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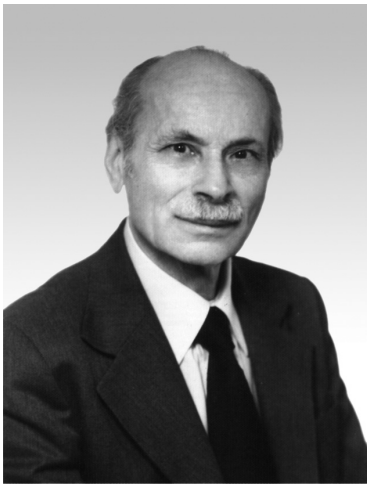
PROFESSOR JAN ODERFELD (1908-2010)

A TRIBUTE ON THE OCCASION OF UNVEILING THE COMMEMORATIVE PLAQUE AT WARSAW UNIVERSITY OF TECHNOLOGY



Prof. Jan Oderfeld, 1979

Jan Oderfeld, son of Stanisław and Maria, née Drzewocka, was born in Częstochowa, Poland, on February 19, 1908. His father, Stanisław Oderfeld, was a chemist with a PhD degree in technical sciences, and a co-owner of the printing and paper-making plants known as the Oderfeld & Kohn Printing House. In his childhood, Jan, who frequently observed the printing process in

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his father's plants, became fascinated by mechanical engineering. He graduated from the Henryk Sienkiewicz Lyceum in Częstochowa in 1924, and in the same year entered the section of General Mechanics of the Faculty of Mechanical Engineering, Warsaw University of Technology. He obtained the diploma of Mechanical Engineer in 1930. In 1926, while still a student, Jan Oderfeld underwent training in the Ammunition Producing Plants "Pocisk" (*Bullet*) in Warsaw, where he took part in the construction of a prototype of the bi-rotational aircraft engine designed by Eng. Henryk Brzeski. This work evoked his interest in aviation technology. In the years 1928-29, during extended industrial training, Jan Oderfeld worked in the Machine Tool Plants "Pionier" in Warsaw, where he familiarized himself with organization of labour and work time standardizing in industry.

After obtaining the degree of Mechanical Engineer in 1930 and doing his military service, Jan Oderfeld found himself temporarily unemployed. However, thanks to a lucky coincidence, a technical team was formed at that time (consisting of Jan Oderfeld with two colleagues from the army, Eng. Władysław Bernadzikiewicz and Eng. Józef Sachs), to undertake the ambitious task of developing a reaction engine. The team was initially supported financially by Mr. Julian Machleid (then the managing director of the Haberbusch & Schiele Brewery in Warsaw), then received a modest donation from the Polish Engineering Plants (Państwowe Zakłady Inżynierii). Working in the mechanical workshop of the Brewery, they designed and constructed Poland's first large model of the turbo-reaction engine. Then, in 1933, the three engineers continued their work in the Experimental Workshop of National Engineering Plants "Ursus" constructing Poland's first pulsejet engine, called "the ramjet", whose principle of operation was the same as that applied in contemporary pulsejet engines. A reconstructed model of this engine is now exhibited in the Museum of Technology and Industry in Warsaw. Unfortunately, due to the lack of funds, continuation of work on the development of aircraft reaction engines became impossible.

In 1933, Jan Oderfeld married Maria, née Poznańska, a Polish-Italian translator. Their daughter, Barbara, born in 1937, is now an Emeritus Professor at the Nencki Institute of Experimental Biology in Warsaw.

From 1932 until the outbreak of the Second World War (1939), Eng. Jan Oderfeld worked for the Škoda Engine Works in Warsaw (later renamed the Polish Aviation Plants, PZL). He was initially employed as a process engineer-designer; consequently, in 1934 he was transferred to the Design Office. In autumn of 1934, he joined the team designing an eight-cylinder reversed-V combustion engine, named "Foka" (*Seal*), of take-off power 450 H.P., destined for the propulsion of the first Polish multi-role combat aircraft "PZL 38 Wilk" (*Wolf*). After the tragic death of the team leader Eng. Stanisław

Nowkuński in July 1936, Jan Oderfeld took over his position. He solved several constructional problems and contributed to removing some imperfections of the prototype in the advanced stages of development (7 prototypes had been constructed by the end of 1938). Jan Oderfeld also worked on the development of an improved, twelve-cylinder version of this engine, of 600 H.P. Parallel to this activity, working in collaboration with Eng. Józef Sachs, he carried out research on an internal-combustion turbine, as a result of which he obtained several patents concerning the construction and examination of internal-combustion turbines and engines. Among other things, he developed an innovative fuel-injection system for aircraft piston engines. In the years 1937-1939, Jan Oderfeld lectured on Aircraft Engines at the Warsaw Airforce Cadet Academy.

