

Ob 40-letnici dela Metalurškega inštituta v Ljubljani

On the Fourtieth Anniversary of the Metallurgical Institute in Ljubljana



Neposredno po vojni je bila naloga slovenske in jugoslovanske metalurgije osvojiti tehnologije proizvodnje kvalitetnih jekel, barvnih kovin in zlitin ter ognjevarnih gradiv. Nastali so razvojni projekti in programi v skladu s predvideno industrializacijo države. Z letno proizvodnjo 230.000 ton jekla v vseh jugoslovanskih železarnah je bila naša država manj razvita, kljub temu da imamo ustrezne osnovne surovine. Industrijska prenova je vključevala tudi predelovalno industrijo, ki je za svoj razvoj iskala nove materiale.

Tako stanje in naloge pa so zahtevale veliko novega strokovnega metalurškega znanja in raziskovalnega dela.

Zato so se že leta 1947 pričele na iniciativo prof. dr. h. c. Cirila Rekarja priprave za izgradnjo metalurškega inštituta v Ljubljani. Prvega maja leta 1950 je bil v Ljubljani prižgan prvi eksperimentalni plavž, ki je ob enem pomenil začetek dela Metalurškega inštituta v Ljubljani. S tem so bile dane prve osnove za temeljne raziskave predelave rud, proizvodnjo surovega železa in prenos rezultatov v metalurško industrijo.

Neposredno po ustanovitvi inštituta so bili izdelani raziskovalni programi na štirinajstih strokovnih področjih: od vrednotenja rudnega bogastva, preiskav goriv in energetike, do proizvodnje in predelave kovin. Inštitut je začel razvijati raziskovalno dejavnost tudi na področju preiskav materiala, fizikalne metalurgije in metalurške kemije, projektiranja in svetovalnega inženiringa.

Kljub relativno skromni opremi v začetku delovanja inštituta so posebej skrbeli za vzgojo strokovnih in pedagoških delavcev ter za vključevanje v izobraževalni proces Univerze v Ljubljani, posebej Montanistike. V letih 1950 do 1965 je bilo v okviru dejavnosti Metalurškega inštituta izdelanih kar 227 diplomskih nalog ali več kot 50 % vseh. To so bile naloge, katerih rezultati so se neposredno vgrajevali v proizvodne postopke izdelave in predelave železa, jekla in barvnih kovin, v vse tovrstne dejavnosti širom po naši državi.

Zaradi uspehov raziskovalnega dela in vzgoje strokovnjakov, pomembnih za vso državo, je bil Metalurški inštitut v Ljubljani leta 1958 izbran za osrednjo raziskovalno organizacijo Združenja jugoslovanskih železarn.

Diplomanti-inženirji metalurgije so bili nosilci razvoja metalurgije. Že v šestdesetih letih je bila ustvarjena taka kadrovska osnova, da so pričeli ustanavljati sorodne vzgojne in raziskovalne institucije širom po državi. Zato je Metalurški inštitut vse bolj postal osnovna raziskovalna organizacija v okviru slovenske metalurgije in se skupaj s pedagoškim kadrom na metalurškem oddelku Montanistike vse bolj vključeval v razvojne zasnove slovenske črne in barvne metalurgije ter nekovin.

Directly after World War II, to the Yugoslav (including the Slovene) metallurgy the development of quality materials and manufacturing processes in steel, nonferrous metals, alloy and refractory industry was assigned. Projects and programs on development were prepared in accordance with the planned industrialization of the country. The total yearly yield of all the Yugoslave ironwork amounted to 230.000 ton, making our country undeveloped, although there was an abundance of raw material. The processing industry, involved in the process of industrial renovation, was searching for new materials to support its progress.

The postwar situation in metallurgy was facing a great need for expert knowledge and research, which developed the idea to found a metallurgical institute.

On the initiative of Professor Ciril Rekar, the preparations for erection of the Metallurgical Institute were started in 1947. In May 1, 1950, in Ljubljana, the first experimental blast furnace was started, indicating the beginning of work of the Metallurgical Institute. Thus the foundations for the basic research in ore processing and pig-iron production were set. The research results were supplied directly to the metallurgical industry.

The Institute's foundation was followed directly by creation of research programs in fourteen different branches of metallurgy, such as: evaluation of domestic ore deposits, research on fuel and energetics, as well as manufacturing and processing of metal. The Institute began with the research in material, in physical metallurgy, and metallurgical chemistry, including projects and advisory engineering.

Special emphasis was laid on professional and teaching staff's postgraduate study of metallurgy at the University of Ljubljana. Although the outfit of the Institute was rather poor in the beginning, from 1950 through 1965, 227 graduation theses on the studies in which the Metallurgical Institute was engaged at the time were composed, which is more than 50 % of the total number of theses on metallurgy. The results of these works were delivered to metallurgical and metal processing industry to be used throughout the country.

Owing to its succesful research and the staff's advanced education, the Metallurgical Institute became the leading research organization in the Association of Yugoslav ironwork.

The graduates with at least a B. A. degree in metallurgy became the bearers of the progress of metallurgy. The sixties provided quite a few professionals, sufficiently expert to establish institutes bearing resemblance to the existing ones in knowledge and research scopes. Accordingly, the Metallurgical Institute grew

Podobno kot na področju črne metalurgije, so bile raziskovalne naloge Metalurškega inštituta usmerjene na področje problematike izkoriščanja manganovih in nikljevih rud, fluoritov in kremenčevih spojin. Pomembni so bili tudi raziskovalni rezultati na področju metalurgije bakra in njegovih zlitin, cinka, aluminija in redkih kovin.

