

## IN MEMORY OF TADEUSZ BASIEWICZ

On 2 October 2016 died **Tadeusz Bronisław BASIEWICZ**, Full Professor. An exceptional scientist. A gifted engineer and exceptionally effective organiser of numerous engineering undertakings. A researcher characterised by an interesting personality, an intelligent, meticulous and methodical person, who always executed his duties with diligence and expected the same from the others. A man who was highly organised, prudent and practical. He was always convinced that everything could be done better. Already at an early stage he proved his comprehension of the necessity of assuring social and political transformations in Poland.

Tadeusz Bronisław Basiewicz was born on 16 September 1927 in Kielce. The childhood and the beginning of his education in school took place in the period of the Second Republic of Poland. In front of his family house there were railway tracks. Perhaps this could have been a symbol for his further life, which remained strictly bound with the railways?

He started his education in 1934. Just before the outbreak of World War 2 Mr. Basiewicz graduated from class 5 of Elementary School. During the occupation he worked as an underage worker in the Ludwików Mill in Kielce and continued education in the factory vocational school, thanks to which he was later on able to graduate from elementary school and keep attending the middle school.

In 1947 he commenced studies in the Faculty of Civil Engineering of the Krakow University of Technology where in 1952 he obtained a master diploma of engineer of civil engineering. His work was promoted by Roman Ciesielski (later on a most renowned professor). During the fourth year of study Tadeusz married Hanka, and following obtaining diploma they moved to Warsaw to live together. He remained bound to Halina until the end of his life.

Following graduation he started work in the PKP Railway Project Office in Warsaw. Already in the initial stage of his work he became interested in problems related to railway transport infrastructure, and in particular to its adaptation to higher speeds and heavier loads. In 1953 on the recommendation of the promoter of his master thesis, Tadeusz Basiewicz left to the Soviet Union for doctoral studies in the Moscow Theological University. In 1956 he obtained a diploma with a PhD degree in Technical Sciences. After returning to Poland in 1957 he became employed in the Railway Scientific and Technical Institute in Warsaw (later names included the Central Research and Development Centre for Railway Technologies, Railway Scientific and Technical Centre, and at present – the Railway Institute).

The process of intense reconstruction of the Polish railway system following the destruction sustained during World War 2, which was taking place in the 1950s, was facing a severe problem of the lack of timber that has been traditionally used for the production of railway sleepers. Due to this situation it became necessary to look for new solutions, all the more as in a few countries trials were being commenced with concrete sleepers. The Polish railways also faced the same problem. Although first trials involving the use of concrete sleepers were taken up in Poland in the years 1946-1951, the operating effects of the hitherto adapted solutions proved not to be fully satisfactory. Consequently in the 1950s the development of a suitable paving structure on concrete sleepers became the most important task for the Polish railway sector. Tadeusz Basiewicz, a young man at the time, felt called to find a solution to this problem. He already held his PhD degree in

technical sciences. As an effect of own several evaluation studies and research and development assignments, he developed a few versions of such sleepers, and in such a way created grounds for the development of this structure, which is now in general use in PKP railway tracks. This made him practically the founder of the railway paving structure on concrete sleepers in Poland.

In 1957 his first publication was published, and namely "*Praca statyczna podkładu blokowego z łącznikiem oderwanym od podsypki*" [*Static operation of block sleepers with bus coupler separated from bedding*]. Subsequent publications included: "*Wpływ trwałych nierównomiernych odkształceń podłoża na podkład z betonu sprężonego*" [*Impact of lasting uneven deformations of the subgrade on sleepers of pre-stressed concrete*] (1958)", "*Struny profilowane w zastosowaniu do sprężania betonu*" [*Profiled pre-stressed tendons used for pre-stressing of concrete*] (1959)" and "*Uogólniony model nawierzchni kolejowej i jej obliczanie*" [*General model of railway paving and its calculations*] (1959)".

His book entitled "*Tor kolejowy na podkładach betonowych*" contains systematised knowledge concerning track structure on concrete sleepers, as well as a discussion of the difference existing between working on a track provided on wooden and concrete sleepers. This book was written to a large extent on the basis of own work conducted in Poland.

In 1960 at the age of 33, Tadeusz Basiewicz was appointed Deputy Director for Research and Development in the Centre for Research and Development of Railway Technology. This decision had a considerable impact on the operation of the Centre, as well as on his personal research development. Acting as Director, he not only supervised, but also personally conducted diverse research and study works. Under his management COB and RTK commenced to change the profile of its operation. Tadeusz Basiewicz co-organised and supervised the construction of a modern research base on the area of Olszynka Grochowska (presently the seat of the Railway Institute).

In 1964 Tadeusz Basiewicz was awarded the degree of habilitated doctor of technical sciences in the Warsaw University of Technology. In that period as the research base situated in Olszynka Grochowska started to develop, numerous new employees came to the Centre, especially young graduates of technical schools. Tadeusz Basiewicz, who was director in those schools, has personally began to prepare them for future research work. He was very kind towards his co-workers and helped them to advance their engineering and research talents. As he made assessments of their scientific achievements, he was always a very strict but completely objective adviser. Under his supervision also doctoral theses have been devised, for which he acted as promoter.

