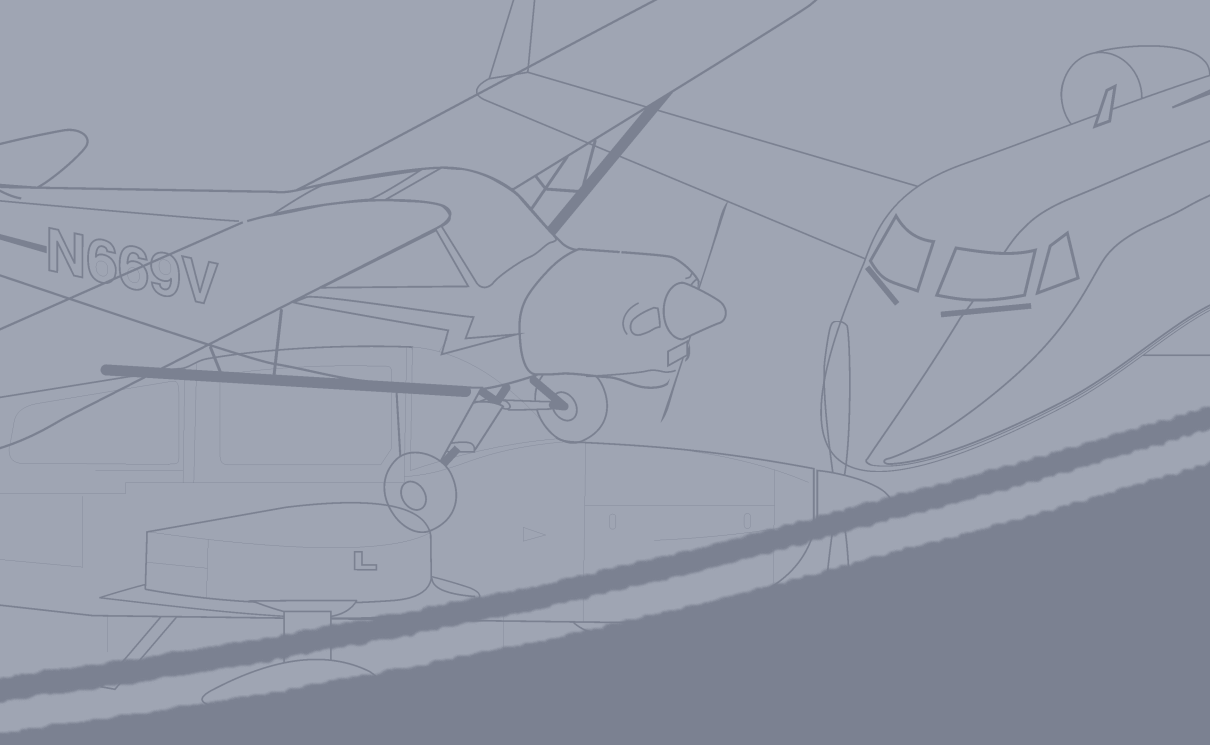

Jan Oderfeld. Scientist and Jet Aircraft Engine Pioneer

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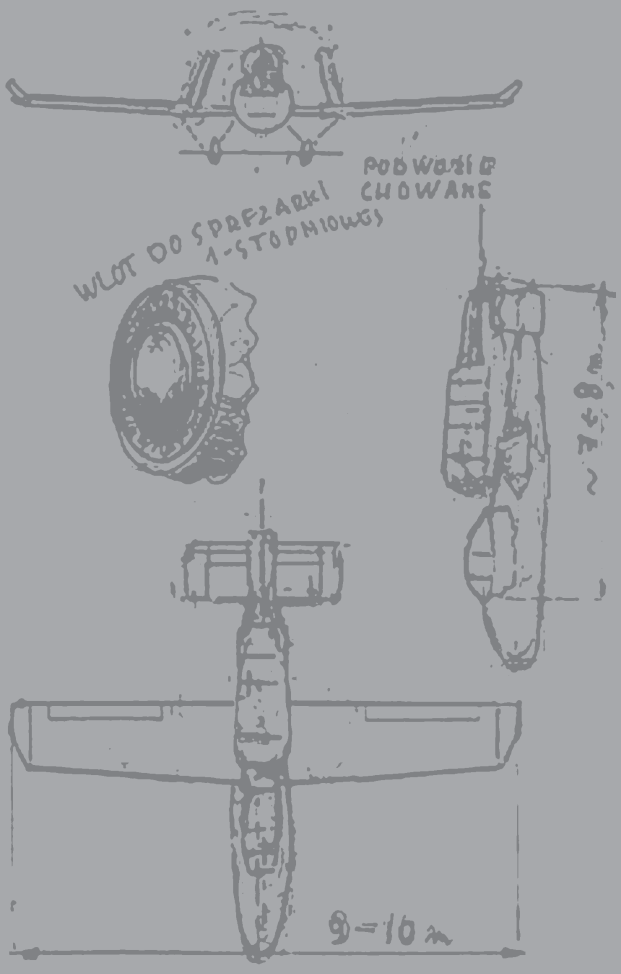
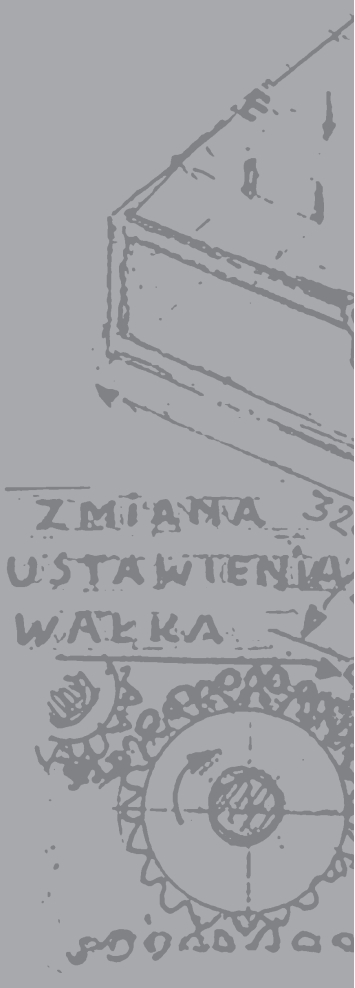
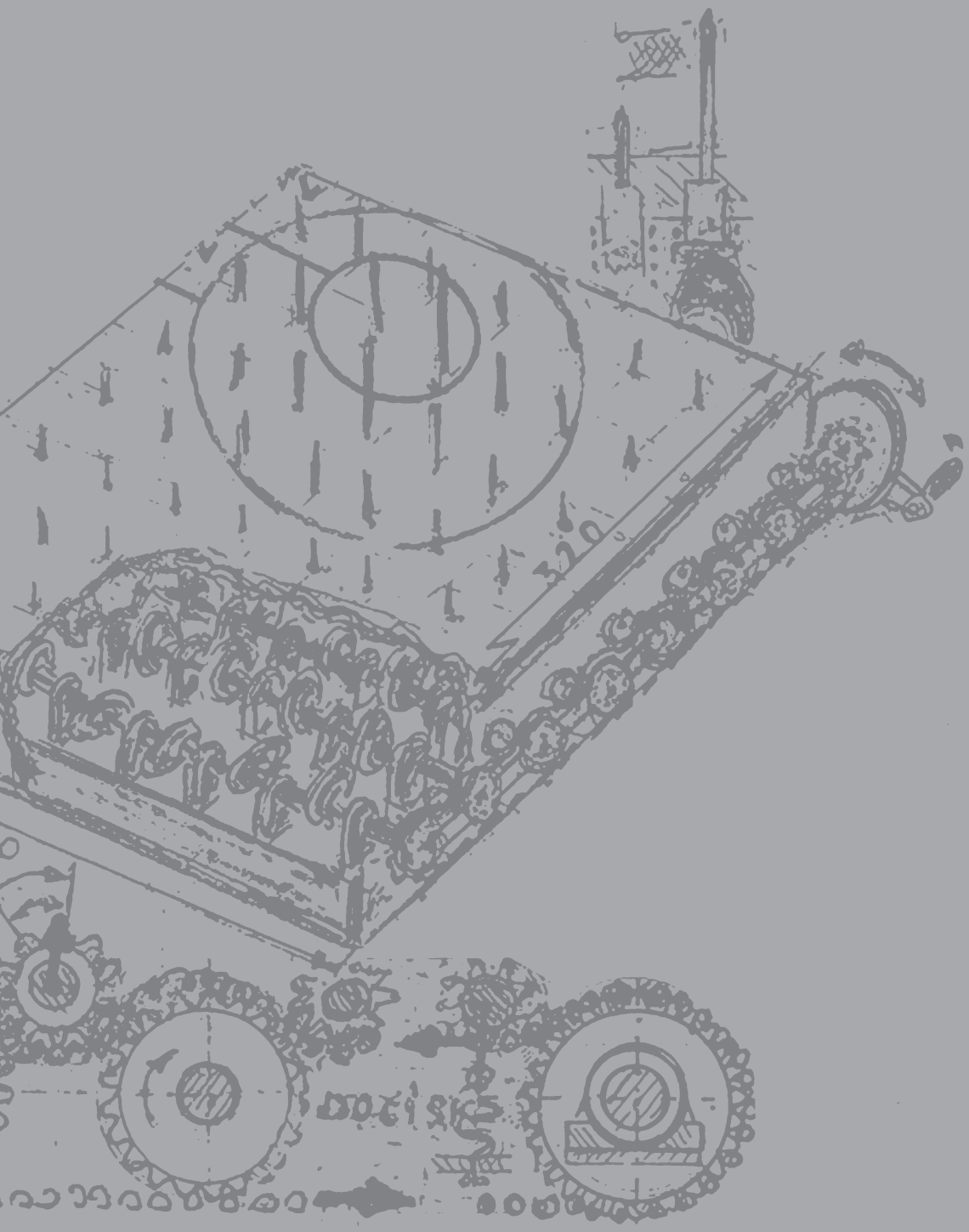






Aviation: An Incurable Virus

Bohdan Jancelewicz

In his quest for safety and stability for himself and his troop, a legendary knight known as Chestoch (Częstoch?) founded a settlement in the first years of the 12th century on a river near some small hills. The name of the knight is specified in a papal protective bull issued by Innocent II and dated July 7, 1136.

That river – today called the Warta – is now the site of the Jasna Góra Monastery. Historians consider a document from 1220 to contain the first mention of a locality named Czanstochowa. In it Iwo Odrowąż, Bishop of Cracow, ordered the payment of tribute by the localities it listed. A second village in the hills near Częstochowa was specified at that time as Częstochówka. In the years 1370–1393 this area was a fief of Władysław Opolczyk [Vladislaus II of Opole] who, in performance of orders from his liege lord, King Louis the Hungarian, made several significant decisions in 1382. First, in June of 1382, he brought in a dozen monks from Hungary to Poland and endowed them with a small timber church. It is there that he settled the newly created Order of Saint Paul the First Hermit. On August 9th he issued a charter that is found in the archives of the Jasna Góra Monastery to this very day. He then conveyed care over a painting of the Blessed Mother of God brought from the castle in Bełżec to the Order. That painting was revered by the faithful of the Roman Catholic Church and renown for miracles. News of such events spread throughout the country as well as to neighboring lands. It even reached the seat of the papacy. This resulted in an influx of pilgrims. With pilgrims came growth in the revenues of the Częstochowa Pauline Order. As time passed this became a sticking point with the authorities of the more slowly developing town of Częstochowa. The advantageous location

on the road of the Cracow–Poznań–Kalisz trade route favored the municipal economy, but also attracted adherents of easier schemes for getting rich through robbery and banditry. There was no lack of such occurrences in the history of Częstochowa. Fortifications were erected, especially around the hill built-up by the monastery. Known for colorful descriptions from the period of the Swedish invasions as born of the amazing imagination of Henryk Sienkiewicz, though historically exaggerated, they have their social import. Even today, the "Defense of Częstochowa" is considered synonymous with exceptional bravery. The proactive monastery looked over local development and the village was granted a municipal charter in 1717 under the name Nowa Częstochowa [New Częstochowa]. Further efforts to connect the two towns into a single organism resulted in the formal creation of the single town of Częstochowa in August of 1826. Its main street, linking both population centers, was the Virgin Mary Avenue. It was laid out in 1819. In terms of population, Częstochowa found itself in the group of the four largest cities in the country. The importance of such a city also increased rapidly thanks to the routing of one of the first railroad lines in Poland through it. This was accompanied by an increase in the intensity of residential tissue, mainly along the new street connecting the two centers.