During the Second World War, Jan Oderfeld lived in Skierniewice (Central Poland) and worked as a manager of the mechanical workshops of the Farmers' Cooperative "Rolnik" (*Farmer*). Initially, the activity of the workshops was limited to repairing agricultural tools and machinery. Under the management of Eng. Oderfeld, the workshops extended to a large-size enterprise employing over 100 people. (This enterprise, later named the Plants for Agriculture and Horticulture Mechanization "FUMOS", Ltd., is currently being liquidated). Jan Oderfeld and his co-workers were involved in underground activity in cooperation with the Home Army in Poland against Nazi occupation. It is worth mentioning that in 1974 Prof. Jan Oderfeld was decorated with the Medal for Meritorious Employee of the "FUMOS" Plants.

Jan Oderfeld began his academic career in 1945, immediately after the end of the Second World War. In the years 1945-49, he was employed at the Wawelberg & Rotwand Polytechnic School of Mechanical and Electrical Engineering in Warsaw as an Assistant Professor and Chair of the Department of Aircraft Engines. Since 1949 he has been associated with the Warsaw University of Technology, initially as an Assistant Professor, then an Associate Professor (from 1955) and a Full Professor (from 1961). In 1954 he became Chair of the Aircraft Engine Department, but in 1955 was forced to resign from this post. In the same year he established the first Polish Department of the Theory of Machines and Mechanisms (it still exists under the name of the Division of the Theory of Machines and Robots at the Institute of Aeronautics and Applied Mechanics at the Faculty of Power and Aeronautical Engineering, Warsaw University of Technology). In the years 1964-1966, Professor Oderfeld held the position of Dean of Faculty.

Parallel to his work at the Warsaw University of Technology, Jan Oderfeld held a number of responsible positions in several institutions, organizations and enterprises. In the years 1945-1951 he collaborated with the Polish Nor-

malizing Committee (today the Central Office of Measures), where he acted as General Secretary, and in the years 1948-1951 held the position of General Director. In 1946, Jan Oderfeld was invited by the British Council to visit Great Britain, where he familiarized himself with normalization based on statistical quality control methods. This experience helped him to solve practical problems he later encountered. One such problem, submitted to the Normalizing Committee by the Army, was the postulate that 90% of ready-made uniforms must fit without alterations. Jan Oderfeld organized a committee including, among others, Professor Hugo Steinhaus, Jan Czekanowski and a well-known Warsaw tailor Elert, aimed at developing an appropriate norm for these products. Based on investigations carried out within the committee, Jan Oderfeld, whose supervisor was Professor Hugo Steinhaus, prepared his doctoral thesis entitled "Statistical acceptance of goods according to the duality principle", and obtained his PhD degree from Wroclaw University in 1951. Together with Prof. Hugo Steinhaus and Klemens Wiśniewski, they developed the first Polish Norm on statistical quality control of industrial products (PN/N–03001). In the years 1951-1954 Dr. Jan Oderfeld lectured on statistical quality control at the Central School for Planning and Statistics (presently the Warsaw School of Economics, the SGH).

Professor Hugo Steinhaus and Professor Jan Oderfeld attending a ceremonial session of the Faculty Council of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology on 9th November, 1966. The session was devoted to commemorating the jubilee of 35 years of scientific and professional work by Prof. Oderfeld.

In the years 1946-1960, Jan Oderfeld acted as a Polish representative in the International Organization for Standardization (ISO), where he effec-

tively promoted the introduction of the International System of Units (SI). In the years 1951-1974 he was employed at the Institute of Mathematics of the Polish Academy of Sciences, where he directed the team for statistical quality control, and then headed the Department of Industrial Applications. Together with Prof. Hugo Steinhaus, he created the scientific journal „Applicationes Mathematicae" in 1953, acting as its Deputy Editor and then Editor-in Chief. In the years 1951-1961 Prof. Oderfeld worked as the Chief Designer at the Transport Equipment Plants (the WSK) in Warsaw. Together with Eng. Wiktor Narkiewicz, he invented special magnetic memory drums, patented in 1967, which were serially produced by the ELWRO Computer Plants in Wroclaw till 1970, and became the standard device applied in computers produced in all COMECON Countries.

Professor Jan Oderfeld was an elected member of the Committee for Mechanical Engineering of the Polish Academy of Sciences in the years 1951-1992. Thanks to his efforts, the quarterly Archive of Mechanical Engineering (Archiwum Budowy Maszyn) was brought into being in 1954, and developed into an internationally-recognized scientific periodical. Prof. Oderfeld was the Editor-in Chief, and then a Co-Editor of the magazine in the years 1954-1991. On his initiative, the magazine's language was soon changed into English. Professor Oderfeld was also an active member of many teams and committees of the General Technical Organization (currently the Polish Federation of Engineering Associations – NOT). For many years he was an initiator and organizer of Technical Sciences Olympiads for talented high-school students. From 1932, till the end of his life, he was a member of the Warsaw Scientific Society (the Societas Scientiarum Varsoviensis).

Professor Oderfeld creatively developed the theory of machines and mechanisms, especially in the field of classification and kinematics of mechanisms, and the fundamentals of experiments in the mechanics of machines; he was a world pioneer in the application of optimization in technology. During his long scientific career, Prof. Oderfeld published over 200 works, including 15 monographs, academic manuals and textbooks. Among them are "Theory of machines and mechanisms" (1987) and "Statistical methods in experimental investigations" (1990), of everlasting educational and scientific value.

