

Professor Wojciech Majewski – His 70th Jubilee **by P. Wilde**

After the Second World War in 1945 the Majewski family left Wilno, which became the capital of the Republic of Lithuania in the Soviet Union and moved to Poland. They had to leave all their property and start a new life in Gdańsk. The city was in ruins, like many cities in Poland. The country had to be rebuilt and there was a shortage of engineers and technicians. Thence education was of primary importance. There was a “Technische Hochschule” in Gdańsk teaching in the German language. The “Politechnika Gdańska” – The Gdańsk University of Technology was established in the same place, but with rebuilt buildings and new professors teaching in Polish. After completing the secondary school and matriculation Wojciech Majewski in 1950 began studies at the University of Technology in the Faculty of Civil Engineering. In 1954 he received his first degree – Hydraulic Structures Engineer. He became interested in the engineering problems of river hydraulics and power plants. At that time these subjects were taught by Prof. Waclaw Balcerski an outstanding civil engineer and excellent lecturer. In 1956 W. Majewski obtained his Master’s degree based on his contribution to a project of a pumped-storage powerplant, supervised by Prof. W. Balcerski.

Vistula is the main river in Poland it was not and it is not used for transportation of goods. There were very few powerplants on Polish rivers. Before the Second World War there were small hydraulic laboratories used for teaching at universities, but there was no professional hydraulics laboratory able to perform model tests for engineering practise. The length of the coastline of Poland increased tremendously. When the Polish Academy of Sciences was established in 1952 it was realised that it is not possible to design and construct the necessary civil engineering structures on rivers, lakes and harbours without a professional hydraulics laboratory. The Institute of Hydroengineering (IBW PAN) of the Polish Academy of Sciences (PAS) was organised by Prof. R. Cebertowicz as the first director.

In April 1956 the young graduate, mgr inż. W. Majewski took up employment in the Department of Inland Hydraulics at the Institute of Hydroengineering of PAS. The Institute at that time worked on hydraulic model investigations of various hydraulic structures. Mr Majewski’s first study was the model investigation of Tresna Dam on the Soła River, a tributary of the Vistula. In 1956 he was a member of a team which carried out field measurements of siltation on the reservoir formed by the Rożnów Dam on the Dunajec River.

In 1960 he participated in the IAHR Congress in Dubrovnik, Yugoslavia and spent two months in Electricité de France, one month in Hydraulic Laboratory Chatou near Paris, and one month visiting construction sites of dams in France. In 1962 he obtained a British Council Scholarship and went to Glasgow to the Royal College of Sciences and Technology. In his study he worked on laboratory experiments of the arrested wedge in a hydraulic flume. His stay was extended from ten to thirteen months by the British Council and thus it was possible for him to receive the degree Master of Science in Engineering from Glasgow University in 1963. The title of his thesis was: "Density Difference Phenomena with Special Reference to the Arrested Wedge".

Back in Gdańsk he continued his work in model tests of hydraulic structures as applied in engineering practise. Parallel to this he performed tests connected with his doctor's thesis. The thesis "Methods of studies of cooling water systems in view of laboratory research of thermal and hydraulic phenomena" was presented before the public in 1967 and Mr W. Majewski was awarded the degree Doctor of Technical Sciences and obtained the position of assistant professor at the Institute of Hydroengineering.

In 1967 Dr W. Majewski obtained a post-doctoral fellowship of the National Research Council (NRC) of Canada and went to the NRC hydraulic laboratory in Ottawa. He worked there on thermally stratified flows and the influence of heated discharges from thermal and nuclear power-plants on ice phenomena. The aim of the research was to understand and describe the observations on the St. Lawrence River. During his stay he was able to attend conferences and visit several hydraulics laboratories.

Back in Gdańsk Dr W. Majewski continued his work at the Institute of Hydroengineering, but his research shifted from the problems of structures to the investigation of thermal and ice formation phenomena in rivers and reservoirs. These investigations also aroused interest in Poland as the awareness of the necessity for environmental protection grew all over the world. In 1970 Dr W. Majewski obtained the position of associate professor, and became Head of the Department of Inland Water Hydraulics.

In the early 'seventies the government began to plan a nuclear and a pumped-storage powerplant at Lake Żarnowiec in the vicinity of Gdańsk. The project would dramatically change the environment in and around the lake. Thus a research program was established to study the meteorology and hydrology of the region, the water balances of the lake, the currents and waves, the thermal phenomena, the water quality and finally the biology of the lake in its natural conditions. Theoretical considerations and model tests were performed to predict changes and disasters due to possible damage after the construction of the pumped-storage powerplant first and then the nuclear powerplant. The Institute of Hydroengineering organised the study. The research team based on the staff from the Institute of

Meteorology and Water Resources Gdynia, Gdańsk University of Technology, Institute of Hydroengineering, Hydraulic Laboratory of Hydroproject in Włocławek and Fishery Institute from Olsztyn was headed by Prof. W. Majewski who was responsible for the whole study. The results of research were published, and the pumped-storage powerplant was constructed. The idea to build a nuclear powerplant was abandoned due to public protest based on environmental concerns. The research was important as it furnished experimental results important to the strengthening of the environmental consciousness and reference data for studies of future changes due to the pumped-storage powerplant.