Furthermore, the monastery undertook editorial work as early as the beginnings of the 17th century, which was of importance not only in terms of its own needs. A printing house was built. Its publishing profile was not limited to religious texts, such as prayer books.

Although the first major editorial achievement of this publishing house was the *Akademia Pobożności* [Academy of devotion], a 720-page work by Mikołaj Mościcki published in 1628, the year 1707 saw the appearance of the *Compendium Medicum*, a scientific dissertation almost 500 pages in length with numerous illustrations. This publishing house found itself under the special care of King Augustus II. The role of the printing house in propagating Polishness was nationwide in character as huge masses from the entire country thronged to Jasna Góra in pilgrimage. People learned to read thanks to textbooks on the Polish language printed in this Jasna Góra center. Following the fall of the January Uprising the Jasna Góra monastery found itself in the hands of the Tsar's repressive authorities that strove to extinguish the political activities of the publisher and print house. In 1864 the print house of Jasna Góra was closed down and the publisher liquidated.

The development of the crafts and industry in the early 1870s had a rather slow start in Częstochowa. One of the first significant ventures was the startup of a printing house and lithographic workshop in 1869. The initiator and creator of this venture was Berek (Wilhelm) Kohn who arrived there from Wieluń and collaborated with **Adolf Oderfeld**, the owner of the lithography company. The technological foundations for equipping this plant were the machines of the former Jasna Góra printing house that the businessmen purchased from the Tsarist authorities and installed at new premises at No. 30 Teatralna Street. The *Monografia przemysłu częstochowskiego* [The industry of Częstochowa: A monograph] by Wincenty Szatkowski, published in 1914 by the *Gazeta Częstochowska* [Częstochowa Gazette], includes a copy of an advertisement of the company as well as an original text on the printing house, lithography plant, and colored paper mill.

Drukarnia, Zakład Litograficzny i Fabryka Kolorowych Papierów

p. f. W. Kohn i bracia Oderfeld w Częstochowie.

Stara to drukarnia, istniejąca w Częstochowie 48-my rok, a więc za lat dwa obchodzić będzie półwiekową egzystencję.

Historja jej prosta; gdy drukarnia Jasnogórska, jedyna w mieście, zwinięta została, nabył ją W. Kohn i przeniósł w ulicę, która dziś zowie się Teatralną. Była to wówczas ulica ciemna, niezabrukowana, wydawnictwa. Wkrótce przy drukarni powstała litografja, która dzięki pięknie wykonanym pracom szybko nabrała rozgłosu i dotąd ma pierwszeństwo przed innemi tego rodzaju zakładami.

Ośm wielkich maszyn litograficznych pośpiesznych, pięć maszyn pośpiesznych drukarskich i 6 ręcznych są nieustannie czynne.

Tuż przy zakładach drukarskich i litograficznych pracujących na eksport, znajduje się introligatornia, wykończalnia etykiet, prasy do złocenia, tłoczenia, stemplowania, maszyny do krajania papieru, wreszcie własna stereotypja.

Uwagę zwraca zmywalnia kamieni litograficznych specjalnym preparatem, nie niszczącym kamieni.

Firma ta nieustannie się podnosiła, a gdy zamieniona została we współkę, pobudowano specjalny gmach, w którym zastosowano wszelkie najnowsze wynalazki specjalnie w dziedzinie litografji, wprowadzono specjalną fabrykację torebek na nasiona, wypuszczać poczęto obrazki dla dzieci 9-cio kolorowe, przygotowując oryginały na cynkowych blachach.

Siedmdziesiąt t. z. „Gletów“ glansuje papier, kolandry satynują go, dalej widzimy w ruchu nieustannym szczotki, które po wijącem się długą wstęgą papierze rozprowadzają farbę i kolorzują go. Rolki kolorowego papieru wiją się po olbrzymiej sali, która centralnie ogrzana suszy ukolorowany papier. Ruchomy aparat, t. z. „Perpetuum mobile“ wysyła papier odpowiednio przygotowany do krajania. W oddzielnym lokalu papier jest marmurkowany ręcznie, w oddzielnej chodząca na pola i ogrody, kończąca się tam, gdzie dziś stoi dom p. Eberta. Drukarnia ta przyjęła jednocześnie różno wydawnictwa, wychodzące dawniej nakładem klasztoru. Nowonabywca drukarni, okazał się niezwykle ruchliwym, wypuszczał w świat mnóstwo książek, które miały duże powodzenie. Tam też drukowano wszystkie roboty t. z. akcydensowe oraz ulotne

sali maszyna do torebek automatycznie wyrabia ich 15 tysięcy sztuk dziennie.

Papier do zawijania cukierków musi być parafinowany; tę czynność wykonuje znowu specjalna maszyna. Dalej idą rozmaite urządzenia mechaniczne, które nas wiodą do kotłowni, gdzie kocioł parowy 90-metrowy dostarcza zakładom gorącej wody oraz pary do ogrzewania. Maszyna parowa ma 100 koni siły. Z kotłowni udajemy się do kuchni chemicznej, przeznaczonej specjalnie dla farbiarni papieru i litografji. Tu mieści się też oddział marmurkowy ręczny, piwnica z farbami, które chemicznie przygotowuje dr. Stanisław Oderfeld. Wylewanie wody zużytej z beczek, odbywa się za pomocą specjalnie obmyślonej dźwigni.

W zakładach firmy Kohn i br. Oderfeld pracuje stale 180 do 150 ludzi.

Zaznaczyć tu jeszcze należy, że rodzina Kohnów pochodzi z Wielunia, i tam znaną była już z drukarni, która istniała od 1863 roku. Po przeniesieniu powiatu do Częstochowy (pow. Wieluński na szawskiej) drukarnia przeniesioną zo do Częstochowy i wówczas też prz karni klasztornej.

Drukarnia ta i litografja, była szkołą dla całego Królestwa Polskie szedł cały szereg dobrze przygotow Z niej wyszedł też słynny malarz m dor, który pierwszej naukę czerpał litograficznej tu w Częstochowie, w nych zakładach.

W. Kohn i Oderfeld
Częstochowa, Teatralna 30.
= DRUKARNIA. =
= LITOGRAFJA. =
Fabryka Papieru Kolorowego.

Copy of a company advertisement and text concerning the printing house and paper mill

Printing house and lithography plant production continuity was guarantied by the heirs of the founders—Jakub Konh and Henryk and Stanisław Oderfeld. Dr. Stanisław Oderfeld, a specialist in chemistry, oversaw the development and implementation of chemical processes in the printing house. On February 19, 1908, a son was born to Stanisław Oderfeld and Eugenia neé Drzewocka Oderfeld. He was given the name Jan.

The first photograph of Jan (Jasio?) Oderfeld with his parents

The Oderfeld family was rather wealthy. Jan did not attend any grammar school. His education was provided for by his parents who employed tutors.

> *I don't know when, as a child, I learned to read. However, I do remember that my beloved mother introduced me to the world of literature, not only Polish literature, but also world literature–obviously translated into Polish… As to the exact sciences, I remember that I had been fascinated by mathematics since childhood. Actually, not mathematics, but arithmetic… My father took it upon himself to fascinate me with chemistry and physics… He made something resembling a laboratory that I visited as a young boy and learned simple processes… I remember certain apparatuses, such as a pneumatic pump. I remember how my father placed a ringing alarm clock under a bell jar and then proceeded to remove the air. The alarm clock was no longer audible… That made an enormous impression on me… That is how things went until I was about seven. It was then that my parents decided that they should employ a professional tutor. Her name was Janina Wrede. I remember her well. In some mysterious way, over the next few months, she managed to apply order to the knowledge I had gained thanks to my parents. She acquainted me with Martin Luther's Catechism.*
>
> *The memoirs of Jan Oderfeld*, manuscript

Ultimately, time became ripe to take up studies at a secondary school. There was only one high school for boys with Polish as the language of instruction in Częstochowa at that time. Jan Oderfeld's father attended that school many years earlier. The official name of the school was Gimnazjum Męskie Towarzystwa Opieki Społecznej w Częstochowie [Częstochowa Boys' Social Care Society High School].

The educational undertakings of that high school have a long history full of important events. In the mid-19th century the buildings of today's school belonged to the Congregation of the Mariavite Nuns who ran a school for girls there. The Congregation was disbanded

and starting with 1862 the buildings housed a *powiat* [county] special school for boys and a four-grade preparatory school as of 1867. In line with the requirements of the Tsarist authorities, its language of instruction was Russian. Ten years later, thanks to the perseverance and stubbornness of the teaching staff, the school achieved the status of a full eight–grade high school. Discontent with the educational policies of the authorities among pupils and teachers resulted in a strike in 1905. The school was shut down. Its operation was resumed starting with the 1915/1916 school year, this time with the permission of German authorities. The school's name – Gimnazjum Męskie Towarzystwa Opieki Społecznej w Częstochowie [Częstochowa Boys' Social Care Society High School] – was restored.

On November 22, 1916, one week after the death of Henryk Sienkiewicz, the school adopted his name as its patron. Upon regaining independence, the school became a public school and its name as of November of 1918 was the Pierwsze Gimnazjum Państwowe w Częstochowie [Częstochowa Public School No. 1].

During the 1918–1921 war years and subsequently during the Third Silesian Uprising, the school buildings also housed a hospital.

The school was officially closed during World War II. However, clandestine classes were held during the course of which approximately 200 high school diplomas were issued. The school underwent several reforms after the war. Organizational stability was achieved with the conferring of the name IV Liceum Ogólnokształcące im. Henryka Sienkiewicza [Henryk Sienkiewicz Preparatory High School No. 4].

The monument to Henryk Sienkiewicz that stands in front of was school was unveiled in 1973. It is the work of the sculptor Stefan

Henryk Sienkiewicz Częstochowa Public School, "Sieniu" in the pupils' slang, 1920

Henryk Sienkiewicz Preparatory High School No. 4, 2014

Policiński (1898–1978), an alumnus of the ASP Academy of Fine Arts in Cracow. He also sculpted the monuments commemorating Stanisław Moniuszko and Gabriel Narutowicz, which also stand in Częstochowa (the latter was subsequently removed).

Over all the years when it was open, the school was considered the best or at least one of the best educational centers for youth. The accuracy of such an assessment is borne out by the school's list of alumni. The examples they provided continue to serve as role models, and not only in Częstochowa. They are continuously being applied in educating successive generations.

Over the 1916/1917 school year, the eight-year-old Jan Oderfeld was accepted to the first grade of that high school.

> *Father said he would sign me up. Obviously not to the first grade, but to the introductory grade because I was only seven and three months. It was the custom that children of that age get signed up for the introductory grade. However, the school secretary, following a cursory examination of my readiness, said: "If he gets assigned to the introductory grade he will be very bored. Moreover, he won't have any friends because they will consider him conceited. Thus, it would be best if he goes straight to the first grade." That is what happened.*
>
> *The memoirs of Jan Oderfeld*, manuscript

However, neither home schooling nor high school had a significant impact on Jan Oderfeld's interest in aviation.

The W. Kuhn and Oderfeld Brothers Printing House prospered. It was equipped with imported machines and production systems that were modern for those times. Those machines, their control mechanisms, and the printing equipment powered by those systems became a subject of fascination for Jan, a young high school student. It may be said that this was the initial source setting in motion the future engineering interests of Jan Oderfeld and his achievements in developing a new scientific field after many years—Machine and Mechanism Theory.

