

Mikhail Nikolaevich Mikheev (on his eightieth birthday)

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October 28 of this year is the eightieth birthday of one of the organizers of science in the Urals, a prominent scientist in the field of physics of nondestructive methods of testing, Corresponding Member of the Academy of Sciences of the USSR, Mikhail Nikolaevich Mikheev.

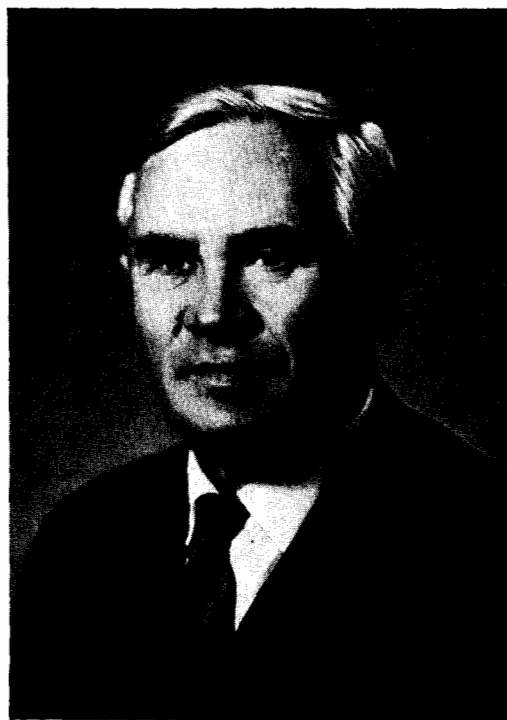
From the moment of establishment in Sverdlovsk in 1932 of the Ural Physico-Technical Institute (later renamed as the Institute of the Physics of Metals) M. N. Mikheev became its director.

Mikheev's biography is typical for that generation of scientists which came into science as a result of the achievements of October. He was born in 1905 in one of the settlements along the Perm' railroad into the family of a railway worker. At the beginning of the 1920s he worked as the secretary of the transport Komsomol organization at the Zuevka station. From there he was directed by the Vyatka regional committee of the Komsomol in 1923 to enter the Leningrad University in its Physico-Mathematical Faculty. In 1930 he was accepted as a graduate student in the Leningrad Physico-Technical Institute.

The Leningrad "Fiztekhn" headed by Academician A. F. Ioffe was at that time the breeding ground not only of technical personnel but of entire institutes. On the basis of a number of its laboratories the Ural Physico-Technical Institute was established and the young communist M. N. Mikheev was offered the post of its head.

After being transferred to Sverdlovsk, the new institute along with carrying out fundamental research, took an active part in the work of helping the rapidly developing industry in the Urals.

In prewar years M. N. Mikheev together with R. I. Yanus laid the foundations of a new area in the physics of magnetic phenomena—magnetic flaw detection. Development of the physical bases of flaw detection led to the construction of a scientifically based nondestructive magnetic method of quality control of steel and cast iron articles, parts and semifinished products which are more productive than the universally predominant spot check direct "destructive" methods of control. Due to the nondestructive, or more accurately nonharmful nature of testing the new magnetic methods of control made possible universal testing of products. At that time Mikheev developed a very important scientific direction in magnetic flaw detection—magnetic structure analysis. He carried out pioneering work on establishing magnetic methods and means of control of annealing and mechanical properties of rolled steel.



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During the years of World War II at many of the Ural factories producing different kinds of armaments, as a result of the selfless labor of leading members of the Institute magnetic methods and means of nondestructive testing were introduced into the control operations. A large contribution to this patriotic activity was made by Mikheev who with the aid of the nondestructive coercimetric methods developed by him organized at a number of factories universal quality control of thermal and chemothermal treatment of many crucial steel parts. In postwar years the same factories began applying these methods to peacetime production.

In 1951 the USSR State Prize was awarded to M. N. Mikheev together with R. I. Yanus for the development and introduction into industry of new methods of quality control of steel products.

Since the middle of the 1950s and up to the present time Mikheev and his school devoted much attention to the theoretical foundation of the methods of magnetic structural and

phase analysis for construction and instrumental steels, metaloceramics, alloys in powder metallurgy and nonferrous alloys. Nondestructive magnetic one-parameter and two-parameter methods of control of thermal and chemothermal treatment of articles made of carbon and alloy steels were developed. The apparatus required for the application of these methods were developed in the form of several modifications of coercimeters and differential magnetic structure analyzers. The best known of these is the coercimeter KIFM-1 which is utilized in control operations of more than 200 enterprises in our country.

Widespread introduction into practice at largest metallurgical factories has been achieved by the nondestructive coercimetric method of determining the mechanical properties of nonthermally hardened rolled steel (pipes, rolled sheets) which made it possible to carry out the sorting of the rolled product into groups according to their quality. Magnetic methods of controlling the depth and hardness of thermally hardened surface layers of steel parts of complex configuration (large scale gears, crank shafts, rollers) have been developed.

M. N. Mikheev is involved in extensive scientific organizational work as a director of the Institute guiding the scientific personnel in the solution of complex problems of modern metal physics and in carrying out research on the most important problems of national economy. Wide-ranging investigations of different magnetic materials are undertaken in the Institute. Work is in progress on the hardening of metals and on developing progressive technological processes. In 1983 on Mikheev's initiative a physico-technical institute of the Ural Scientific Center of the Academy of Sciences for the USSR was established on the basis of the Izhevsk branch of Mikheev's institute. This is now the second generation of institutes arising out of the Leningrad "Fiztek".

Over many years Mikheev was involved in active pedagogical activity in the Ural State University. He has devoted much attention to the improvement of qualifications of industrial workers.

Since 1966 M. N. Mikheev is the chief editor of the

journal published by the Academy of Sciences of the USSR "Defektoskopiya" ("Flaw Detection"), since 1973 he has been the president of the Scientific Council of the Academy of Sciences of the USSR on the problem of "nondestructive physical methods of testing", which also has the function of the Soviet national committee on nondestructive testing. M. N. Mikheev is a member of the executive of the joint Scientific Council of the Academy of Sciences of the USSR on the complex problem of "Solid State Physics", and he is a member of the Presidium of the Ural Scientific Center of the Academy of Sciences of the USSR. Mikheev takes active part in All-Union and international conferences on nondestructive methods of testing, leading the Soviet delegations. The X International Conference on Nondestructive testing in 1982 in Moscow took place under the direction of M. N. Mikheev.

In 1979 M. N. Mikheev was elected Corresponding Member of the Academy of Sciences of the USSR. His fruitful scientific, scientific-organizational and community work has been recognized by the Government by the following awards: the Order of Lenin, the Orders of the October Revolution and the Red Banner of Labor, two Orders of "Badge of Honor", and medals. The institute which he directs has become an internationally known Ural center of investigation on solid state physics and has been awarded the Order of Red Banner of Labor (1967) and the Jubilee Honor Badge of the Central Committee of the Communist Party of the Soviet Union, of the Council of Ministers and of the VTs SPS (the All-Union central council of professional unions) (1972).

M. N. Mikheev is highly respected not only as a prominent scientist-specialist, but as a human being, communication with whom is always interesting and pleasant. To a large extent this is due to such of his qualities as benevolence, natural humor, ability to understand the participant in conversation and his constant desire to extend to him practical assistance.

In congratulating Mikhail Nikolaevich on his eightieth birthday we wish him health, vigor and new successes in his work for the benefit of our country.

Translated by G. M. Volkoff