

## EDITOR'S PAGE

### THE 70<sup>th</sup> ANNIVERSARY OF MINING ENGINEERING IN ESTONIA

Mining of oil shale and phosphate rock was started in Estonia in the twenties of the last century. First Estonian mining engineers graduated from foreign universities: Professor Jaan Kark (1907), Oskar Vuht (1914) and Jaan Aarman (1914) from St. Petersburg, Karl-August Feldveber-Tanner (1922) from Glasgow, Professor Artur Alexander Linari-Linholm (1927) from Freiberg, and Anatoli Allik from Pribane (Czechei).

Education of mining specialists in Estonia was started at Jõhvi, a town located in the oil shale basin. The school was founded to prepare foremen and mining technologists. They passed a 3-year program corresponding to the modern bachelor study.

Jõhvi mining school was closed in 1938. Teaching of mining engineers (master study) started at Tallinn University of Technology in the same year. Geologist Jaan Kark and mining engineer Artur Linari were the first professors at the chair. The educational period of mining engineers was supposed to last four years. Physics, geometry, theoretical and applied mathematics were the general subjects followed by strength of materials, theoretical and technical mechanics, thermodynamics, technical drawing, geodesy, electrotechnics, hydraulics and other technical disciplines. Four courses of chemistry included qualitative analysis needed to study chemical characteristics of oil shale. At this time mining engineers were active in every sphere of oil shale mining and research.

Geology, the dominating discipline, included three courses of mineralogy and additional courses of petrography and palaeontology. Applied geology included geostatistics, testing technics, geophysics and study of mineral deposits. Mining course was divided into four subcourses. The curriculum included also mine surveying and mineral processing (separation and briqueting).



World War II stopped normal teaching. After the war the students had to learn also soviet military and political subjects. Five academic years corresponded to four-year bachelor study. Professor Kark was fired in 1950. That was the end of mining professorship at the then Tallinn Polytechnical Institute. Associate professor Ludvig Kaalman (Ph.D. in 1939 from Leningrad Mining Institute, former Petersburg Mining Academy) headed the chair for the next twenty years. He was followed by associate professors Ph.D. Heino Aruküla (1963–1964), geologist Ph.D. Alfred Reier (1970–1980) and Ph.D. Veljo Lauringson (1980–1985).

Mining engineers of that time were profoundly educated in both theoretical and practical issues of management and administration of coal and oil shale mines. Knowledge about geology of other mineral resources, their enrichment and environmental impact of mining activities remained scarcer. Exploration of mineral resources, enrichment and mine surveyory were not taught in Estonia.

In Estonia there was no possibility of doctoral study in mining science. Examinations for the doctorate were passed at other institutes, mainly at Leningrad Mining Institute (Heino Aruküla 1955, Enno Reinsalu 1968, Veljo Lauringson 1970, Jüri-Rivaldo Pastarus 1978). Professor Alo Adamson who had graduated from Skotchinski Institute of Mining Engineering in Moscow in 1975 headed the Chair of mining of Tallinn University of Technology in 1985–2006.

After re-establishment of Estonian Republic, mining education had to be reorganized according to new circumstances. Perfect knowledge of the English language beside Estonian was inevitable again. Knowledge of a mining engineer about geology and mineral resources must exceed that of a technologist. The Chair of mining was reorganized to form the Department of Mining. Ph.D. Enno Reinsalu from the Institute of Geology of the Estonian Academy of Sciences (IGEAS) joined the Chair of mining in 1990. Alo Adamson and Enno Reinsalu were given Professorship in mining in 1990, and Doctor of Geology and Mineralogy Enn Pirrus from IGEAS Professorship in geology.

The share of applied geological subjects in programs was enlarged. Methodological help was delivered by Professor Raimo Matikainen from Helsinki University of Technology, Professor Gunnar Almgren from Luleå University of Technology and Professor C. Timothy Shaw from the Royal School of Mines in London. Alo Adamson and Enno Reinsalu were incorporated into the Society of Mining Professors / Societät der Bergbaukunde.

Geotechnology as “the most nature-oriented subject” at Tallinn University of Technology has been taught since the 1990s. Geotechnology includes mining and geological engineering. Jüri-Rivaldo Pastarus was the first Doctor of Mining Engineering who got his doctorate at Tallinn in 1996. The next persons who passed his examination for the doctorate were

Professor Ingo Valgma in 2002 and Oleg Nikitin in 2003. Four persons have obtained doctor's degree in applied geology.

Ingo Valgma is the present Director of the Department of Mining and also a member of the Society of Mining Professors.

The standard of doctoral teaching in mining disciplines is high. Four from 14 doctoral students are due to obtain doctor's degree this year. This special issue gives a short overview of their studies. We wish them good luck and every success.



Professor emeritus *Enno REINSALU*  
Member of Society of Mining Professors /  
Societät der Bergbaukunde

The papers published in this issue have been discussed and approved by Editorial Board and presented for publication as the special issue of the journal. The papers have been prereviewed.

Prof. emeritus E. Reinsalu, Department of Mining of Tallinn University of Technology is the guest editor of this special issue.