In January 1982 a severe flood occurred on the Włocławek Reservoir on the Lower Vistula. The Department of Inland Hydraulics of the Institute took part in studies connected with the design of the Włocławek Hydraulic Barrage and the power plant. The flood occurred while the maximum discharge was around half of the maximum design flow for the hydraulic project Włocławek. A team from the Institute of Hydroengineering headed by Prof. W. Majewski went to Włocławek for on site investigations on the Reservoir. Side dams and dikes were breached and the inundation covered around 100 km² of land and flooded 2 230 farms. Extensive field measurements were taken, as it was the first time in Poland that such severe flooding was caused by very low temperatures, formation of an ice cover on the Vistula River and the Włocławek Reservoir, hindering the free discharge and causing a great rise in the water level. In 1987 Prof. W. Majewski wrote and the Institute published the book: "The influence of ice cover on hydraulic characteristics of run-of – the river reservoirs on the lowland rivers, basing on the example of Włocławek Reservoir" and presented it to the Faculty of Hydraulic Engineering of the Gdańsk University of Technology as his habilitation thesis. He received his second doctorate (Dr hab.) in 1988 and the title of Professor of Technical Sciences in Civil Engineering specializing in river and reservoir hydraulics, environmental engineering and water resources management, in the year 1990.

In the years 1986–92 Prof. Majewski held the position of the deputy director at the Institute of Hydroengineering (Prof. St. Massel was director at that time). In 1991 the Faculty of Hydraulic Engineering offered him the position of professor at Gdańsk University of Technology. Teaching hydraulic structures and water resources management was a new experience. Until 1997 he was the head of the Department of Hydraulic Structures. In 1997 he returned to the Institute of Hydroengineering and took up the position of deputy director (Prof. P. Wilde was director at that time). In the year 2000 Prof. W. Majewski was appointed director of the Institute of Hydroengineering for the period 2000–2004.

The activities of Prof. W. Majewski in Poland are not restricted to the Institute of Hydroengineering and Gdańsk University of Technology. In 1970 he became a member of the Water Resources Management Committee of the Polish Academy of Sciences and was appointed head of the Physics of Inland Waters Section. In 1980 the Committee established the National School of Hydraulics as a week-long

meeting of scientists and engineers organised every year. The meetings furnished the possibility of presenting contributions and to attend general lectures. Prof. W. Majewski was appointed Scientific Head of the School. Since 1990 the Institute of Hydroengineering has published the proceedings of the School of Hydraulics. Parallel to the academic aims during each School there is a study excursion to a hydraulic structure (dam, weir, navigation lock or hydraulic powerplant). In 1993 Prof. W. Majewski was elected Vice-Chairman of the Water Management Committee. He held this position for three consecutive terms and in 1999 was elected chairman of the Committee. In 1996 he was elected member and vice-chairman of the Scientific Council of the Institute of Meteorology and Water Resources in Warsaw for a four year term and in 2000 re-elected for the next term.

Prof. W. Majewski is very active in international co-operation. In 1963 he became a member of the International Association for Hydraulic Research (IAHR), and was elected member of the IAHR Section of Ice Research and Engineering during the 1984 Symposium. During the Ice Symposium in Sapporo in 1988 he was elected chairman of the IAHR Section Ice Research and Engineering and again re-elected for a second term in 1990. In the year 2000 Prof. W. Majewski organised the XV Ice Symposium in Gdańsk, which was very successful. It was the first IAHR Ice Symposium in Poland and hosted participants from twelve countries.

Now, I wish to summarise my short review of Prof. Majewski's activities and outstanding achievements. After graduation he learned how to work with hydraulic model tests and in site investigations. At the Institute of Hydroengineering he successfully introduced the methods into engineering practice in Poland and headed many research projects that were the basis for construction of civil engineering objects. He developed new research methods especially in thermal problems and flows under an ice cover. Prof. W. Majewski became an authority on flows in rivers and reservoirs thanks to two eminent research projects described in my review. He is also one of the best specialists in Water Resources Management due to his research contributions and detailed knowledge of flood problems in Polish rivers. Thus he is not only asked to write reviews and opinions on research papers but is also asked by the government to be a member of advisory boards on Water Resources. He has extensive experience in heading departments at the Institute of Hydroengineering and the Gdańsk University of Technology. During my last term as director of the Institute of Hydroengineering he was my deputy director. It happened that I became seriously ill and had to spend some time in hospital. He took over my duties which was lucky for me, as I was then certain that the Institute was being run professionally. I am sure that he will be active in the future and I wish him good health to be able to continue his activities efficiently.