descriptive geometry and two text-books on ordinary differential equations; and a volume of tables ("Cycles of Reduced Ideals") computed for the British Association, on the Tables Committee of which he served for many years.

Ince firmly believed that theoretical solutions of problems, however abstractly elegant, were incomplete unless the mathematician either tabulated the solving functions himself or rendered them tabulable. Perusal of his papers will show that in his chosen field of research he achieved both of these objects. He regarded his research, however, as entirely subsidiary to the work of teaching and of examination. To these duties he brought a rigour of self-imposed obligation which in the end was worn as a natural discipline, until ill-health supervened.

Unversed in Ince's special domain, I will not presume to appraise his papers. That has been fitly done by his master and colleague, Prof. E. T. Whittaker, in the recent posthumous conferment of the Makdougall-Brisbane Prize, awarded to Dr. Ince by the Royal Society of Edinburgh. Perhaps a more personal reminiscence may be permitted. When the "University Series" of small text-books, published by Messrs. Oliver and Boyd, was projected some three years ago, the editors invited Dr. Ince to submit a manuscript on ordinary differential equations. Soon afterwards Dr. Ince was seized by a very debilitating illness, which laid the seeds of the later and mortal one. I at once begged him to relinquish or defer the undertaking; but I was met by a quiet yet firm refusal. The book had been sketched; its outlines were clear; during convalescence chapters would be pencilled; examples would later be added. And indeed in due course the book was completed; nor does it bear any trace of the physical weakness that attended its composition.

The quiet resolution that nerved Ince to this task, as later to the completion of his last paper on Lamé functions, gives the measure of the man. He drew this courage from sources which evoke the respect and reverence of his friends.

A. C. AITKEN.

Prof. N. S. Kurnakov

BY the death of Prof. N. S. Kurnakov on March 19, at the age of eighty, Russia has lost a pioneer physical chemist whose work and influence, great in his own country, extended far beyond its borders. His early training some sixty years ago in the St. Petersburg Mining Institute must have largely influenced the trend of his subsequent work, which was mainly concerned with the applications of the principles of the phase rule to the study of binary systems, more especially alloys and salt mixtures, and with the development of the mineral resources of Russia. Kurnakov was one of the first to devise and use recording pyrometers for the thermal study of alloys and binary mixtures generally, and he was particularly interested in the variations of viscosity and of hardness which accompany changes of composition in such systems. He founded one of the chief schools of inorganic chemistry in the U.S.S.R., and right to the end of his life was director of the Institute of General and Inorganic Chemistry of the Academy of Sciences of the U.S.S.R.

Kurnakov's work, carried through with the assistance of numerous younger collaborators, many of whom are now contributing materially both to the defence and the development of Russia, is an admirable example of the fact that the development of scientific knowledge and the growth of industrial practice are closely related and largely mutually dependent. The work and ideas embodied in his treatise "An Introduction to Physico-Chemical Analysis" enabled him to play a great part in discovering and developing the resources of the salt lakes in the Crimea and on the Caspian, the deposits of potassium and magnesium in the region between the Volga and the Emba Rivers, and the deposits of bauxite at Tikhvin, upon which the Russian production of aluminium largely depends. His concern with the exploitation of Russia's resources in platinum and other noble metals led to researches on their compounds, which in turn yielded important developments in the extraction and purification of these metals.

Though little known personally to his British colleagues, Kurnakov was greatly esteemed and honoured in the U.S.S.R.: he held the Order of the Red Banner of Labour and was very recently awarded a Stalin Prize.

H. V. A. BRISCOE.

WE regret to announce the following deaths:

Prof. E. Abelaus, formerly professor of physiology in the University of Toulouse.

Dr. R. D. Archibald, formerly senior lecturer in electrical engineering in the Royal Naval Engineering College, Keyham, on August 17.

Prof. Otfrid Foerster, formerly professor of neurology in the University of Breslau, honorary fellow of the Royal Society of Medicine, aged sixty-eight.

Dr. W. Gardiner, F.R.S., honorary fellow and formerly fellow and bursar of Clare College, lately University lecturer in botany in the University of Cambridge, on August 31, aged eighty-one.

Prof. Thomas Gibson, formerly professor of pharmacology in Queen's University, Kingston, aged seventy-six.

Mr. S. H. Horgan, a pioneer in the half-tone process for the reproduction of pictures, on August 31, aged eighty-six.

Prof. R. F. Irvine, the well-known Australian economist.

Mr. W. Macnab, C.B.E., the well-known chemical engineer, technical adviser to the Explosives Supply Department of the Ministry of Munitions during the War of 1914–18, on September 3.

Prof. A. K. M. Noyons, professor of physiology in the University of Utrecht, aged sixty-three.

Dr. Vinnie A. Pease, since 1920 micro-analyst in the U.S. Bureau of Chemistry (now the Bureau of Agricultural Chemistry and Engineering), on April 30 aged fifty-nine.