Aviation–related accents had already appeared in Częstochowa. Perhaps, they might have been the result of various illustrated publications printed by the printing house managed by successive generations of the Kuhn and Oderfeld families. Postcards from Częstochowa might be an example. The oldest ones in existence are from 1915, when Jan was seven.

High school education proceeded smoothly, which Jan Oderfeld, already a professor, recalled with gratitude many years later.

The Henryk Sienkiewicz Public School of Częstochowa issued Jan Oderfeld a high school diploma confirming that he completed the


GIMNAZJUM PAŃSTWOWE IM. HENRYKA SIENKIEWICZA

W CZĘSTOCHOWIE

ŚWIADECTWO DOJRZAŁOŚCI

Jan Oderfeld

The Certificate of Maturity of Jan Oderfeld

entire program of the mathematical–nature science high school over the course of eight years and passed his examination of maturity before the Examination Commission as established by the Warsaw District Board of Education in May of 1924. His certificate of maturity is dated June 18, 1924 and bears the number 135. It states that Jan Oderfeld was ready to take up college level studies.

It is impossible to not note that this future designer and mechanical engineer had only a single "Satisfactory" grade in … drawing. Many years later, Professor Jan Oderfeld admitted that he really disliked those drawing classes and, in fact, did not like drawing at all.

In line with the requirements of those times, the certificate included information that he was of a Lutheran denomination. His grade for religion was "Very Good," however. This was in spite of the fact that the subject concerned the Roman Catholic faith.

In that same year—1924—Jan Oderfeld, continuing his fascination and interest in machines, successfully passed competitive examinations to the Faculty of Mechanics of the Warsaw University of Technology.

That University was established under difficult conditions thanks to many years of struggle on the part of distinguished scientists and engineers. The first major effort was made by Stanisław Staszic. Success was achieved in 1824. The Preparatory School was opened in Warsaw's Kazimierzowski Palace on the grounds of today's Warsaw University. It expanded its educational operations over the years 1826–1831. However, as a result of repressive measures in the wake of the November Uprising, it was closed. There was no college educating engineers in Poland until almost the end of the 19th century. It was not until 1897 that the Technical Section of the Warsaw Chapter of the Society for the Support of Russian Industry and Trade initiated actions that bore fruit in a visit by Tsar Nicholas II to Warsaw and the procurement of his consent for the establishing of the Tsar Nicholas II Polytechnic Institute of Warsaw.

It was for this Institute that the Union Tobacco Product Factory building on Marszałkowska Street was adapted—the first building of the new school of higher learning. The language of instruction was Russian.

The first building of the Tsar Nicholas II Polytechnic Institute of Warsaw on Marszałkowska Street

In parallel, work was launched on finding a new site for the school, which had significantly broader plans for activities and development. The selected property was on a large square at the intersection of Polna and Nowowiejska streets. Today that square is Politechniki [Polytechnic] Square and is surrounded by the school's main buildings. The investment program encompassed four buildings for scientific and educational activities: the Main Building, Chemistry Building, Physics Building, and Mechanics Building. Those names are still traditionally used today. Two other buildings were residential in character and remain so to this day.

The potential for creating a technical school with Polish as the language of instruction made its appearance in August of 1915 with the entry into Warsaw of German occupying forces. The grand opening of the school took place on November 5, 1915. It took place in the Physics Building because the Main Building was being used as a German field hospital. Initially, the University of Technology provided studies in four faculties: Architecture, Machine Building and Electro-Technology, Chemistry, and Building Construction and Agricultural Engineering.

The Faculty of Machine Building and Electro–Technology was subdivided in the middle of the summer semester of academic year 1919/1920, which created an independent Faculty of Mechanics. The Faculty had several sections providing various specialized teaching programs, including "general" and "aviation." The Chair of Internal Combustion Engines, with its Aircraft Engine Department, was created as a part of the Aviation Section. The bulk of teaching and research activities of the Faculty of Mechanics took place in the Mechanics Building. The Chair and Department were headed by Dr. Karol Taylor, an internal combustion engine designer and previously the Dean of the Faculty.

Two laboratory halls were housed in the two side sections of the building. The central section provided lecture auditoriums as well as the offices for the teaching and administrative staff.

Jan Oderfeld, following the ceremonial matriculation for the 1924/1925 academic year, was accepted into the academic family of the Faculty of Mechanics. His first steps as a student were made at the

Mechanics Building Complex, 1915

Mechanics Building, which he always recalled with sentiment. It is with exceptional respect that the Professor reminisced about the prominent scientists and academic teachers who, even then after only five years of operation of the Faculty, were behind its justly highly valued scientific and educational level.

Jan Oderfeld's meeting with science and engineering, at the very start of his first semester of studies, immediately filled him with new fascinations. As Professor Jan Oderfeld often recalled, this was because of those unrivaled scientists who conducted scientific research that was novel in both content and methods. They knew how to graft students with interest and involvement in gaining knowledge and skills at the Faculty of Mechanics.

During his first two semesters of study, Jan Oderfeld was introduced to mathematics in an exceptional version as demonstrated by Witold Pogorzelski who, being barely twenty-seven years of age, was appointed to the position of professor, first at the Faculty of Chemistry and in 1923 at the Faculty of Mechanics. There, he took over the Chair of Mathematics, which he headed for forty years (with a break for World War II). Professor Pogorzelski spoke of mathematics as the "melody of thoughts." At the same time he was successful in convincing his listeners, not only students, that it can also be a very "effective tool in the work of every engineer." This was the first contact of the future superb academic teacher, Jan Oderfeld, with such teaching, where in addition to the transfer of knowledge and methods for gaining skills and using them, there was a discrete, but at the same time effective, molding of the personality of the listener that was marked by responsibility for one's work as well as the work of people tied in a system of mutual dependence.

* * *

Witold Pogorzelski was born in Warsaw. In 1912 he graduated from the private Stanisław Staszic High School. Upon graduation he left for France where he studied mathematics and physics at the University of Nancy and was awarded a Bachelor of Science Degree. As early as

1915 he started scientific work and as of 1920, without any break, educational activities as well.

Witold Pogorzelski (1895–1963)

During World War II he conducted clandestine classes at the University of Warsaw. After the war he organized the Chair of Mathematics at the Łódź University of Technology, the Warsaw University of Technology, and the WAT Military University of Technology. His achievements encompassed approximately one hundred scientific works dominated by various fields of mathematics and marked by major stress on practical applications. There were also works that bore witness to the broad interests of the Professor. In addition to those specified above, they included *Z teorii ruchów powietrza* [On the theory of air movement], *O teorii stratosfery* [On the theory of the stratosphere], *Prawdopodobieństwo bezpieczeństwa konstrukcji* [The probability of safe design], and *Równanie ruchu gazu promieniującego* [Radiating gas motion equations], as well.

He devoted special attention to teaching young scientific staff onto whom he grafted an interest in the quest for scientific innovation, innovation of significant practical importance. In this area he has been recognized as the father of the Warsaw school of integral equations.

In 1961, the Łódź University of Technology awarded the Professor the degree of Doctor *honoris causa*. He died in Warsaw. He is interred along the Avenue of Notables of Powązki Cemetery.

* * *

Freshman students also had the opportunity to attend the physics lectures of Mieczysław Wolfke, a scholar recognized the world round. Professor Wolfke was a brilliant lecturer. Not only students listened to him with interest. His very significant scientific achievements in various areas of physics were the result of a strong coupling of theoretical work with laboratory documentation or other experimental proof. More often than once, the Professor not only personally designed test stands, but was also involved in their technical execution and testing. In contacts with colleagues, especially with his students, his lectures were very friendly and direct. However, this was never an impediment to enforcing stringent requirements—e.g., during examinations. There was an anecdote among students who gauged the mood of the Professor by the height of the water column of the fountain in front the Physics Building within the grounds of the Warsaw University of

Technology. It was said that the Professor himself controlled the water column from his office. A high column meant that the Professor was in a good mood, which augured well for taking examinations. However, if the column of water was low it was best not to risk taking it.

* * *

Mieczysław Wolfke was born in Łask. He completed the first five grades of high school in Częstochowa, but concluded his high school education in Sosnowiec. The climate at his home fostered the development of interest in science, especially physics. Aged twelve (!), he started serious work on an idea relating to interplanetary travel. His analysis included a suggestion to apply jet propulsion using liquid fuel rockets. The work was published in 1903 under the title "Pantostat." In 1900 a work entitled "Telektroskop bez drutu. Aparat do przenoszenia obrazów z pomocą fal elektromagnetycznych. Wynalazek Mieczysława Wolfke" [The wireless teletroscope: A device for the sending of images using electromagnetic waves as invented by Mieczysław Wolfke] was published. This study, a pioneering formulation of the fundamentals of television, was granted a patent.

Over the years 1902–1907 he studied at the University of Liège and the Sorbonne in Paris. He was awarded his doctoral degree in 1910 in Wrocław on the basis of a dissertation on the resolution efficiency of optical units using the microscope as an example. During his research in Zürich on the theory of image formation in the microscope, he published a dissertation on the basis of which he was awarded a doctoral habilitation degree. His scientific supervisor for the dissertation as well as one of the two reviewers for the habilitation process was Albert Einstein, with whom the future Professor Mieczysław Wolfke maintained close contact. This is borne out by the preserved correspondence between the two scientists.

Mieczysław Władysław Wolfke (1883–1947)

In 1922 he was appointed to the position of Head of the Physics Chair at the Warsaw University of Technology. There he conducted both educational and scientific work.

After a short stay in Warsaw he left for Leiden where he undertook scientific research into low temperatures. There, in 1927, together with Professor Willem Keesom (1876–1956), he discovered two types of helium. The Warsaw University of Technology awarded Professor

Keesom the degree of Doctor *honoris causa*. Ignacy Mościcki, President of the Republic of Poland, received both scientists during Professor Keesom's stay in Warsaw in the year 1931.

Professor Mieczysław Wolfke on the left, Professor Willem Keesom on the right, and President Ignacy Mościcki in the center

The broad range of interests and research of Professor Wolfke can be seen in the results of his work. In 1920 he published a work on the theoretical basis of holography and television. Commissioned by the Polish Armed Forces, in 1938 he developed a design for an antiaircraft homing rocket that sought out the source of infrared radiation emitted by the exhaust pipes of engines.

The Professor lived in Grodzisk Mazowiecki during World War II. After the war he joined work on rebuilding Poland's scientific base.

Mieczysław Wolfke: The Atomic Bomb

As early as 1939, on the basis of materials provided by scientific journals, I was able to foresee the possibility of applying atomic energy for war and calculate the destructive power of its action. I published an article on this topic in Polsce Zbrojnej *[Armed Poland] entitled "Eksplozja atomów" [The explosion of atoms]. There, I called the attention of our public to the dangerous potential of the atomic bomb. […] After the end of the German occupation I published an article entitled "Najpotężniejszy materiał wybuchowy przyszłości" [The most powerful explosive of the future] on this very topic in February of 1945. In May of that year I spoke publicly on the need to monitor German research in connection with this terrible weapon. In June of that year I referred to the subject in an article in* Nowa Epoka *[New Era] entitled "Niebezpieczeństwo nauki" [The danger of science]. Thus, when the press provided the sensational news of the first atomic bomb dropped on Japan in the first days of August it was no surprise to me. In fact, I was surprised that it had tooken so long.*

He died suddenly in Zürich on a business trip.

* * *

Subjects appeared during the course of his studies that very much fascinated Jan Oderfeld, mainly due to their strong coupling of theory with practice. This approach to science and engineering had a significant impact on the shaping of the personality of the future scientist and engineer.

