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PROFESSOR ILMAR ÖPIK - A SYMBOL OF ESTONIAN ENGINEERING MIND

Jubilarian **Ilmar Öpik** started to work as an engineer in 1937 being a student of Tallinn Technical University. He worked in *Franz Krull Machine-Building Factory* under the leadership of a well-known Professor from St. Petersburg P. M. Sheloumov and took part in the execution of several special orders including construction of a shale oil plant in Glen Davis, Australia.

Professor I. Öpik has grown up along with Estonian oil shale industry being quite the same age.

One cannot help saying that history repeats itself: in the twenties and thirties, independent oil-shale-basing power engineering guaranteed the self-dependence of the newly established Estonian Republic, and now, in the nineties, electricity and oil produced from oil shale play the leading role in Estonia again.

During the World War II, Ilmar Öpik worked in the rear designing and constructing heat power plants. He continued this work after the war. In 1944-46 he took part in restoration of Estonian oil shale industry and in construction of Kiviõli heat power plant.

Today, in the restored Estonian Republic, I. Öpik participates in the reorganization of Estonian power economy as an independent expert of the Government.

Executive editor of *Oil Shale* visited the vice-chancellor of the Ministry of Economic Affairs, the vice-chairman of Estonian Energy Commission **Mr. Arvi Hamburg** to learn about the recent co-operation of Professor I. Öpik with the leaders of Estonian power engineering.

O. S.: Estonian power engineering has been bound to oil shale for eighty years. Our jubilarian is the same age. When did you become acquainted with him and when was the tight co-operation started?

A. H.: I have not attended the lectures of Professor I. Öpik. My first contacts with him belong to 1990 (or 1991), when at a meeting of the Estonian Academy of Sciences the future of Estonian oil shale industry was discussed. I. Öpik motivated there the need of the further development of this branch of industry, and was opposed by another member of the Academy, Prof. E. Lippmaa.

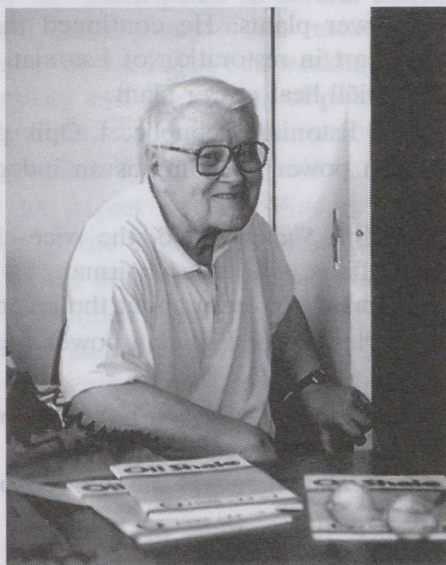
At the same time, the Estonian government started to regulate the state power economy, and the then Plan Committee ordered a project for power engineering development until 2030 from Estonian scientists. I. Öpik occupied a central role in the working group led by a member of the Academy, Prof. M. Veiderma.

I. Öpik is the most competent specialist in oil-shale power engineering I have ever met in our region and in neighbouring countries. At present there can hardly be anyone else with his knowledge as no other state has got such a large-scale oil shale industry.

I. Öpik possesses profound knowledge not only in his strict speciality, he is conversant with the whole oil shale complex: mining, and utilization for producing electricity, oil, and cement - the whole oil shale power engineering.

O. S.: The role of I. Öpik in Estonian oil shale power engineering?

A. H.: All boilers in present use in Estonia for producing electricity have been elaborated by him and installed according to his instructions. These boilers were constructed thirty years ago: boilers built in Taganrog and put into operation in Estonian power plants may be called Öpik boilers.



At the *Oil Shale* editorial office, 1996

These boilers, of course, have lived to a good old age both morally and physically. Today we are making for a new stage in power generating, and I. Öpik is the first one to realize the trend. He investigates the suitability of new fluidized bed and circulating fluidized bed (CFB) boilers for producing electricity by combusting oil shale.

I. Öpik is an engineer with an excellent eye. He examines the boiler scheme, projects it in his mind into the building of the *Baltic Power Plant* and notices at once: "Damn it! This boiler is half a meter too high to fit in!" He knows the location of frames and remembers the carrying capacity of a travelling crane. I. Öpik is a scientist and engineer able to connect his analytical mind with the present day life.

The work in the *F. Krull* plant, erection of *Püssi Power Plant*, and installation of imported boilers after the war - all this has strongly influenced his activities.

The following conclusions can be made:

- I. Öpik has a good command of Estonian power engineering complex.
- His achievements have always had a practical output - boilers now in operation in power plants, at the same time waiting for a new combustion technology.

O. S.: Which particular programmes are in progress now?

A. H.: We have many plans, all of them concern the development of Estonian power engineering within the next thirty years. We have several creditors for this project: the World Bank, the Nordic Investment Bank, etc. We start with the choice of new boilers for oil shale combustion. Within the framework of the Phare programmes and others we have already investigated the offers made by different companies.

