

In Remembrance of Professor Henryk Bałuch

Everyone who knew, and even more so, who worked with Professor Henryk Bałuch over the years, perceives his sudden departure as being premature. This conviction is all the stronger the more we think about his irreversible loss. The Professor, with all his creative activity and his constant active involvement within the technical community developing the construction and maintenance of railways, accustomed us to his constant presence, great sympathy and readiness to respond to problems arising in this field and to provide his valuable advice. Until the last moments of his life, despite his fragile health, he worked on solving these complex issues and wrote a great deal on these subjects. Our technical community was deeply convinced that we share a common goal with the Professor. This unifying goal was to quickly improve the condition of railways in Poland along with the development of their construction and maintenance systems. The Professor's involvement in this process was his great and invaluable support for the technical community of railways and the strengthening of its position, which should not be forgotten by future generations.



From the beginning of his professional career, he was a careful observer of the expansion processes of railways, always searching for good solutions. His systematic work on the knowledge arose from this need, starting as an apprentice (1949), then a technician (1952), an engineer (1957) and a fast-developing scientist (professor in 1980). The primary place of his scientific work was the Railway Institute (formerly COBiRTK and CNTK), but he also worked at national universities of technology (giving lectures during post-graduate and doctoral studies, and co-operating with local scientific staff), including recently at the Military University of Technology. At the same time, he worked as an expert at the Committees of the European Rail Research Institute in Utrecht. In the eighties, he coordinated co-operation with the U.S. Department of Transport on behalf of the Ministry of Transport. He held many responsible positions, among others: Chairman of the Transport Committee of the Polish Academy of Sciences, member of the Committee of Civil Engineering of the Polish Academy of Sciences, member of Archives of Transport Program Councils, member of the Central Qualification Committee for Scientific Staff, member of Scientific Councils of several Polytechnic Institutes and Departments. He was the Editor-in-Chief of *Kolejowy Przegląd Drogowy* (Railway Road Review) (later *Drogi Kolejowe* (Railways)), and *Problemy Kolejnictwa* (Railway Problems). For twelve years (1970–1982) he was the Deputy Director of COBiRTK for scientific affairs, and then the Director of CNTK for eight years (1982–1990).

The range of the Professor's scientific interests was wide, starting from the evaluation of railway track geometry and kinematics, through track structure hazards, track geometric systems and track deformations, optimization of the geometric system of turnouts designed for high traffic and high-speed trains, impact of the quality of works on the track structure service life, advisory systems for repairing the track structure, tolerances allowed in the structure, assessment of wheel and track irregularities, and more recently on neural networks as tools for solving problems in the field of railways. He was the author of many monographs and publications in domestic and foreign journals.

The Professor has made significant contributions to improving track structure service life, especially when choosing a heavy-type track structure for the main railway lines in Poland, and implementing it in the production of the Polish steel industry and for operation on the Polish railways (heavy rail, spring fixing of rails to sleepers, pretensioned prestressed concrete sleepers and turnouts on pretensioned prestressed concrete switch sleepers), development of railway diagnostics, optimization of track geometry, improvement of the quality of track structure works and technical staff improvement of the Polish railways.

He presented his scientific output, fundamental for the scientific discipline of railways, in the following works: Durability and operational reliability of track structure (WKŁ 1980), Optimisation of track geometrical systems (WKŁ 1983), Diagnostics of track structure (WKŁ 1985), and Decision support in railways (KOW 1994). In them, he specified the following terms, among others: track structure durability and track structure repair potential. These works will be used for a long time by academics, railway workers in training and students of railways.

The Professor understood perfectly well that theoretical studies can only lead to real results if they are carefully implemented in practice. Therefore, he made great efforts to disseminate the new theories and methods among practitioners. To this end, he initiated and conducted seminars and training sessions in person (e.g. for railway diagnosticians or technical staff in railway decision support methods). He was the concept creator and co-organizer of the cyclical Railroad Conferences (this year the twentieth conference of this series is organized). The Professor defined the objectives of these conferences as creating a platform for co-operation between science and practice through the exchange of views on the results of the latest scientific developments prepared for implementation, and signalling problems that occur in practice and require analyses and scientific studies, or their inclusion in the teaching process carried out at university.

He was particularly involved in the preparation, at the highest level, of technical staff in the field of railways, raising and updating their professional qualifications (lifelong learning), and constant analysis of the proper use of staff in the process of railway operation and transport infrastructure engineering. Studies in the field of railways were organized on his initiative at the Military University of Technology. He was the author of the programmes of these studies, the managing editor of a set of scripts and he was responsible for picking scientific and didactic staff from other scientific centres, and from graduates educated in the course of this activity at the Military University of Technology.

The Professor was a forefather of many topics to be developed in the course of the doctoral dissertation process and was later a supervisor or an expert. An army of these experts strengthened and facilitated the work of the Institute, a number of technical universities in Poland and abroad, as well as linear and design apprenticeships in Poland.

The participation of this outstanding scientist in technical associations requires special emphasis – especially in the Association of Polish Engineers and Technicians. The Professor was a permanent member of the Program Councils of scientific and technical conferences of the Association, as well as the most eagerly-awaited author of papers at these conferences. He was a member of the Editorial Office or Programme Councils of scientific and technical journals published by the Association. He served as Chairman of the Professional Specialisation Committee SITK RP and was also Chairman of the qualification team for the European Railway Engineer (EURAILING). The Association granted him the title of Honorary Member of SITK RP. Today, in combination with his professional position and scientific achievements, it can be stated that, exceptionally in this case, he brought splendour to the Association, and not the other way round as is the usual case.

He was awarded with: Krzyż Kawalerski (Knight's Cross), Krzyż Oficerski (Officer's Cross) and Krzyż Komandorski Orderu Odrodzenia Polski (Commander's Cross of the Order of Polonia Restituta), medals of the Ministry of National Defence and the Ministry of Transport of the Republic of Poland, a medal of the Commission of National Education and a Gold Medal of the Military University of Technology. He was a rare example of how much can be achieved in one life. He died on 8 March 2020 at the age of 87. All of us lucky enough to come across Professor Henryk Bałuch were left with grief at his loss, but also gratitude for the beautiful example he set and for the opportunity to imitate the attitude of an extremely creative man and for the duty to preserve his memory.

Andrzej Gołaszewski