The second year at the University of Technology marked the passage from theory to practice. The most important, intermediate subject was thermodynamics,

conducted by Professor Bohdan Stefanowski. His talent as a lecturer was exceptional and he had many years of experience in industry. Obviously, the lectures mainly focused on water vapor. It was 1924 and internal combustion engines were not common in Poland. At that time Stefanowski was the only professor who held laboratory classes combining theory and practice, where the basis of that laboratory was a heating network that provided heat for all the buildings of the University of Technology. Remnants of that network still exit today.

The memoirs of Jan Oderfeld, manuscript

* * *

Bohdan Stefanowski was born in Lublin, it is also there that he graduated from high school. He left for Lwów [Lviv] to study. There, at the Faculty of Machine Building of the Polytechnic School (Lwów University of Technology), he was granted an engineering degree in 1904. After his studies he started professional work in industry. There, he was concerned with thermal management. In order to improve on his theoretical knowledge he took a several-year-long sabbatical that he spent at the universities in Dresden as well as the famous Technical University of Berlin (Charlottenburg).

Upon completing his studies in 1910 he returned to the Lwów University of Technology where he commenced work with the Chair of the Theory of Thermal Engines as headed by Professor Tadeusz Fiedler, later Rector as well as Doctor *honoris causa* of that university. Starting with 1913, as instructed by Professor Fiedler, he commenced construction of the Machine Laboratory. Work was interrupted by World War I. Having spent the war in Russia, following its conclusion he returned to Poland. He was made head of the Chair of Thermodynamics Technology at the Warsaw University of Technology. He gave lectures on thermodynamics at the faculties of mechanics and subsequently of electricity. In 1919 he was made a professor and managed the Machine Laboratory, which he organized. He also developed and brought about the publication of Poland's first college textbooks on thermal technology in its broadest sense. He also took steps aimed at establishing an institute of thermal technology in Warsaw.

Bohdan Stefanowski
(1883–1976)

During World War II he continued his educational efforts through clandestine classes. In 1945 he was tasked with organizing the Łódź University of Technology. When it opened he was made its first rector and established the Chair of Thermal Technology and the Thermal Laboratory.

Upon returning to Warsaw in 1951, when the Faculty of Aviation was created following the combining the Warsaw University of Technology with the Wawelberg and Rotwand School of Engineering, Professor Stefanowski rebuilt the Laboratory of Thermal Technology and later, in that same year, took steps to establish the Institute of Thermal Technology. He was successful in bringing about the commencement of construction of a new building for the Institute. That building, complete with furnishings and equipment, was finished in 1954 and the Institute of Thermal Technology was officially opened in 1961.

The Łódź University of Technology awarded Professor Stefanowski with the degree of Doctor *honoris causes* in 1949, while the Warsaw University of Technology did so in 1960.

Professor Bohdan Stefanowski died in Warsaw and is interred at Powązki Cemetery. The Institute of Thermal Technology of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology bears his name.

* * *

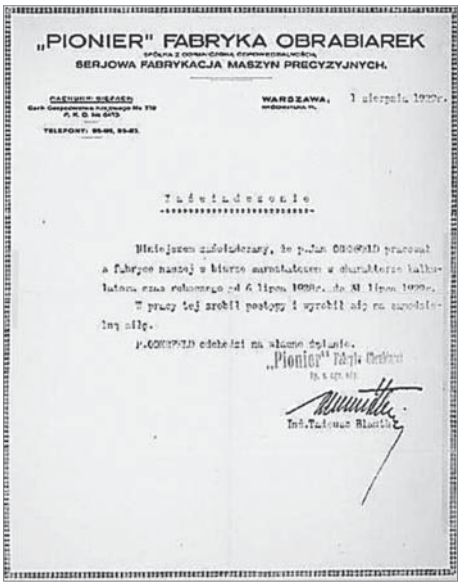
The curriculum of the Faculty of Mechanics of the Warsaw University of Technology includes two obligatory work-study programs in industry. The first of these programs, following sophomore year, can be called "general mechanics," while the profile of the second one, aimed at specialization, was linked with the subject of the diploma thesis.

After two years of studies, in accordance with regulations, during vacation, I undertook my industrial work-study program. One had to find placement oneself or use what was known as Student Assistance. I found a good position: the Pocisk Arms Factory in Warsaw. I don't recall how I found myself in the factory's division involved in the building of a prototype aircraft engine whose designer was Engineer H. Brzeski. ***That is where I caught the aviation virus and haven't managed to get cured since, although I did manage to take up other things later.***

The memoirs of Jan Oderfeld, manuscript

The Pocisk Ammunition Plant, Inc., was established in 1919. The plant building was in Warsaw at No. 25 Mińska Street as well as suburban Rembertów.

No. 25 Mińska Street, Warsaw, 2013



„PIONIER" FABRYKA OBRABIAREK

SPÓŁKA Z OGRANICZONĄ ODPOWIEDZIALNOŚCIĄ

SERJOWA FABRYKACJA MASZYN PRECYZYJNYCH.

WARSZAWA, 1 sierpnia 1939r.

TELEFONY: 55-00, 55-01.

Świadectwo

Niniejszem zaświadczamy, że p.Jan ODERFELD pracował w fabryce naszej w biurze normalizatorem w charakterze kalkulatora czas roboczego od 6 lipca 1939r. do 31 lipca 1939r.

W pracy tej zrobił postępy i wykazał się na zajmowanej przez siebie pozycji.

P.ODERFELD odchodzi na własne życzenie.

„Pionier" Fabryka Obrabiarek

Inż.Tadeusz Blaustein

Jan Oderfeld's Work-Study Program Certificate issued by the Pionier Machine Tool Factory

The main part of its production profile encompassed gunpowder and TNT as well as sundry types of military and hunting ammunition. However, the plant also developed production of precision machine tools, automatic control equipment, hydraulic presses, and rotary kilns. What was probably of greatest interest to Jan Oderfeld was the aircraft engine maintenance section. That is where a group of enthusiasts, managed by Engineer H. Brzeski, was occupied with the development of a prototype aircraft engine. Unfortunately, there was not followed by practical work.

Jan Oderfeld, in his junior year, underwent his second work-study program, a six-week one that was also referred to as the diploma work-study program. It was at the dynamically developing Pionier Machine Tool Factory in Warsaw. His job involved work with what was known as the "calculator," who defined working time in a piecework employment system. He was prepared for this program, including in terms of language as he was well versed in English and German and had started learning French. Those languages were needed because some of the documentation used in the calculator's work was in those languages.

> *I tried to be adequately useful in the factory. When my six-week work-study program came to an end Engineer H. Brzeski, the Director, proposed that I stay with Pionier as a permanent employee with a monthly wage of 200 zlotys. That was no small sum at that time because it was the equivalent of today's thirty hundred. I stayed at Pionier just over a year absorbing many technical and social skills that even the best college could never provide.*
>
> *The memoirs of Jan Oderfeld*, manuscript

After about a year's break in studies, resumption of education encompassed several supplemental specialized subjects as well as selection, performance, and defense of a diploma thesis. Jan Oderfeld saw his diploma topic as involving the building of machines. For supervision over his work he approached Professor Wiesław Chrzanowski,

an eminent specialist in the field of the science and engineering of piston and rotary machines. Professor Chrzanowski was highly respected both at home and abroad as a scientist and practitioner in industry. He was stern in relations with students, a demanding teacher and educator. However, the Professor maintained significant involvement in the transfer of theoretical knowledge and engineering skills as well as the effective shaping of character.


POLITECHNIKA WARSZAWSKA

DYPLOM

JAN ODERFELD

WYDZIALE MECHANICZNYM
SEKCJI OGÓLNEJ

RADA WYDZIAŁU MECHANICZNEGO

JANOWI ODERFELDOWI

INŻYNIERA MECHANIKA

REKTOR

DZIEKAN
WYDZIAŁU MECHANICZNEGO

WARSZAWA DNIA 31 SIERPNIA 1930 ROKU
№ 1892

The engineering diploma of Jan Oderfeld

After several months of preparations and the passing of three detailed examinations on various thermal machines, Jan Oderfeld achieved his objective: He received the permission of Professor Chrzanowski to commence work on his diploma under his supervision. The topic was the design, building, and execution of a large blower as utilized in the mining industry. The year 1930 saw the coming into existed of Engineer Mechanic Jan Oderfeld. His diploma bears the signature of His Magnificence the Rector of the Warsaw University of Technology, Andrzej Pszenicki, and the Dean of the Faculty of Mechanics, Professor Bolesław Tołłoczko. It was issued on August 31, 1930 bearing the number 1892.

* * *

Wiesław Chrzanowski was born in Gruszczyn. His studied with a specialty in steam engines at the Technical School in Charlottenburg, which at that time was a suburban town, not a district of Berlin. That college is considered one of the best technical universities in the world to this very day. To date, nine members of its scientific staff have been honored by a Noble Prize. The intensity of education of the scientific staff is seen in such numbers as approximately thirty doctoral habilitation degrees as well as approximately four hundred doctorates each year at the Technische Universität Charlottenburg as of the year 2000. It was at that school that Wiesław Chrzanowski was granted a doctoral degree in technical sciences. Upon returning home in 1912 he started work

Wiesław Chrzanowski
(1880–1941)

at the Lwów University of Technology. He transferred to the Warsaw University of Technology in 1919 where he headed the Chair of Turbines and Steam Machines at the Faculty of Mechanics.

His scientific work mainly centered on topics involving the design of steam engines. He published a pioneering monograph as a result of this work. He was a founder member of the TNW Warsaw Scientific Society as well as the head of the Faculty of Mechanical Studies of the Warsaw University of Technology.

He was a member of the RON National Defense Government (1920–1921) of Prime Minister Wincenty Witos. He served as the Minister of Industry and Trade. Over the years 1932–1933 he was the Rector of the Warsaw University of Technology.

In the wake of the outbreak of World War II he was arrested in November of 1939 by the Germans. He was freed at the beginning of 1940, but being gravely ill he died in Warsaw.

Bohdan Stefanowski, a student of the Professor, included extensive recollection about him in the *Rocznik Towarzystwa Naukowego Warszawskiego* [Annals of the Warsaw Scientific Society] 1938–1945. In it he wrote: "Enormous knowledge, teaching talent, and a fatherly relationship with youth allowed Professor Chrzanowski to bring up significant numbers of engineers skilled in design and with a love of the specialty. Steam engines, large-scale gas engines, and steel mill blowers as well as steam turbines made up the field in which the deceased professor taught his students for several dozen years, providing the domestic industry with significant services by supplying it with well-prepared personnel."

* * *

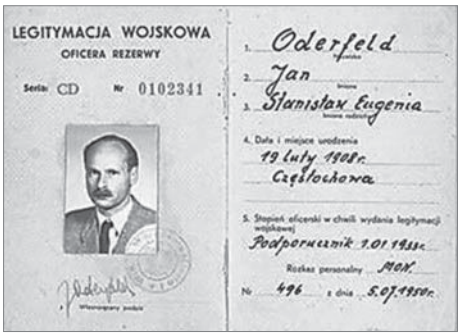
The Faculty of Mechanics of the Warsaw University of Technology, from the beginning of its existence, guarantied students excellent possibilities for acquiring both basic and specialized knowledge as well as practical skills vital to a young engineer. Thanks to outstanding scientists and academic teachers at the School, the molding of the personalities of young people with a love for building mechanical equipment and systems also played an important role. This potential was best utilized by those who had an awareness of such needs and were capable of perceiving and understanding the intentions of teachers as well as working hard to shape themselves. Among such students was the future Engineer Jan Oderfeld.