Thanks to his initiative, in September 1969 Poland acceded, as a founding member, to the International Federation for the Theory of Mechanisms and Machines (currently exists under the name of the International Federation for the Promotion of Mechanism and Machine Science, the IFToMM). Professor Oderfeld was a long-time member of the Federation Board, and in 1995 was granted the prestige of an Honorary Membership of the IFToMM.

Professor Oderfeld was an outstanding academic teacher, highly valued by his students. During over 50 years of educational activity, he was involved in the teaching of many generations of army officers and engineers. He supervised 10 doctoral theses and numerous works for MSc and Engineer degrees. His favourite saying was that "Engineering theory and practice aren't separate domains; there exists only one, common art of engineering".

Professor Jan Oderfeld surrounded by his successors from the Department of Theory of Machines and Robots at the beginning of the Third Millennium.

Professor Oderfeld was not only an outstanding engineer, he also was a humanist – a connoisseur of literature and the arts, especially of classical music, with a particular predilection for Wolfgang Amadeus Mozart.

For his life achievements Professor Oderfeld obtained many awards and distinctions. Among the most important are the Cross of the Order of Polonia Restituta, Officer Grade, awarded in 1964, the Medal of the Commission for National Education awarded in 1976, and the honorary distinction "Skrzydła Puławskiego" (Pulawski's Wings) awarded by the Aviation Section of the Association of Polish Mechanical Engineers in 1986. He obtained numerous prizes, among them the 1st degree Prize of the Minister of Higher Education awarded in 1963 and 1978. On 19th February 2008, on his hundredth birthday, he was honoured with the title of *Doctor Honoris Causa* of the Warsaw University of Technology.

Professor Oderfeld giving a speech at the ceremony in which he was awarded the title of *Doctor Honoris Causa* of the Warsaw University of Technology on his hundredth birthday on 19th February, 2008

Professor Jan Oderfeld died on 17th March 2010, and was buried at the cemetery of the Polish Evangelical Church of the Augsburg Confession, in Młynarska Street in Warsaw. Commemorative plaques dedicated to Professor Oderfeld were unveiled on the building of the Henryk Sienkiewicz Lyceum in Częstochowa (in Aleja Najświętszej Maryi Panny 56) on 15th June 2012, and in the A2 auditorium of the Aeronautics Building of the Warsaw University of Technology (24 Nowowiejska str.) on 21st November 2015.

The commemorative plaque to Professor Jan Oderfeld unveiled in the A2 auditorium of the Aeronautics Building of the Warsaw University of Technology on 21st November, 2015

The materials documenting the life and activity of Professor Oderfeld are deposited in the collection of archival iconographical materials of the Museum of Aviation in Cracow, and in the collections of the Museum of Warsaw University of Technology.

English translation by Dr. Lech K. Śliwa

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Profesor Jan Oderfeld (1908-2010).
Wspomnienie z okazji odsłonięcia tablicy pamiątkowej na Politechnice Warszawskiej

S t r e s z c z e n i e

Absolwent Wydziału Mechanicznego Politechniki Warszawskiej (1930), współtwórca pierwszych w Polsce działających modeli silników odrzutowych: turbinowego (1931) oraz pulsacyjnego (1933). Od 1932 r. pracował w Wytwórni Silników Skoda – PZL, gdzie współuczestniczył w projektowaniu, budowie i badaniu nowoczesnego lotniczego silnika rzędowego. W latach 1937-1939 wykładał przedmiot *Silniki Lotnicze* w Warszawskiej Szkole Podchorążych Lotnictwa.

Po wojnie początkowo wykładał w Wyższej Szkole Inżynierskiej im. H. Wawelberga i S. Rotwanda, a następnie od roku 1949 na Politechnice Warszawskiej, gdzie od roku 1955 do emerytury w 1978 r. był kierownikiem Katedry Teorii Maszyn i Mechanizmów a 19 lutego 2008 r., z okazji setnej rocznicy urodzin, został uhonorowany tytułem *Doktora honoris causa*.

Był twórcą polskiej szkoły TMM i współzałożycielem (1969) Międzynarodowej Federacji Teorii Maszyn i Mechanizmów. W latach 1945-1951 pracował także w Polskim Komitecie Normalizacyjnym, gdzie był twórcą polskiego systemu norm i promotorem statystycznej kontroli jakości wyrobów w przemyśle – w tej dziedzinie doktoryzował się w 1951 r. W latach 1951-1974 działał też w PAN, gdzie prowadził grupę zastosowań matematyki. Był inicjatorem utworzenia w 1954 r. i współredaktorem kwartalnika *Archiwum Budowy Maszyn* (obecnie: *Archive of Mechanical Engineering*). Był aktywnym członkiem Naczelnej Organizacji Technicznej, w tym inicjatorem i aktywnym współorganizatorem Olimpiad Wiedzy Technicznej dla uzdolnionych technicznie licealistów.