

AGU AARNA (1915–1989) – THE FOUNDER OF THE JOURNAL *OIL SHALE*

Agu Aarna was born on the 11th of October 1915 in Tallinn to the family of a railway man. After leaving Tallinn Technical School in 1934 he studied at Tallinn Technical University and proceeded, as a Humboldt grant-aided student, at Dresden Technical University from which he graduated in 1944.

After the World War II Agu Aarna started his career at Tallinn Technical University (then Tallinn Polytechnical Institute). He had to graduate from the university once more to get a diploma recognized by the former Soviet Union. Agu Aarna obtained a candidate's degree in 1948 already. His research dealt with the problems of purifying retorting gases formed during thermal decomposition of oil shale. He defended his doctoral dissertation at *Lensovet* Institute of Technology in Leningrad (St.-Petersburg at present) in 1954. The dissertation examined complex utilization of Estonian oil shale.

Agu Aarna obtained the title of professor in 1956. In the years 1951–1965 he was the head of the Chair of Fuel Technology, and since 1957 also the head of the Problem Laboratory of Oil Shale Chemistry and Synthesis.

For sixteen years, 1960–1976, Agu Aarna worked as the rector of Tallinn Technical University. He succeeded in heading our university to the range of best soviet universities.

Since 1978 Agu Aarna worked at the Institute of Chemistry of the Estonian Academy of Sciences and headed the oil shale department consisting of four



Prof. A. Aarna (in the middle) at the Meeting of the Chair of Heat Power Engineering in 1975

research units. He worked there as a consultant professor emeritus till his death in 1989.

Scientific activity of Agu Aarna lasted for over forty years, since 1947 till 1989. During this time he published over 250 scientific and about 240 popular science papers. Together with his co-workers he obtained sixteen Soviet Union patents and inventor's certificates. Many of his inventions were patented abroad, too.

It is quite interesting to follow the dynamics of his creative work, especially during the most active period in 1955–1973. In the years with less scientific papers published, e.g. in 1969 (six papers), he wrote full twenty popular science publications. A similar tendency may be observed during all these years.

In 1976–1989 he published from one to five papers yearly, many of them published in the highly appreciated till the present day Russian *Journal of Applied Chemistry*.

The significant contributions of Prof. Agu Aarna to oil shale research may be grouped as follows:

- Investigation on the genesis, chemical structure and thermal decomposition mechanism of kukersite oil shale
- Elucidation of the composition of thermal decomposition products and of the ways of their prospective utilization
- Formulation of a novel mechanism of thermal decomposition of kukersite oil shale kerogen
- First employment of chromatographic methods in analyzing retorting products of complicated composition
- Characterization of oxygen and sulfur compounds present in kukersite shale oil
- Elucidation of the complex azeotropic nature of shale oil
- Elaboration of the technology of producing resorcinol resins from dibasic phenols obtained by oil shale retorting
- Elucidation of the mechanism of metal corrosion occurring in the presence of organic compounds

This titanic and systematic work based on the movement along a rough path of scientific cognition towards the enlarging recognition. They say that in science one reaches the summit for an instant, only to see the other single researchers and whole scientific teams to brush by.

I venture to say that Agu Aarna was happy to stay atop his branch of science till the end of his days. As a rule, this is a rare occasion. It happened for two reasons:

- Agu Aarna's excellent basic education – the diploma of a chemist in organic chemistry of Dresden Technical University and that of an engineer-chemist-technologist of Tallinn Technical University, and an exceptional working capacity.
- The scientific heritage of Prof. Agu Aarna has been and still is of great international interest, especially in the recent years when oil shale utilization has become a burning question in many countries.

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