There were circles of interest in parallel to the studies themselves. One such group was the Student Mechanics Club of the Warsaw University of Technology. This interesting student activity was looked at with sympathy and watched over by the School. In 1921, thanks to the initiative of Ryszard Bartel, a student of the Faculty of Mechanics and later a well-known builder of airplanes, an Aviation Section was established as a part of the Mechanics Club. It quickly attracted students interested in the design, building, and personal execution of small airplanes designated for tourism and sport. Ryszard Bartel was the first president of the Section. Airplanes designed and built by the team—operating under the name of RWD—achieved worldwide fame. This was mainly thanks to the amazing sporting feats of Polish pilots and crews. The team, formed in the Aviation Section by students of the Faculty of Aviation, consisted of the future engineers Stanisław Rogalski, Stanisław Wigura, and Jerzy Dąbrowski (starting with the year 1927). It developed the family of RWD planes. It was on the RWD-6 that Franciszek Żwirko and Stanisław Wigura won the 1932 European Challenge and subsequently in 1933, Stanisław Skarżyński was the first in the world to fly solo across the Atlantic from east to west in an RWD-5 bis.

With such a profile of aviation activities, questions of the engine essentially came down to its selection as well as the selection of the whole of the power plant in terms of needs as stemming from the designation of the airplane and design solutions for the power plant housing for the airframe, including the solving of problems relating to the supply of electrical energy, fuel, and oil as well as the safe exhaust of combustion fumes. Such a profile of design work proved less interesting to Jan Oderfeld who was then absorbed by new ideas for the building of aircraft engines, especially the ideas of the many specialists who were considered to be ahead of their times—turbojet and pulsejet engines.


Cadet Jan Oderfeld

Upon completing his studies, Engineer Jan Oderfeld had to normalize his relations with respect to military service. In 1930 he applied to the military authorities with a request to either be called up for military service or have his category changed to "Excused from military service." The response came quickly. He was ordered to report to the Infantry Reserve Officers Training Corps in Zambrów in August.


LEGITYMACJA WOJSKOWA
OFICERA REZERWY
Seria: CD Nr 0102341
1. Oderfeld
2. Jan
3. Stanisław Eugenia
4. Data i miejsce urodzenia
19 luty 1908 r.
Częstochowa
5. Stopień oficerski w chwili wydania legitymacji wojskowej
Podporucznik 1.01 1933 r.
Rodzaj personalny MON
Nr 496 z dnia 5.07.1950 r.

Second Lieutenant Jan Oderfeld

The unit was rather young, as it had only been created in 1929 thanks to the combining of several reserve infantry battalions on the basis of an order issued by the then Minister of Military Affairs, Józef Piłsudski. The unit developed quickly. It existed up to 1935. Over that period over 6,000 cadets completed their training there.

After about a year of training, Jan Oderfeld left the Corps as a reserve infantry cadet. However, in a surprisingly short span of time, by January 1, 1933, he was promoted to the rank of second lieutenant.

Over those few years of adventure with the army, the life of Engineer Jan Oderfeld experienced two important events of very different weight.

In the spring of 1930, Engineer Jan Oderfeld went to Częstochowa for a few weeks. He planned on visiting his parents and friends. It was at one of the accompanying social gatherings that for the first time in his life he met a girl who attracted his attention. One of the reasons behind this was her skill in amateur tennis.

It was only mutual respect that was evident in the initial contacts between Maria Poznańska and Jan.

Deeper feelings appeared in line with the development of their acquaintance. These were crowned with their wedding in 1933. After the wedding, the young couple took up residence in Warsaw, on Grójecka Street.

An occurrence that was significant for the professional career of the young engineer was the start of friendly relations with Józef Sachs, a recruit. He was also a young engineer who commenced his technical studies in Ghent and completed them at the Polytechnic of Toulouse. His knowledge of aviation was much broader than his education would suggest. This is what fascinated Engineer Jan Oderfeld in the recruit. After military service, the paths of the new friends diverged for a few months, but their mutual interest in aircraft engines soon brought them together again.

Maria Poznańska

Jan Oderfeld



Engineers Józef Sachs, Władysław Bernadzikiewicz, and Julian Machlejd

The group increased to include Engineer Władysław Bernadzikiewicz, a graduate of the polytechnic in Zürich who was already working on a prototype jet aircraft engine. Organizational and financial support during this phase of work was guaranteed by Julian Machlejd, financier, pastor, and former principal of the Mikołaj Rej High School in Warsaw. He also made space available for work on the prototype on the grounds of the brewery he directed. In this team, in subdividing work, Engineer Jan Oderfeld took the thermal and mechanical analyses upon himself. More details connected with this phase of the work of Engineer Jan Oderfeld may be found in the next section as written by Andrzej Glass. It also includes the mentioned text written by the then already Professor Jan Oderfeld.

Even before military service, Jan Oderfeld, the budding engineer, started looking for a job.

From the memoirs:

> *I took advantage of all available means: talks, letters, connections, favors, etc. In this effort I faced defeat about thirty times. I did not plummet into some deep state of melancholy, however. For the time being, I managed to keep afloat thanks to tutoring in mathematics on a high school level.*

These efforts to find permanent employment were interspersed by collaboration with engineers Józef Sachs and Władysław Bernadzikiewicz in their work on a new type of airplane propulsion system. Julian Machlejd supported this work. Among other things, he was a gracious sponsor and brewery owner. This provided some stability. However, it was necessary to keep looking, keep sending off offers, and … keep waiting. Finally, at the start of 1923, Engineer Jan Oderfeld was invited for a preliminary interview to qualify for a position at the Engine Factory in Warsaw.

* * *

May of 1921 saw the establishing in Poland of the French–Polish Francopol Car and Aviation Works, a joint stock company. The divisions making up the company were established to manufacture airplanes and aviation engines. The Company received orders from the Department of Aeronautics of the Ministry of Military Affairs. Warsaw's Okęcie was to have been the site of a factory and design bureau. The Company failed to meet its contractual obligations in spite of amendments to its contract made in 1924. Faced with lackluster progress, it filed for bankruptcy two years later. Company property was seized by the Polish authorities and allotted to the CWL Central Aviation Shops (airframe components) and the Polish Skoda Works (buildings and equipment).

* * *

Engineer Jan Oderfeld was hired for a month–long trial period and was subsequently given a permanent position with the Technical Bureau of the Polish Skoda Works, which was charged with providing services for the mass production of engines made under a license from the Bristol Company.

The question of continued work on a model jet engine ceased to exist in the face of an absence of interest on the part of potential state bodies, mainly the military. Work on that model was taken over by the PZInż Polish Engineering Works. Following the bankruptcy in 1930 of the Ursus Company, located near Warsaw, they took over the company. In addition to its primary profile aimed at the manufacture of busses, it had a research and development facility. There, the Bernadzikiewicz–Oderfeld–Sachs team built a new model jet power plant. They also conducted its successful testing. There was still no interest, however. The model disappeared somewhere and it was not until after World War II that it was found, badly damaged. However, it was painstakingly rebuilt by a group of enthusiast. Today, it is one of the more valuable exhibits at Warsaw's Museum of Technology.

Initially, Engineer Jan Oderfeld was employed on June 15, 1932 with the Polish Skoda Works as a technician without any specified task, but mainly tied to the making of licensed airplane engines.

The main customer for the airplane engines was the Polish Army. It required the manufacturer, whose majority shareholder was Czech, to conduct individual tests of airworthiness on each and every ready engine. In 1935 the Skoda Works became the property of the Polish state. This changed the transfer and receipt procedure on the part of

POLISH SKODA WORKS
A JOINT STOCK COMPANY
Management and Factory: Warsaw–Okęcie
Mailing address: P.O. Box 418, Warsaw
PHONES: Management 9–15–61
Administrative manager 9–52–75
Switchboard 8–02–53
Acquisitions: phone 9–14–28 and 9–74–84
Sales: Cables – No. 7 Zgoda St., Warsaw, phone 610–44
Electrical products – No. 7 Zgoda St., Warsaw, phone 260–03
CURRENT ACCOUNTS:
BGK Polish National Development Bank
P.K.O. No. 14311
Discount Bank

Warsaw–Okęcie, June 3, 1932
Ref. No. Per.s/177/SF/Do
Please use the above reference

P.T. [*pleno titulo*]
The Illustrious
Mr. Jan ODERFELD
on site

Pursuant to our agreement, we hereby confirm that you have been employed as of June 5, 1932 as a technician of our Works subject to the following terms:

1) You shall be subject to the Works Management, which shall specify your job description as well as position each and every time.

2) Your remuneration for each four–week factory period shall amount to 400 zlotys, payable in arrears.

3) Upon disbursement of the remuneration as specified in item 2, all necessary deductions shall be made, including tax and ZUS Social Security Administration premiums.

4) Should a business trip be necessary, in Poland or abroad, you shall receive business expenses in line with standards as applied in our Works, where we reserve the right to change the standards at any time.

5) You shall be entitled to vacation in line with legislation in force, where the date of commencement of your vacation shall be set by the Management in line with Works' needs

Polish Skoda Works – Certificate of Employment

the Army. The requirements became stricter, including test stand assessments. The name of the plant became PZL Polish Aviation Works, Engine Factory No. 1.

Engineer Jan Oderfeld was employed at the Works in the design group where he was assigned the task of looking into the troublesome problem of seizing in the compression impeller bearings. He performed many tests and analyses. This allowed him to formulate the correct hypothesis regarding the cause of the seizure, bringing about the elimination of the cause. This was to the pleasure of both the management and customer, the army.

From the memoirs:

My bonus was unexpectedly high. I did not return to the Technical Bureau. I was transferred to what was known as the Bureau for Studies. It was a small unit. It was there that in–house designs for aviation engines were being developed. These were then made in the Studies Shop. Both units answered directly to Deputy Director Łoziński. At the Bureau for Studies I was assigned to Engineer Nowkuński's team. This was a good move for me. Not only did Nowkuński have enormous inventive talent, but also far–reaching experience acquired in the design of several new aviation engines. Although talent is impossible to transfer, he shared his experience. Nowkuński enjoyed sharing. At that time he was involved in the design of a Polish engine for the army—an inverted V8 engine called the Foka [Seal]. I was assigned two fragments: control and cooling. I managed to complete my assignment in half a year. I learned a lot in the process.

The family archives contain documents from those days. They show their age. They show the path of development of Engineer Jan Oderfeld at the PZL Polish Aviation Works in Warsaw.

PZL Polish Aviation Works
Warsaw
Engine Factory

Contract of Employment
(for an unspecified period of time)

By and between the PZL Polish Aviation Works in Warsaw as represented by:
Director Stanisław Piotrowski and Deputy Director Władysław Łoziński,
and Engineer Jan Oderfeld,
We hereby warrant and represent the conclusion of a Contract of Employment for an unspecified period of time in line with the following terms:

§1.

The PZL Polish Aviation Works in Warsaw, herein referred to as the PZL, hereby employs Mr. Jan Oderfeld as of July 1, 1935 as a contractual white–collar employee with a monthly remuneration of 600 zlotys (six hundred zlotys) payable in arrears.

§2.

Mr. Jan Oderfeld hereby takes on the obligations of designer.
Mr. Jan Oderfeld hereby warrants and represents that he shall perform his entrusted tasks to the best of his ability, abide by all rules and regulations as well as instructions relating to organization as issued by the PZL.
The PZL hereby reserves the right to employ Mr. Jan Oderfeld as it sees fit in other divisions of the company.

§3.

In the event of a business trip in PZL matters, Mr. Jan Oderfeld shall collect business expenses and reimbursement of travel expenses in line with standards as established in the instructions governing business trips and delegations.

… as of July 1, 1935, Designer – Technical Bureau

PZL Polish Aviation Works
Warsaw
Engine Factory

Contract of Employment
(for an unspecified period of time)

By and between the PZL Polish Aviation Works in Warsaw as represented by:
Director Stanisław Piotrowski and Deputy Director Władysław Łoziński,
and Engineer Jan Oderfeld,
Do hereby warrant and represent the conclusion of a Contract of Employment for an unspecified period of time in line with the following terms:

§1.

The PZL Polish Aviation Works in Warsaw, herein referred to as the PZL, hereby employs Mr. Jan Oderfeld as of July 1, 1937 as a contractual white–collar employee with a monthly remuneration of 1,100 zlotys (one thousand one hundred zlotys) payable in arrears.