As regards high speeds, a valuable doctoral thesis was devised by Henryk Bałuch entitled "*Badanie konstrukcyjno-geometrycznych nierówności poziomych toru kolejowego*" [*Studies of structural and geometric horizontal unevenness of the railway track*] (1965). This doctoral dissertation became a beginning of further development of numerous valuable studies performed by Mr. Bałuch, and in a short period he was able to obtain the title of Full Professor. It should also be emphasised that works carried out by Tadeusz Basiewicz related to issues of structural and strength properties of railway paving as well as works of Henryk Bałuch related to diagnostics and maintaining of this pavement mutually supplement each other and constitute a great joint contribution of scientific knowledge to the development of the railway sector. As both were gifted with exceptional teaching talents, they managed to educate numerous railway engineering specialists

As regards issues of the S-60 paving, Mrs. Wanda Bonkowicz - Sittauer devised a study entitled "Wpływ sztywności nawierzchni kolejowej na proces powstawania deformacji w eksploatowanym torze" [Impact of railway paving rigidity on occurrence of deformations in a track under operation] (year 1970).

One of the postgraduate students of Tadeusz Basiewicz was Włodzimierz Czyczula, a present Full Professor, later Head of the Faculty of Railway and Air Transport Infrastructure at the Institute of Road and Railway Engineering of the Kraków University of Technology, and later on the Vice-Rector of this University.

Professor Basiewicz has also reviewed numerous doctoral and habilitation dissertations.

The effects of works that were directed by him, executed directly by him or in which he cooperated in the period of his work for COB and RTK include: • Studies carried out with respect to high speeds, which served as basis for the determination of preliminary data for the design of the Central Railway Line Śląsk - Stolica - Porty. • Complex studies related to railway paving served as basis for the deployment in PKP of the S-60 heavy paving. • Works related to non-traditional paving served as a basis for formulation of criteria, which should be met by the slab track. Tadeusz Basiewicz developed a concept for such a pavement, which was at a later time implemented in the Central Railway Station in Warsaw. This paving has been in use for over 40 years.

In 1970 Mr. Tadeusz Basiewicz was appointed Director in the Central Railway Construction Design and Research Office, and fulfilled this task for a period of ten years. Thanks to his great involvement, extensive knowledge and openness to innovative techniques, the "KOLPROJEKT" Central Railway Construction Design and Research Office has undergone significant transformations. Modern management systems and computer design technologies have been deployed. A new designing quality was created. In the years 1970 - 1980 KOLPROJEKCIE executed design studies of considerable significance for railway transport and for the whole Polish economy. Successful projects executed by him in that period comprise in the first place: • The Central Railway Station in Warsaw • CMK – the Central Railway Line • the Broad Gauge Metallurgical-Sulphuric Line and many other facilities of particular importance for the railway sector.

In recognition of his considerable contribution to the development and modernisation of PKP infrastructure and significant research achievements, Tadeusz Basiewicz was awarded with high honours: Officer's Cross of the Order of Polonia Restituta (1976) and the Commander's Cross of the Order of Polonia Restituta (1979).

Versatile professional skills of Professor Basiewicz as researcher, engineer and organiser provided grounds for his delegation to perform works in Libya. He stayed there in the years 1980-1983, where on behalf of "DROMEX" he coordinated the work of Polish companies specialised in building motorways. Furthermore, based on a power of attorney entrusted by the Libyan Government, Mr. Basiewicz also carried out conceptual works connected with the planned construction of the railway line connecting Libya and Tunisia

In 1990 Tadeusz Basiewicz was awarded the title of Full Professor. He is an author or co-author of 10 books or academic textbooks and an author of over 100 publications in the field of transport infrastructure. Some of them have been published in foreign magazines.

In the years 1995-2000 Mr. Basiewicz headed the Technical and Economic Board of the PKP General Directorate. However, under his management this body a need arose of the technical and IT development of operating processes of PKP.

Professor Tadeusz Basiewicz was an active participant of research organisations and publishing houses of a research and technical profile. For fourteen years he was a member of the Presidium of the Civil Engineering Committee of the Polish Academy of Sciences. He also acted as Chairman of the Communication Engineering Section of this Committee. He was member of the Transport Committee of the Polish Academy of Sciences for three terms of office. In the years 1964-1974 Mr. Basiewicz was a member of the State Prizes Committee. In the years 1966-1970 he was the Editor-in-Chief of "Problemy Kolejnictwa" [*Problems of Rail Sector*] and in the period of 1978-1980 was a member of the Editing Board of the Archive of Civil Engineering of the Polish Academy of Sciences. He held the function of the Editor-in-Chief of the monthly magazine "Przegląd Komunikacyjny" [*Transport Review*]. In the years 1975-1978 he was member of the Programme Board of a series of 22 books "Inżynieria Komunikacyjna - Wydawnictwo Komunikacji i Łączności" [Transport Engineering]. He was also an Honorary Member of the Association of Communication Engineers and Technicians.

At a crucial stage of forming a new scientific discipline, and namely transport, Professor Tadeusz Basiewicz formulated a definition of this new discipline, and in such a way provided a foundation for its further development. Recognising the civilizational role of transport, he also noticed the possibility of its further advancement by optimisation of the passenger and cargo services with the use of diverse transport means. He established the Unit of Infrastructure and Transport, which Mr. Basiewicz headed in the years 1983-1999, in the Department of Transport of the Warsaw University of Technology. In this department he promoted a few diploma dissertations.

In 2000 Professor Tadeusz BASIEWICZ was awarded with the medal of the National Education Commission. His scientific achievements were recorded in the Golden Book of Technical Sciences.

We have lost a GREAT MAN, always given considerable consideration and commonly liked by everybody. This may be proven by numerous Diplomas and Congratulatory Letters, which he obtained for his long term and dedicated work.

Co-workers and friends

**Marian Fijalek, Andrzej Gołaszewski and Stanisław Zimnoch**