obituary

Nikolai Ivanovich Muskhelishvili the eminent mathematician died on July 16. He was born on February 16, 1891 into a remarkable family, of great renown in Georgian history. His father, Ivan Levanovich, was a General in the Engineering Corps of the Imperial Russian Army, and had interesting ideas on the education of children. He spent a good deal of time teaching his own children—particularly 'Niko' whose mathematical ability he recognised at an early age. Muskhelishvili's mother, too, was a person of great culture as well as charm.

After completing his secondary education at the Second Tbilisi High School, Muskhelishvili entered the Faculty of Physics and Mathematics of the University of St. Petersburg in 1909. His outstanding ability early attracted attention, and legends were soon circulating among the student body of the accomplishments of the remarkably gifted young Georgian. He graduated in 1914 and in the following year presented a diploma thesis of such merit that he was invited to become research assistant to Gurii Vasil'evich Kolosov, a pioneer in the application of function theory to plane problems in elasticity. It was Kolosov who guided Muskhelishvili's first steps in the subject which in the next sixty years he was to revolutionise and dominate, and, in the process, to influence critically much of the development of mathematics (both pure and applied) in the USSR. One of his first papers, *Sur l'intégration de l'équation biharmonique,* published in 1919, gave a foretaste of the simplicity and elegance which were soon to become the distinguishing features of everything he wrote. As with most of his later writings on elasticity, the problem considered was of great practical as well as mathematical interest, for a special case considered by Muskhelishvili proved to be basic to the theory of brittle fracture in thin plates.

In 1917 Muskhelishvili was appointed an assistant in what was now the University of Petrograd and two years later was promoted to an instructorship. It is typical of him that in the years 1915–1920 he gave a great deal of his time and energy to teaching in other institutions of higher learning in Petrograd which, because of the troubled times, were experiencing grave staffing problems.

When the university of Tbilisi was founded, he was invited to join the faculty. He returned to his homeland in 1920 and remained there until his death. Soon after his return to Georgia, Muskhelishvili assumed the role of leader of Georgian mathematics and created in Tbilisi one of the chief mathematical centres in the world. Initially, the group concentrated on the mathematical theory of elasticity, but later, comparable effort was put into important fields of analysis. Many of the famous names of Soviet mathematics appear in the records of the Tbilisi group and many more were influenced by the great stream of papers and research monographs which flowed from it.

Muskhelishvili's own research contributions were almost entirely in the theory of plane elasticity and in the theory of singular integral equations, but it was not only those branches of mathematics most directly connected with his own research interests that he sponsored. To take only one example: it was through his active support that the Georgian school of topology was founded and nurtured in its early years.

During this period of intense scientific activity extending over half a century, Muskhelishvili was tireless in his efforts to organise efficiently scientific activities in Georgia. He gave devoted service to the Academy of Sciences of the Georgian SSR, and from his election in 1939 as a full member of the Academy of Sciences of the USSR he served repeatedly on its Presidium. When the National Committee of the USSR for Theoretical and Applied Mechanics was established in 1957 he was the obvious choice for its Chairman and he served long in that capacity, with the representation of the USSR on various international bodies which that office involves.

Muskhelishvili was influential in wider circles than the scientific. Believing that a university professor should participate fully in the life of his country he was active in the political field; among the offices he held was Deputy of the Supreme Soviet of the USSR.

For his scientific work and for the significant role he has played in the development of Soviet science, Muskhelishvili received many awards and honours, from his own government and from foreign institutions. Those who were privileged to know him and his family values the memory of his friendship and his gaiety, recall with affection the delights of his companionship as much as his incisive judgment on scientific questions. Future generations will know him only from his research papers and his two great monographs *Basic Problems in the Mathematical Theory of Elasticity* and *Singular Integral Equations* which achieve the seemingly incompatible aims of creating a satisfying unified theory and at the same time pointing the way to new realms of enquiry.

In all his published work Muskhelishvili showed that he was both a pure and an applied mathematician. The 'applied' aspect of his nature was shown by his willingness to look at problems of real practical significance, the 'pure' in the rigorous analysis to which he subjected the problems thrown up by his investigations into mechanics.

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