§2.

Mr. Jan Oderfeld hereby takes on the obligations of design team manager.
Mr. Jan Oderfeld hereby warrants and represents that he shall perform his entrusted tasks to the best of his ability, abide by all rules and regulations as well as instructions relating to organization as issued by the PZL.
The PZL hereby reserves the right to employ Mr. Jan Oderfeld as it sees fit in other divisions of the company.

§3.

In the event of a business trip in PZL matters, Mr. Jan Oderfeld shall collect business expenses and reimbursement of travel expenses in line with standards as established in the instructions governing business trips and delegations.

… as of July 1, 1937, design team manager – Design Bureau

This is the official ID of Engineer Jan Oderfeld. Not only did it have official importance, but was also the object of great satisfaction on the part of its owner. However, this was overshadowed by the fact that it meant the taking over of Engineer Stanisław Nowkuński's unfinished work. The engineer died in the Tatra Mountains in 1936.

The extension of this ID for the year 1939, signed by Władysław Łoziński, was Engineer Jan Oderfeld's last extension prior to the outbreak of World War II—an official act of the personnel department of the Warsaw PZL Polish Aviation Works – Engine Factory.

* * *

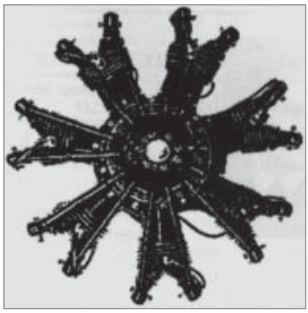

PAŃSTWOWE ZAKŁADY LOTNICZE
w Warszawie
WYTWÓRNIA SILNIKÓW
Legitymacja Nr. 194/5
P. inż. Oderfeld
nazwisko i imię
jest zatrudniony w naszej Wytwórni w charakterze:
kierownika grupy konstrukc.
Okęcie, dn. 1 lipca 1937 r.
Ważna na rok wystawienia
Ważność legitymacji przedłuża się na rok:
19 39 19 19 19
pieczęć i podpis

The official ID of Engineer Jan Oderfeld

Stanisław Nowkuński (1903–1936)

Stanisław Nowkuński (1903–1936) born in St. Petersburg, he moved to Poland after graduating from high school in Harbin in 1921. He commenced his studies at the Faculty of Mathematics of the University of Warsaw, but after his first year transferred to the Faculty of Mechanics of the Warsaw University of Technology. There, he was awarded his engineering degree from the aviation section in 1927 with a grade of "very good." Having completed his studies he took up employment at the Samolot Greater Poland Airplane Factory in Poznań. There, he worked under the management of Engineer Ryszard Bartel (the BM–5 plane). From Samolot he transferred to the Polish Skoda Works aviation engine factory, which as of 1935 became the PZK State Aviation Works – Warsaw Engine Factory. There he became the manager of the Bureau for Studies in Okęcie. He was one of the first aviation engine designers in Poland. Initially, he was interested in low–power piston engines as used by lightweight training airplanes as well as for sporting competitions, including entries in the Challenge 1934. That competition took place in Warsaw. The winning team was Polish—Captain Jerzy Bajan and Stanisław Pokrzywka. They flew an RWD–9S plane with Nowkuński's engine, the Skoda GR–760 rated at N=213 kW (270 HP). Second place was also taken by the Polish team of Stanisław Płonczyński and Stanisław Zientek, also on an RWD–9S using the same engine.

Engines by Stanisław Nowkuński



The G–594 Czarny Piotruś [Black Peter]

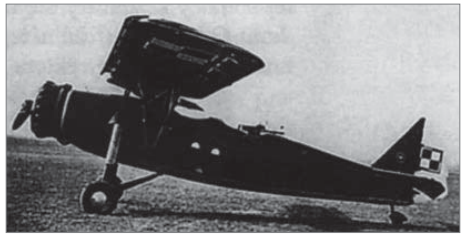
GR–760

The first engine developed by Stanisław Nowkuński was a seven–cylinder radial piston engine—the G–594 Czarny Piotruś [Black Peter]. Rated at 88 kW, three units were made and tested with positive results on Bartel BM–4 and RWD–8 planes.

The next engine developed by Nowkuński was the G–1620B MORS II rated at 346 kW. One hundred units were made. They were mainly designated for the RWD–14 Czapla [Heron] observation plane. Its mass production was started by the LWS Lublin Airplane Factory as the LWS Czapla.

At the end of 1934, Stanisław Nowkuński and his team, which also included Engineer Jan Oderfeld, started developing a new aviation engine, an

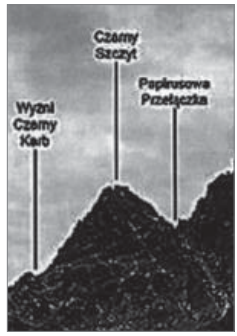
inverted V–8 engine. The design power rating of the engine was 331 kW. It was to have been used in the PZL–38 Wilk [Wolf] fighter–bomber whose primary designer was Dr. Franciszek Misztal, Eng. The concept for the airplane was developed by Engineer Jerzy Dąbrowski. The engine was given the name PZL Foka [Seal].



RWD–14/IV Czapla [Heron] airplane

During the course of work on the airplane, it turned out that the planned power rating of the engine was insufficient to meet the intended performance parameters of the plane.

Stanisław Nowkuński, Poland's only aviation engine designer, whose engines were mass–produced prior to World War II, never finished work on the PZL Foka engine.



His favorite vacation spots were in the mountains where he enjoyed climbing. On July 30, 1936 while scaling the Black Peak in the Slovakian Tatra Mountains (see photo) he lost his life under circumstances that were never adequately explained. He was laid to rest at Powązki Cemetery in Warsaw.

* * *

After the loss of Engineer Nowkuński, Engineer Jan Oderfeld took over his design responsibilities at the Engine Factory Bureau of Studies of the PZL. Mainly, he had to concentrate on completing the Foka engines, including those with more power, which is what the customer requested.

A parallel job for Engineer Oderfeld consisted of teaching in the technical group of the Air Force Reserve Officer Training Corps (SPK–GT), which commence operation in Warsaw as a part of the transfer from Bydgoszcz of that section of the "Eagle School." In the school, his courses primarily encompassed aviation engines. Training was at an engineering level. It was necessary to create technical conditions and develop textbooks. The PZL State Aviation Works – Engine Factory provided the school with significant assistance. It was thanks to this help that those enrolled received **textbooks authored by Engineer Jan Oderfeld** and edited by Engineer Władysław Łoziński, Deputy Director of the PZL – Engine Factory.

During the first air raids on Warsaw on September 3, 1939, bombs fell on the PZL State Aviation Works, including on the Engine Factory.

Textbooks authored by Engineer Jan Oderfeld

Work at the factory was halted and the design documentation was moved to the private homes of the staff after being split into parts. There, it was destroyed. Officers of the reserve were ordered to evacuate to Romania. There were no longer any cars at the designated meeting point as they had left earlier for Zaleszczyki. The group of those left behind managed to get into occupied Warsaw on foot. Among them was Jan Oderfeld. Happily, he found his wife and two–year–old daughter Barbara in their undamaged apartment. Taking up various odd jobs (electrician, glazier, mechanic) he received a proposal to move to Skierniewice where the Rolnik Agricultural Cooperative was putting together a technical department servicing agricultural machinery throughout the entire *powiat* [county]. The primary workshop was a small smithy. Starting with the autumn of 1940, thanks to the enormous effort of the team headed by Jan Oderfeld, the smithy grew to employ about one hundred workers and was capable of fixing any agricultural machine while simultaneously taking care to train its staff and guarantee them good social conditions to the best of its ability.

He ultimately achieved some degree of job stability as well as proper living conditions for his entire three–member family. It was then that Jan Oderfeld brought his wife and daughter to Skierniewice.

Mrs. Maria Oderfeld was involved in the "general culture" of Rolnik workers. In the face of the Nazi occupation this had a special meaning. Rolnik employees endowed her with great respect, of which they provided ample proof then as well as many years after the war. The new Fumos Gardening and Agricultural Mechanical Works that emerged in place of Rolnik awarded both spouses diplomas of recog-

nition as well as commemorative medals in October of 1979 in gratitude of their wartime activity and role in the postwar reconstruction and startup of the plant.

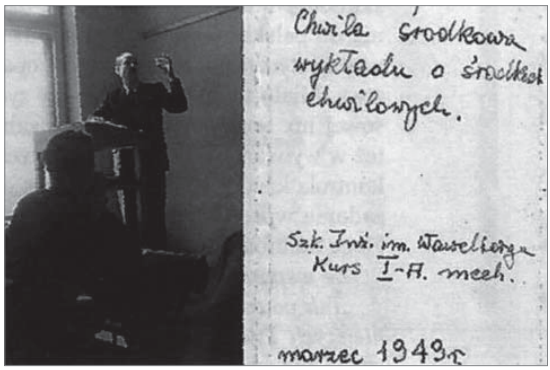
The workshop of the Rolnik Cooperative was the site of carefully concealed activity, later called "underground activity" by Prof. Oderfeld in his memoirs. Applying sundry engineering tricks, minor defects were introduced to the tractors that the German services requisitioned for their army. These defects resulted in a drop in engine power below that required. After final rejection of a "defective" unit, its efficiency was quickly reinstated and supplied to a Polish farmer. Another risky activity was the renovation of machine guns for units of the Home Army. This was done during the nightshift at the shops.

Work at Rolnik in the first months after the conclusion of the war was very difficult. In addition to wartime destruction, significant havoc was caused by decisions commandeering cooperative property by the Soviet Army as spoils of war. Plant startup was essentially finished by the autumn of 1945. Engineer Jan Oderfeld undertook efforts at finding a new job, but in Warsaw. Two proposals seemed very interesting.

Autumn of 1945 saw the reopening in Warsaw of the Hipolit Wawelberg and Stanisław Rotwand School of Engineering. In December of that year it received the right to award degrees in engineering. Engineer Jan Oderfeld took up a teaching position involving classes in mechanics and aviation engines at the school. He used a bicycle both summer and winter to get to his classes from suburban Włochy where he rented an apartment.

The family archives include a surviving photo from those times with a description added by one of the students.

Engineer Oderfeld's lectures were well liked by students. A group of junior year student in the aviation course associated in the Aviation Club approached Engineer Oderfeld with a written request to continue classes in aviation engine design when, as a result of other responsibilities, a change in lecturer was on the table. This letter may also be found in the family archives.



The Aviation Club
Of Students of the Wawelberg and Rotwand
School of Engineering
Warsaw

———

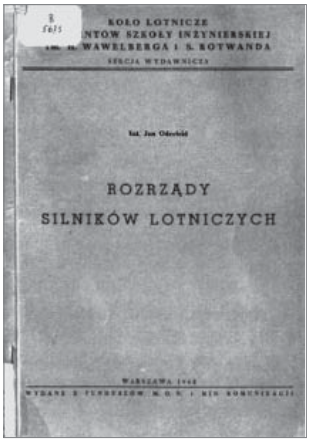
Checking Account
Społem Cooperative bank No. 11
Warsaw–Mokotów

Warsaw, January 25, 1949

Dear Professor:
We, the students of Aviation Course III, cordially request that you consent to providing lectures on jet engines for our course for the sixth semester of studies.
We are aware of the fact that you have very little time, but in–depth knowledge on the theoretical foundations of jet engines is very important to us and for this reason we would be very grateful if you consent.

Students of Aviation Course III

/---------/



The Aviation Club had its own publishing section that, among other things, published a textbook developed by Engineer Jan Oderfeld

Classes at the Wawelberg and Rotwand School of Engineering were taught by Engineer Jan Oderfeld up to the year 1949 when he transferred to the Faculty of Mechanics of the Warsaw University of Technology.

