MOSCOW STATE INSTITUTE OF STEEL AND ALLOYS – 80 YEARS

THE MOSCOW STATE INSTITUTE OF STEEL AND ALLOYS: PAST, PRESENT, AND FUTURE
(ON THE OCCASION OF THE 80TH ANNIVERSARY OF THE MOSCOW MINING ACADEMY)

Yu. S. Karabasov

On September 14, 1918, the Moscow Mining Academy was established by decree of the Council of People’s Commissars. The Academy graduated its first class of metallurgical engineers in 1924. Among the founders of the first research and teaching departments of the Academy were such distinguished metallurgical scientists as Academicians A. A. Baikov, M. A. Pavlov, and N. P. Chizhevskii and Professors V. E. Grum-Grzhimailo, N. A. Minkevich, K. P. Grigorovich, M. A. Bochvar, and G. G. Urazov. They knew how to instill a devotion to science and a civic spirit to their students, many of who eventually acceded to prominent positions in government, industry, and academia. Among those students: A. P. Zavenyagin, the first director of the Moscow Steel Institute and later director of the Magnitogorsk and Noril’sk metallurgical combines and Vice-Chairman of the Council of Ministers of the USSR; I. F. Tevosyan, Minister of Shipbuilding, then Minister of Ferrous Metallurgy and also Vice-Chairman of the Council of Ministers; V. P. Elyutin, Director of the Moscow Steel Institute and later Minister of Higher Education of the USSR; V. S. Emel’yanov, Chairperson of the Committee on Standards and then Vice-Chair of the Committee on Atomic Energy; P. F. Lomako, Minister of Nonferrous Metallurgy of the USSR; A. M. Samarin, Director of the Institute of Metallurgy of the Academy of Sciences of the USSR.

In 1930, six large educational institutions were established on the basis of the schools of the Moscow Mining Academy: the Mining Institute, Institute of Ferrous Metallurgy (since 1931, the Steel Institute), Institute of Nonferrous Metals and Gold, Peat Institute, Petroleum Institute, Institute of Geological Prospecting. There were 675 students in the first course given in the metallurgical engineering school of the Steel Institute in 1930. In 1962, the Steel Institute absorbed the metallurgy and metallography schools of the Institute of Nonferrous Metals and Gold and was given a new name – the Moscow Institute of Steel and Alloys (MISiS). It gained the status of an engineering university in 1993. On the one hand, this change was a form of recognition of its achievements in research. On the other hand, it also gave the organization additional responsibilities in regard to the content of its curriculum, its research activities, and other functions. The changed status means that at MISiS the instructional process is grounded in basic science and encompasses a wide range of disciplines in the natural, applied, and social sciences.

More than 48000 engineers, 1500 Candidates of Science, and 230 Doctors of Science have earned their degrees from the Moscow State Institute of Steel and Alloys. The Institute has graduated more than 1500 engineers, 400 Candidate of Sciences, and five Doctors of Science for 42 nations and successfully apprenticed more than 300 foreign specialists.

* Professor, Dr. of Engineering Sciences, Rector of the MISiS.

MISiS has also provided technical assistance in the establishment of higher educational institutions abroad: El-Tabin Metallurgical Institute (Egypt); Annabin University (Algeria); Peking Institute of Ferrous Metallurgy (now the University of Science and Technology of the Chinese National Republic).

Leaders in industry (A. G. Sheremet'ev, M. A. Pertsev, S. V. Kolpakov, S. Z. Afonin, and others) and science (Academicians N. P. Laveros, N. P. Lyakishev, Yu. A. Osip'yan, B. K. Vainshtein) are among the Institute's alumni. Many scientists now working at the Institute are active members of several Russian, international, and foreign academies.

With the participation of scientists, teachers, and graduates of MISiS, a formidable network of scientific research, planning, and design organizations has been established in Moscow to serve ferrous and nonferrous metallurgy, the defense industry, electronics, machine-building, and other sectors of industry.

The orientation toward basic research and the thorough preparation of future engineers has always distinguished the faculty of the Institute. The first educational subdivisions added to the Moscow Mining Academy and then MISiS after the metal-shaping school were the schools of physical chemistry, theoretical metallurgy, and theoretical mechanics and the laboratories for electrochemistry and engineering analysis. Among the units added later were the schools of theoretical physics, metallurgy and metallography, semiconductors and active dielectrics, engineering cybernetics, and automated control systems.

Basic physico-chemical and physico-mathematical education at MISiS is combined with thorough engineering-oriented instruction in methods and technologies for producing and treating metals and alloys, as well as the study of modern experimental methods of determining the composition, structure, and properties of materials.

Special schools were also organized in the Moscow Mining Academy and then MISiS. These subdivisions were headed by internationally renowned metallurgists and materials scientists: K. F. Neumaier, M. E. Pil'nik, B. V. Stark, S. I. Gubkin, V. A. Vanyukov, L. I. Fantalov, A. N. Vol'skii, E. N. Plaksin, A. I. Belyaev, B. N. Finkel'shtein, G. A. Meerson, M. A. Glinkov, B. G. Livshitz, I. N. Kidin, A. A. Bochvar, I. M. Pavlov, A. N. Pokhvistnev, Ya. S. Umanskii, V. I. Yavoiskii, A. A. Zhukhovitskii, and others.

Today, the departments of the Institute are headed by former students who have followed in the footsteps of their teachers - scientists and teachers who are widely known in the international scientific community.

As early as the beginning of the 1920s, members of the Academy were writing and publishing texts that became the standards for metallurgical students. That tradition has continued to this day, as MISiS professors author the main texts on metallurgy, metallography, and related fields.

The organization of the schools of the Institute during its earlier history secured its status as an engineering university. The Institute has seven schools that prepare specialists in new as well as traditional specialties.

**School of Metallurgical Technologies, Conservation, and Ecology**, which trains engineers in the specialties:
- metallurgy of ferrous metals;
- casting of ferrous and nonferrous metals;
- automation of production processes and operations;
- standardization and certification in metallurgy.

**School of Nonferrous and Precious Metals**, which trains engineers in the specialties:
- mineral concentration;
- metallurgy of nonferrous metals;
- physical metallurgy and heat treatment of metals;
- composite and powder materials, coatings;
- automation of production processes and operations.

**Engineering School**, training engineers in the specialties:
- shaping of metals
- metallurgical machines and equipment.

**School of Physical Chemistry**, which trains engineers in the specialties:
- physico-chemical methods of studying materials and processes;
- physics of metals;
- physical metallurgy and certification in metallurgy (bachelor's degrees in "Physics" and master's degrees in "Physics of Condensed Matter" and "Physics of Magnetic Phenomena").

**School of Information Science and Economics**, which trains engineers in the specialties:
- economics and management in industry (metallurgy);