There is a resolution to install a pilot 100 MW CFB boiler in *Kohtla-Järve Power Plant* to study its suitability for combusting oil shale. Later on we plan to install analogous units in *Baltic*, and possibly also in *Estonian Power Plant*.

Baltic Power Plant is already cutting down its production. Its operation is mainly conditioned by the need for heat consumption in *Narva*.

The next stage of our work is just testing of the new combustion technology to learn:

- the real value of boiler efficiency, at present postulated on the basis of calculations only;

- concurrent ecological changes. The amount of harmful waste has to be minimized.

Some investment companies have come to Estonia to study, together with local specialists, the real state of Estonian power engineering. Here we have made use of the knowledge of Professor I. Öpik as a member of steering committees. We have just finished a programme elucidating the following questions:

1. Present-day situation on Estonian electricity market.
2. Production of oil shale in Estonia, development of mining technology.
3. Technology and possible changes in electricity generation.
4. Ecological background of power industry. Environment pollution.
5. District heating of the town of Narva.

This immense complex programme was carried out with participation of many companies under the leadership of the Nordic Investment Bank. I. Öpik belonged to the committee as a leading specialist who has an excellent command of the whole problem.

We are working also on other similar programmes in the sphere of power engineering. Another large and important programme deals with the strategy of Estonian power engineering.

All researches strongly depend on the foreign financial support. Foreign companies organize a competition to motivate the raising of money, the winner comes to Estonia for research. It chooses some private company from the Estonian side - a state official is not allowed to act as an expert. As a rule, specialists of companies are not as qualified as our scientists are.

We have been lucky to use the help of the best possible expert, Professor I. Öpik. I do hope that in the future more and more specialists from Estonian universities and research institutes will be employed as experts.

Estonian government has asked I. Öpik to assist in fixing the price for local energy carriers - oil shale and electricity - for the transition period. He has well succeeded in this task. The dissensions between producers and consumers are not easy to solve as producers want to establish as high prices as possible, whereas the state has to consider the public interests (partly for political reasons). Professor I. Öpik has succeeded in making the compromises always finding the right arguments. His work has been most useful and fruitful.

According to the energy law, in 1998 the price committee will be replaced by the inspection of energy market. This new institution will have a broader field of action than the present price committee. In a couple of years we shall reach such a stage of development when power prices are free and the inspection will deal with economical operation of enterprises only. The present price committee has made a good start for all this.

O. S.: At present there exists a strong opposition to oil shale power engineering in Estonian press.

A. H.: It is true, but no economically thinking person in Estonia sees the alternative to it. Those who want to use solar and wind energy or combust litter make a great stir because, first of all, not only in Estonia, but in all countries politicians profiteer from environment protection.

Secondly, there is always the question of money. Power engineering is very capital-consuming and means large investments. For example, *Eesti Energia* plans to circulate three billion EEK in 1997. Specialists of alternative power and their supporters are, of course, very interested in sharing this pie.

O. S.: How do you get along with I. Öpik as a colleague?

A. H.: Professor I. Öpik surpasses us by some magnitudes in knowledge, working results, and experience. However, he is a man who never displays it. That is why his eminence does not hinder us from communicating freely and openly. He puts the interlocutor at his ease. Though himself the best in our field, he invites us to an open discourse and discussions. He acts on firm principles. He stands no plain stupidity. If you have a message, he may accept it.



Mrs. N. Kareva, editor,
and Prof. I. Öpik at the *Oil Shale*
editorial office, 1997

O. S.: Your wishes to Professor I. Öpik on his jubilee?



In the Research Laboratory
of Heating Engineering
at Tallinn Technical University, 1985

A. H.: Since I. Öpik's lifework deals with oil shale combustion, it is most important to build the boiler in Kohtla-Järve and make the first trials as soon as possible, to make the utmost use of I. Öpik's knowledge and experience. If we succeed in this, the boilers operating in twenty-thirty years may indeed be called Öpik boilers.

I wish the school of power specialists to be continuous. Let there be boys and girls to learn the engineering knowledge of I. Öpik. I do hope that a young man, a future Ilmar Öpik will come and take over the responsibility when the time will be ripe for substitute, say, nuclear energy for oil shale combustion.

I have to add that in spite of some health problems during the recent years, there is no task has been left undone because of his health. Sanatoriums have become for him some kind of office. He always takes along some paper, a computer, and a bagful of coins for telephone calls.

I wish Professor I. Öpik good health and much energy for a lasting successful co-operation in developing Estonian power engineering. I do hope that he will long remain an example for our young engineers.

The editorial office of *Oil Shale* adds its best wishes and congratulations.

Aili KOGERMAN
Executive editor of *Oil Shale*