The second position held by Engineer Jan Oderfeld was with the Polish Committee for Standardization where his job was in the Standard Editorial Office. His efforts there had an interesting effect. He tried to introduce mathematical applications, especially statistical process control (SPC) based on probability theory, into the Polish system of standardization. This was of great importance in the case of quality control systems for mass production—e.g., nuts and bolts in the machine industry or bricks for building construction—where the individual checking of each unit did not make economic sense. Prof. Hugo Steinhaus, a prominent, world–renowned Polish mathematician, played a major role in the team charged with introducing this method of control.

From the memoirs:

> *That is how the standard for statistical process control was introduced into Poland. It was supplemented and modified over the years. For my part, notwithstanding of my own desires, I was forced to sink my teeth into probability theory. It turned out that as a result I did a few things that were certainly no great discoveries, but were sufficiently new to have Steinhaus encourage me to write my doctoral dissertation in the realm of mathematics and nature sciences.*

It was at this time that the Chair of Aviation Engines was created at the Faculty of Mechanics of the Warsaw University of Technology. The selection of candidates to head this Chair was made by the Council of the Faculty of Mechanics on the basis of the application a form commission established for this purpose. The minutes from the session of the Council includes the following fragments:

WARSAW UNIVERSITY OF TECHNOLOGY
The Dean
Faculty of Mechanics

EXCERPT
From the Minutes of the Session of June 13, 1949 of the Council
of the Faculty of Mechanics of the Warsaw University of Technology

.....
.....

II. Questions of the Chairs and their staffing:
a) The staffing of the Chair of Aviation Engines

Following the reading by Prof. J. Bukowski of the application of the Commission for Staffing of the Chair of Aviation Engines as established by the Faculty Council during its session of January 17, 1949, consisting of:

Commission Chairman: Prof. W. Pogorzelski
Commission members: Prof. B. Stefanowski, Ph.D.
Prof. F. Misztal, Ph.D.
Prof. T, Moszyński, Ph.D.
Prof. B. Tołłoczko, Ph.D.

Which forwarded the candidature of Engineer Jan Oderfeld, the faculty Council, by way of secret ballot, with 18 members of the Council present, approved the application by 17 votes "For" with one abstention.
At the same time the Faculty Council resolved to petition the Rector to temporarily employ Engineer Jan Oderfeld starting with September 1, 1949 as a contractual professor extraordinarius.

Warsaw, June 20, 1949

Certified by:
Associate Dean
of the Faculty of Mechanics
/--------/
Prof. J. Pogorzelski, Ph.D.

Attention should be called to the make up of the Commission. It was chaired by Prof. J. Pogorzelski, Ph.D., the Associate Dean of the Faculty of Mechanics at that time. Its members were all prominent specialists: Prof. B. Stefanowski, Prof. F. Misztal, Prof. T, Moszyński, and Prof. B. Tołłoczko. They were all eminent scientists and practitio-

ners in the various fields of mechanical design. The application of this Commission, approved with only one abstention, signifies a very high rating for the candidate.

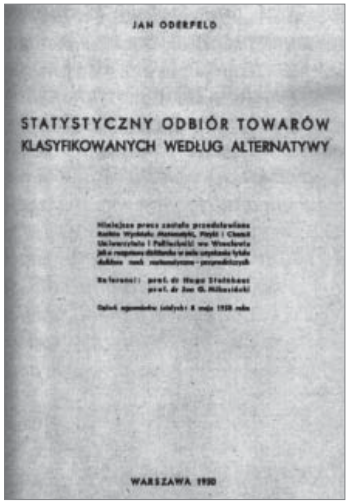
As of September 1, 1949. Engineer Jan Oderfeld was employed by the Faculty of Mechanics of the Warsaw University of Technology as a contractual professor and appointed head of the Chair of Aviation Engines. In parallel, he continued to conduct classes at the Wawelberg and Rotwand School of Engineering. The level of those classes as well as requirements was made equal to those of the university of technology by Prof. Oderfeld. It was thanks to the initiative of Prof. Oderfeld that a new educational base of significant practical importance appeared at the University of Technology. It consisted of a laboratory facilitating the conducting of scientific research as well as the performance of typical exercises illustrating problems discussed during lectures on aviation engines. The coupling of theoretical matters with engineering practice became a basic feature of the educational process as conducted by Engineer and subsequently Professor Jan Oderfeld.

The encouragement flowing from Prof. Steinhaus for Engineer Oderfeld, with suggestions that he take up doctoral work, proved effective. Professor Oderfeld not only "sunk his teeth" into probability theory, but also introduced new elements of practical importance into questions of theory. Prof. Steinhaus' residence in Wrocław, where he was employed by the University, was a significant impediment in the face of Professor Oderfeld's parallel responsibilities with the Polish Committee for Standardization in Warsaw. However, the doctoral candidate mentions that his supervisor was "**a patient critic and guardian**".

Doctoral examinations took place in the first half of 1950. Oderfeld's doctoral dissertation was published and was publically defended before the Faculty Council.

From the memoirs:

> *At the close of 1950 I was invited to a session of the Faculty Council in Wrocław, where I received by doctoral diploma. Everything was carried out very ceremoniously in line with the traditions of the Council. First, a member of the Council stepped up to the podium, opened a paper sheath from which he took out my diploma and read out its contents—obviously in Latin. He then returned it to the sheath and handed it to me. I thanked the Council and the Professor and resumed my place. When the ceremony was over I made my way to the door. It was then that I was stopped, the sheath was again opened and I was left with only the diploma and the words: "We only have one sheath, but there will be more diplomas."*



Cover of the doctoral dissertation and the doctoral diploma

Upon being awarded the degree of doctor, relations between the doctoral supervisor, Prof. Hugo Steinhaus, and the postgraduate Dr. Jan Oderfeld, Eng. shifted to become a heartfelt friendship, complete with a very high level of mutual respect.

This was seen in both unofficial personal contacts and in the numerous mutually undertaken scientific and educational efforts. In his lectures, Professor Jan Oderfeld, Ph.D., Eng. often reiterated many of the lessons he learned from his doctoral supervisor, which he remembered as important recommendations and guidelines of significance in the case of everyone, not just scientists or engineers. He took on the same qualities in working on the molding of the personality of his charges and students.

* * *

Hugo Dionizy Steinhaus (1887–1972). Born in Jasło in 1905, he graduated from high school and subsequently commenced his studies in philosophy and mathematics at the University of Lwów [Lviv]. However, after a year he transferred to the university in Göttingen where he was under the supervision of the brilliant mathematician David Hilbert. In 1911 he completed and defended his doctoral thesis: *Neue Anwendungen des Dirchlet'schen Princips* [New applications of Dirchlet's Principle]. Six years later he was awarded his habilitation doctoral degree from the univer-

Hugo Dionizy Steinhaus (1887–1972)

sity in Lwów on the basis of the dissertation: *O niektórych właściwościach szeregów Fouriera* [On certain properties of Fourier series].

In 1920, after being awarded the title of *professor extraordinarius* by the University of Lwów, he was entrusted with the function of head of the Chair of Mathematics. He became professor *ordinarius* three years later. He served as head of the Chair of Mathematics over the years 1920–1939. While in Lwów, he participated in the "Scottish Café," which gathered together a group of eminent Polish scientists (the "Lwów School") for scientific discussion on mathematics. It is there that works in the area of functional analysis were developed that were subsequently published in the *Studia Mathematica* scientific periodical thanks to the initiative and editorial work of Professor Steinhaus.

The outbreak of World War II found him in Lwów, but he quickly moved to Kiev where he was entrusted with the position of Professor of Higher Analysis at the State University of the Ukraine and was also made scientific staff member of the Academy of Sciences. Because of his Jewish heritage, he was forced into hiding when the German army entered Kiev. He lived as Grzegorz Krochmalny, a peasant from Przemyśl.

He moved to Wrocław upon the conclusion of the war. There, he took over the position of head of the Chair of Applied Mathematics on the joint polytechnic and university Faculty of Mathematics, Physics, and Chemistry. He headed Wrocław's section of applied mathematics of the PAN Polish Academy of Sciences. His involvement helped him play a leading role in organizing the mathematics community in Wrocław. This was facilitated by his exceptional activeness and broad interests.

He was a member of the PAU Polish Academy of Learning, the TNW Warsaw Scientific Society, the PAN Polish Academy of Sciences, and the cofounder and president of the WTN Wrocław Scientific Society.

The scientific achievements of Professor Steinhaus were highly regarded by the universities of Warsaw, Poznań, and Wrocław as well as by the Wrocław Medical Academy, all of which awarded him the degree of Doctor *honoris causa*.

The Professor was known for his brilliant aphorisms not only within his own community. Those works of art were generally known as "Hugonots." At times, they were embedded with sharp criticism—e.g., "**The wise man sees a fool in the mirror, while the opposite is true of the fool!**" It is said that Julian Tuwim, upon hearing the Professor state, "**A ball and chain at one's foot? The Earth!**" knelt before the speaker in homage. The achievements of Prof. Steinhaus analyzed

from the point of view of services for Wrocław were also recognized by the city authorities. A bust of the Professor was placed in the Hall of Fame of Citizens of Wrocław at City Hall.

One of the streets of Wrocław has been named Hugo Steinhaus Street. High School No. 1 bears his name as well. The Steinhaus Stochastic Methods Center building of the Wrocław University of Technology includes a commemorative plaque funded by the city. Włodkowica Street is the site of the Steinhaus Restaurant & Café, well–known in Wrocław. The logo of the restaurant is a caricature of the patron.

The greatest legacy of the Professor is most certainly found in his numerous students and charges. Among them was Jan Oderfeld. In their turn, his students and charges have their students and charges dispersed not only throughout Poland, but the world. Once, when asked what his greatest discovery in mathematics was, Prof. Hugo Steinhaus answered: "**My greatest discovery in mathematics is Stefan Banach!**"

The Hugo Steinhaus Center is active in the area of popularizing the application of mathematics in various fields of science and engineering, thus bringing the ideals of the Professor to life. A joke worthy of the Professor is the included in the Center logo—his caricature, the same one found on the Steinhaus Restaurant.

The Professor died in Wrocław and is buried at the Holy Family Cemetery.

* * *

The year 1951 brought with it significant changes in the organizational structure of the Warsaw University of Technology. It merged with the Hipolit Wawelberg and Stainsław Rotwand School of Engineering to form a single school. The Faculty of Aviation was created. Its goal was the training of engineers and successively, masters of engineering, encompassing a full design profile—the design of aircraft, aviation engines, fittings, and onboard equipment. The main weight of granting degrees in the area of aviation engines fell upon the Chair of Aviation Engines as headed by contractual professor, Engineer Jan Oderfeld, Ph.D. It became necessary to modify the topics of various subjects, including basic ones—mathematics and mechanics—and build new laboratories making it possible for students to learn about and perform tasks in practice.

Those plans were made a reality. The Professor knew how to put together a good team and he had the skills to manage it. External institutions—industrial and military—came with assistance.

From the memoirs:

Obviously, there were people who, to the best of their ability, tried to impede my work at the University of Technology. However, I shall not list them in line with the assumptions behind these memoirs.

Those assumptions shall also be upheld in this chapter of the book. However, certain facts should be presented … for memory's sake.

In 1954 the Professor received word that he will receive a proposal to resign as head of the Chair of Aviation Engines and take up the management of a new scientific–educational unit to be concerned with a pioneering area of the theory of machines and mechanisms. That field was beginning to emerge in science and engineering in various countries, including in the United States and the Soviet Union.

However, it soon turned out that this information was late in coming with respect to actions already taken to eliminate the Professor from the Chair of Aviation Engines. That post had already been earmarked for a candidate of the political authorities of the school. This was with the concurrence of superior political authorities, of course. The academic authorities of the University of Technology had to acquiesce. Sad evidence of this planned operation can be seen in opinions: the in–house school opinion, which is relatively mild in its tone, and the external one that is much more scathing.

