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IN MEMORIAM

Professor Czesław Druet (1926–2016)



On the 10th of July last year Professor Czesław Druet passed away after a long life devoted to science and the public good. Originally from Wilno, Professor Druet and his family suffered all the hardships of the almost “rotational” Nazi-Soviet occupation during the Second World War, and subsequently the euphoria and dreams of Polish independence in Italy and Great Britain. On being demobilized, he returned from the latter country to Poland, where he chose to study at the Department of Civil and Hydraulic Engineering of the Gdańsk Polytechnic (now the Gdańsk University of Technology). He graduated in 1954. After a 3-year traineeship and fascinated by the sea, he was appointed head of the Marine Dynamics Laboratory at the Institute of Hydroengineering of the Polish Academy of Sciences.

In Poland there had already been a long tradition of marine research, going all the way back to the 1920s, when Prof. Kazimierz Demel founded the Marine Fisheries Laboratory at Hel. On the other hand, very little progress had been made in the field of seawater dynamics, i.e. wave action and currents. Beginning almost from scratch, the team of scientists led by Prof. Druet undertook two main research tasks: (1) the mathematical description of regular waves and laboratory experimentation relating to them; (2) fieldwork and theoretical research into wind-generated waves. Because there was no oceanographic research vessel at that time, the studies necessarily focused on the coastal zone.

The studies that Prof. Druet undertook were of a pioneering nature, and not just in Poland. His habilitation thesis, which he defended in 1966, described “Druet’s nomogram”, which clarified the range of applicability of the various types of sea wave, mainly for hydroengineering purposes. This is just one example showing how the ultimate objectives of his scientific endeavours, based on theoretical considerations, were always their application in practice.

The inauguration of the Shore Laboratory at Lubiawo presented the Marine Dynamics Laboratory with a whole new range of opportunities for studying sea wave action “in situ”. Prof. Druet was both the initiator and a participant in many scientific expeditions. The extensive empirical material gathered during these expeditions to Lubiawo was subjected to detailed stochastic and statistical analysis. In this context, his cooperation with Prof. Kitaigorodskii from the Institute of Oceanology, USSR Academy of Sciences and Prof. Krylov’s team from Soyuzmornijprojekt Institute in Moscow was invaluable.

The experience gained using modern stochastic methods turned out to be very useful when, at the end of the 1960s, the necessary research preceding the construction of the Northern Port in Gdańsk, Poland’s largest post-war maritime project, was to be carried out in Poland. A large, open-air

laboratory with numerous experimental basins was built in the Dolina Radości valley in Gdańsk-Oliwa. The task facing Prof. Druet and his team was to reproduce in the laboratory real wave action and to examine its effect on the new port's projected breakwaters under conditions as near to real ones as possible. The research for the Northern Port exemplified the close and very effective collaboration between a design office and a scientific institute. For his work relating to the Northern Port, Prof. Druet received a national award of the first degree. Today, looking back over the 40 years that have elapsed since that time, we see that his team did an outstanding job: the structures of the Northern Port have remained untouched by the elements.

In 1976, Prof. Druet moved to the Department of Oceanology, Polish Academy of Sciences (PAN), Sopot, of which he had been appointed Director. In 1983 the Department was raised to the rank of Institute, and he became the first Director of what has ever since been known as the Institute of Oceanology PAN. This new challenge brought with it a change in his scientific interests, from wave problems with engineering applications to questions typical of geophysical fluid mechanics. His research areas now became the seas and oceans. The framework for these studies was provided by international and inter-ministerial research programmes. They included experiments at the shore station of the Bulgarian Academy of Sciences, near Varna, organized as part of the former COMECON states' "World Ocean" programme. They were a continuation of the research at Lubiatowo.

Despite the efforts of Prof. Druet and others, Polish oceanology was still beyond the mainstream of world oceanology. The breakthrough eventually came in the mid-1980s, when he succeeded in ensuring Poland's participation in the international oceanographic "Greenland Sea Project". He became an observer to that project's Programme Council. The moment was well chosen: the Institute had just acquired from the shipyard its brand new ocean-going research vessel "Oceania". This turned out to be the trump card in favour of Poland's taking part in the programme. Since then, Polish oceanology has never looked back: Polish oceanologists have become permanent members of the teams of scientists exploring the European Arctic, and their already considerable contribution to Arctic exploration continues to expand.

As the Institute of Oceanology's research interests turned towards large-scale processes in the oceans, so did the Professor's own scientific interests. He became absorbed by problems relating to the stratification of hydrophysical fields in the ocean, a fascinating geophysical issue of fundamental significance for life in the sea. The studies of Prof. Druet and his team led to the discovery of a number of relationships characterizing fine-scale inhomogeneities in temperature and salinity fields. The papers co-authored by Professors Druet and Zieliński were published in major international journals.

Prof. Druet never wanted his writings to end up on the shelf, so to speak. Quite the contrary: he was always willing to share his results and achievements with the scientific community. He wrote more than 100 publications and several books, which to this day constitute the main source of knowledge about the sea in the Polish subject literature. Suffice it to mention "Marine Dynamics", which he wrote in partnership

with Prof. Zygmunt Kowalik, "The Hydrodynamics of Maritime Structures and Port Basins", and "The Dynamics of a Stratified Ocean". These books are not merely for experts: above all, they have been basic reading for many generations of students of Oceanography, whom Prof. Druet taught for 26 years, passing on to them his abundance of knowledge of dynamic processes in the ocean. Some of those students went on to write masters and PhD theses under his supervision. In 2009, he was awarded the title of Doctor Honoris Causa from the University of Gdańsk in recognition of his services to that institution.

The other important aspect of Prof. Druet's activities were his efforts on behalf of scientific organization. With his undoubted organizational talent and imagination, he strove to have new buildings erected for the Institute of Oceanology, an eminently successful venture, to supervise the advancement of its scientific staff and to acquire a new research vessel, the *r/v Oceania*, which has served marine scientists for more than 30 years. A further field in which he was very active involved the Polish Academy of Sciences and its Gdańsk branch; he was a member of its presidium and its scientific secretary. He was a long-serving member of the Polish Academy of Sciences and also participated in many of the Academy's scientific committees. The Committee for Oceanic Research, which he chaired for many years, remains conspicuous by its intensive activities and great influence on the Polish community of marine scientists.

Internationally, Prof. Druet above all represented Poland on the Intergovernmental Oceanographic Commission (IOC) UNESCO from 1975 onwards, initially as an expert, and later as the Commission's vice-president for oceanographic services and scientific programmes. Until 1982 he was the chairman of its Programme Council, and thereafter the Polish plenipotentiary for working contacts. Nowadays, the IOC is the only formal platform for exchanging views and conducting dialogue in a range of questions that are economically and strategically important to all the world's maritime nations.

Going back to our student days, I recall the Professor's social and sporting activities. Already then he was deeply involved in social matters, especially in the founding, after the Polish October 1956, of the independent student movement at the Gdańsk Polytechnic. From the times when I was the delegate of the Department of Hydroengineering to the GP's Student Parliament, I remember to this day the speeches addressed to that Parliament by its Speaker, who was none other than Czesław Druet. In sport, the Professor – a fencer, swimmer and skier – presided over the Students' Amateur Sports Organization (AZS) for 12 years.

In conclusion, this picture of a scholar, very concerned about the fate of Polish science, and social activist would be incomplete without mentioning his human side. Professor Druet – Czesław, Czesiu to his friends – was first and foremost a wonderful person, husband, father and the best grandfather to his beloved grandchildren. To us, his colleagues and friends, he was always dependable and highly supportive.