Karakteristično za dejavnost Metalurškega inštituta v Ljubljani je tesno sodelovanje z metalurškim oddelkom Montanistike. Teamsko delo in povezovanje pedagoškega kadra Univerze z raziskovalci inštituta je omogočalo široke programe različnih metalurških smeri, pri čemer so bili doseženi rezultati vgrajeni v slovensko in jugoslovansko metalurgijo in tudi predstavljeni širši svetovni javnosti na mednarodnih posvetovanjih in v tujem strokovnem tisku.

Tako je Metalurški inštitut v Ljubljani poznan v svetu po temeljnih raziskavah o vplivu oligoelementov v jeklu in zlitinah, nadaljnjem razvoju tehnologije pretaljevanja jekla pod žilindro ter po raziskavah fizikalnih procesov in identifikaciji nekovinskih in strukturnih komponent jekla.

Metalurški inštitut v Ljubljani je prvi v državi pričel proizvajati specialne zlitine za razvoj posameznih segmentov elektronike. Še danes je Metalurški inštitut edini proizvajalec in dobavitelj nekaterih zlitin naši elektronski industriji.

Zato je prav, da ob štiridesetletnici dela in življenja Metalurškega inštituta v Ljubljani zapišem, da je raziskovalna dejavnost Metalurškega inštituta prispevala tudi k dolgoročnim razvojnim odločitvam v metalurgiji, predvsem na področju tehnoloških rešitev.

Raziskovalno dejavnost Metalurškega inštituta je usmerjal od leta 1970 dalje tudi Odbor za znanstveno raziskovalno delo pri Slovenskih železarnah, za področje barvnih kovin ter nekovin pa podobna institucija pri Splošnem združenju za metalurgijo in livarstvo Slovenije. Taka organizacija raziskovalne dejavnosti je močno prispevala h koordinaciji raziskovalnih potencialov inštituta ter pedagoškega kadra univerze in vplivala na koordinacijo financiranja raziskovalnega dela tudi z Raziskovalno skupnostjo Slovenije.

Z ustanovitvijo Metalurškega inštituta v letu 1950 smo izgradili temelje razvojne in raziskovalne dejavnosti na področju metalurgije. Do danes je bila s pomočjo raziskovalnega dela na mnogih področjih izvršena tehnološka prenova naše metalurgije.

Danes sledimo razpravam o združitvi Evrope na področju industrijske dejavnosti in si postavljamo vprašanje, ali smo s svojim znanjem sposobni za vstop v leto 1992. Menim, da je slovenska metalurgija sledila tehnološkemu razvoju posameznih industrijskih panog v svetu. S svojim znanjem smo se sposobni soočiti tudi z razvitem svetom. Prehod ni vprašljiv, če bodo tudi pri nas delovali tisti elementi gospodarjenja, ki jih ima na razpolago podobna industrija v razvitem svetu.

Osnova za tako mnenje je tudi strokovno znanje in rezultati raziskovalnega dela Metalurškega inštituta v preteklem obdobju. Zaupanje v prihodnost gradim tudi na pedagoškem kadru Montanistike in Univerze v Ljubljani, kot tudi na strokovnem kadru v raziskovalnih oddelkih v posameznih delovnih organizacijah. Ob takem strokovnem potencialu in znanju lahko z zaupanjem zremo v prihodnost metalurgije v Sloveniji.

SREČNO

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into the basic research organization within the Slovene metallurgy, getting more and more engaged in research on the Slovene iron and non-ferrous metallurgy including non-metals.

Like in ferrous metallurgy, MIL engaged in research on the utilization of manganese and nickel ore, fluorite and quartz sands. The results of research in copper metallurgy, and copper alloys, zinc, aluminium and rare metals, are of no lesser importance. The creation of programs of various fields of metallurgy, the results of which have been applied to the Slovene and Yugoslav metallurgy, and presented to the attendance of numerous conferences at home and abroad, as well as published in several professional magazines, was based on team work of the Institute's researches and teachers at the University.

MIL's basic research on residual elements and their influence on the properties steels and alloys, further development of the technology of electro-slag-remelting, as well as the examination of physical processes and the identification of non-metal and structural components of steel earned worldwide recognition.

The Metallurgical Institute of Ljubljana was the first in Yugoslavia to produce special alloys used in development of particular electronic segments. Even today, MIL is the sole manufacturer and supplier of certain alloys used in the industry of electronics.

On the occasion of the fourteenth anniversary of MIL's existence and work, I think it right to mention that its research influenced the decision on long-range development in metallurgy, especially in its technology.

Whereas the Committee of Science and research at Slovenske železarne has taken part in the management of the Metallurgical Institute's research work since 1970, a similar institution at the Slovene General Association of Metallurgy and Foundries has participated in managing the department of non-ferrous metallurgy and non-metals. The efficiency of such research organization supported the cooperation between the researchers and the University teaching staff, and in doing so, it influenced the Research Association of Slovenia to contribute to research work financially.

Upon establishing in 1950 the Metallurgical Institute set fundamental scopes of development and research in metallurgy. Since then, the research has stimulated the modernization in technology in several branches of metallurgy.

Today, on Europe's discussions on uniting their industries, the question is raised whether our knowledge is sufficiently competitive to enter 1992. I am certain, that the Slovene metallurgy has kept pace with technological progress, in a variety of branches. Our professional knowledge is certainly capable of meeting the challenges of the developed world. Providing that the introduction of the parameters, at present successfully used by the economics of the developed world, to our country, proves to have the same effect on our economics, our participation in EEC should not be inaccessible.

This opinion is based on MIL's professional knowledge and research results, as well as on the knowledge of the teaching staff of the Metallurgical department at the University of Ljubljana, and some research departments in some working organizations. From this standpoint, the future seems to be trustworthy.

GOOD LUCK!

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