STATE ECONOMIC PLANNING COMMISSION
PERSONNEL DEPARTMENT

State Economic Planning Commission, Warsaw 15
Warsaw University of Technology
Personnel Department — CONFIDENTIAL
Warsaw — opinion
your ref. – dated — our ref. PE–3/571/83/1 — date May 22, 1953

Regarding:
In response to your request dated May 9, 1953, ref. no. 259/OK/Pfn/53 – the Personnel Department of the State Economic Planning Commission hereby states that Citizen Jan Oderfeld was employed as Managing Director of the Polish Committee for Standardization from May 1, 1946 to January 21, 1952. During the period of his work he demonstrated little initiative; he is a good professional, very familiar with questions of standards. As an organizer he is poor, conservative. He made no effort to switch to new forms of work. He tried to disqualify Party Members whenever possible. Zero political value of the above is seen in the fact that up to '49 there was not a single Party Member on the grounds of the PCS and not a singe social or political organization or even a chapter of the Trade Unions.

WARSAW UNIVERSITY OF TECHNOLOGY

OPINION *1524* *17*

Regarding: Dr. Jan Oderfeld

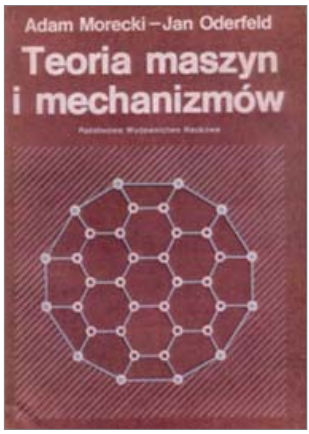
Dr. Oderfeld – employed by the University of Technology as of 1951 and serving as Head of the Chair of Aviation Engines of the Faculty of Aviation. A good lecturer. He lectures in piston engines – his lectures are on an appropriate level. His relations with student are proper. In his work he is too much of a formalist. He strives to keep his views to himself. However, in spite of the appearance of loyalty, it must be said that the view of Dr. Oderfeld regarding today's reality is negative.

/------/

July 10, 1954

Copy of the opinion of the Warsaw University of Technology as issued by the Personnel Department of the Warsaw University of Technology (1954), and the opinion of the State Economic Planning Commission (1953) issued as requested by the Personnel Department of the Warsaw University of Technology

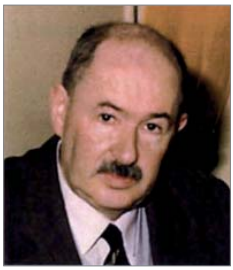
Numerous clarifications on the part of the Professor submitted in writing to the school authorities as well as directed to the Central Committee of the Polish United Workers' Party regarding the substantive miscalculation in subdividing the Chair of Aviation Engines into two units—Aviation Piston Engines and Aviation Jet Engines—proved futile and even failed to elicit any response. It was a foregone conclusion. There were those who expected the Professor to leave the University of Technology. That was not in the spirit of the Professor, however. He agreed to involve himself in the theory of machines and mechanisms. This was in spite of the fact that it required significant outlay of work, as it was something completely new to him. He had to study the scientific literature on the topic that already existed, as work had already begun in several countries.



The Theory of Machines and Mechanisms textbook

Starting with academic year 1955/56, already Professor *extraordinarius*, he took over the management of the school's new chair, the Chair of the Theory of Machines and Mechanisms (TMM). He commenced preparing the subject for propagation among a few interested faculties, obviously including the Faculty of Aviation. This was the first chair in Poland encompassing this scientific and educational subject matter. It became necessary to prepare laboratories, textbooks, and raise the qualifi-

cations of the staff, mainly new, young scientific staff members and academic teachers who were not necessarily from the Warsaw University of Technology. Involvement in these activities meant the Professor moved away from his professional work in the realm of aviation, but he did not abandon aviation. He was always a very active participant in the defenses of doctoral and habilitation dissertations. He was also a member of diploma examination commissions when students specializing in aviation appeared before it. The development of the need for TMM at the Warsaw University of Technology meant that subjects connected with TMM became a part of the curriculum at faculties with a mechanical profile. This meant additional work stemming from tasks involving the coordination of substantive teaching for the whole of the University for Professor Oderfeld, Ph.D. The continuing development of TMM at other technical schools in Poland was rapid. The number of tasks grew as the demand for sharing experience became acute.


Adam Morecki
(1929–2001)

The Professor's right–hand man in TMM was **Prof. Adam Morecki, Ph.D., Eng.** (1929–2001) who was initially concerned with metrology of mechanical quantities. However, he successively took up questions of biomechanics and was later the joint developer of education in the area of robotics. Those were pioneering steps leading to the emergence in Polish higher education of studies into Automation and Robotics as well as in the area of technical studies in the scientific field of the same name.

The result of the reform in the organizational structure of the Warsaw University of Technology, especially with respect to mechanical faculties, was the emergence of the huge Faculty of Power and Aeronautical Engineering (MEiL). Initially, the Faculty had no separate Chair of Aviation Engines. The Chair of Industrial and Aviation Combustion Engines had a different internal subdivision—departments of Thermal Piston Machines, Combustion Turbines, and Combustion Theory. The Chair of Theory of Machines and Mechanisms was left subdivided into the Department of Theory of Machines and Mechanisms headed by the head of the Chair, Prof. Jan Oderfeld, and the Department of Metrology of Mechanical Quantities as headed by Prof. Adam Morecki.

Jan Oderfeld, Ph.D., Eng. was already Professor *ordinarius* when he undertook work subject to the new organizational conditions at the school. He was awarded that title in 1961.

Chosen as the first Dean of the Faculty of Power and Aeronautical Engineering (MEiL) was Prof. Władysław Fiszdon, Ph.D., Eng. He was a specialist in flight mechanics and aeroelasticity. The second Dean (1964–1966) of the Faculty was Prof. Jan Oderfeld, Ph.D., Eng.

The first session of the Dean's College as chaired by Dean Jan Oderfeld left an indelible mark on its participants. In a few sentences, the Dean began by introducing himself and providing information about himself. Next, he introduced the office staff, including information about the scope of responsibilities of each of the ladies. After providing this fragment of information, he turned to the Associate Deans asking them to introduce themselves. He also announced the scope of responsibilities of each of the Associate Deans. Concluding this introduction, Prof. Jan Oderfeld, Ph.D. again turned to everyone: "Respected Colleagues! We are starting our term in office. I wish you all the best of luck. I will not be a typical dean. I will be a dean responsible for thinking. It is the associate deans who are for working. However, I want to stress that in my area of tasks I shall apply the important missive passed on to me by my eminent Master and Teacher, Prof. Hugo Steinhaus. That message is: 'Only dead fish swim with the current!'" He abided by that missive for the whole of his term in office.

The conclusion of his term in office coincided with the thirty–fifth anniversary of the scientific, educational, and professional activities of Prof. Jan Oderfeld. On November 9, 1966, Piotr Orłowski, the Dean of the Faculty of Power and Aeronautical Engineering, forwarded his invitation for a special, ceremonious session of the Faculty Council, which took place in the Senate Chamber of the Warsaw University of Technology.

The first presentation regarding the activities of the Celebrant in the field of applied mathematics was made by his doctoral supervisor, Professor Hugo Steinhaus. That presentation, like the concluding

DAILY AGENDA

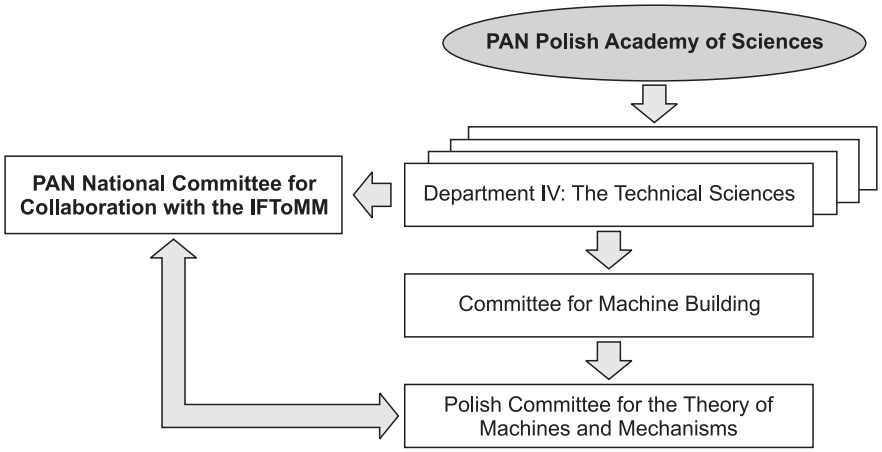
1. Introduction by the Dean of the Faculty of Power and Aeronautical Engineering.
2. Presentation of scientific and educational activities of Professor *ordinarius* Jan Oderfeld, Ph.D.
   2.1. Research work in the area of the application of mathematics (H. Steinhaus).
   2.2. Work in the field of aviation (W. Narkiewicz).
   2.3. Work in the field of standardization (J. Wodzicki).
   2.4. Research work in the area of mechanics and the theory of machines as well as educational work (A. Morecki).
3. Dedicated presentations.
4. Closing of the session.

Prof. Hugo Steinhaus (on the left) and the Celebrant

thank–you by Prof. Jan Oderfeld, shone with pearls of subtle humor, specific qualities of both eminent personalities.

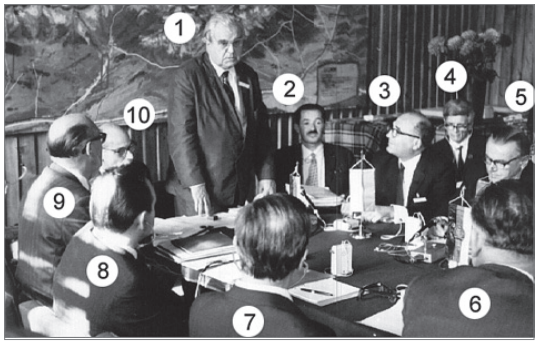
Questions of the theory of machines and mechanisms developed quickly in higher learning and research units in many countries. It was natural that many internal organizations were conducting work in this area in individual countries. In the case of Poland, the current organizational state is a by-product of the organizational structure of the PAN Polish Academy of Sciences.

International collaboration was launched with an organizational meeting in Varna in 1965, which today is considered the 1st Congress of the Federation. Participants in that Congress accepted the invitation of the Polish Committee for the Theory of Machines and Mechanisms and agreed to the organizing of the 2nd Congress, which had an obvious constitutional objective. That Congress was held on September 26–29, 1969 in Zakopane.



Zakopane, the creation of the IFToMM, 1969.

1 – Academic Ivan Ivanovich Artobolevskii (U.S.S.R.); 2– Prof. Adam Morecki (Poland); 5 – Prof. Nicolae Manolescu (Romania); 6 – Prof. Erskine F. Crossley (U.S.A.); 7 – Prof. Giovanni Bianchi (Italy); 8 – Prof. Aron E. Kobrinskii (U.S.S.R.); Prof. Wemer Thomas (U.S.A.); 10 – Prof. Jan Oderfeld (Poland).



Commemorative photo from Zakopane

It is there that the basic document creating the organization that assumed the name, International Federation for the Theory of Machines and Mechanisms (IFToMM), was signed. That Congress had over 200 participants and the founding document was signed by sixteen national committees. The Chairman of the first Executive Committee was Academic Ivan Ivanovich Artobolevskii (U.S.S.R.). That Committee included Prof. Jan Oderfeld who represented the PAN Committee for Machine Building as a member of the Presidium and the Polish Committee for the Theory of Machines and Mechanisms as its Chairman.

Currently, the organization bears the name **International Federation for the Promotion of Mechanism and Machine Science**. The acronym and logo have remained unchanged.

Krzysztof Kędzior

Polish representatives have been occupying important positions in its authorities from the very beginning of the Federation's existence. Prof. Jan Oderfeld was the Chairman of the IFToMM Constitutional Commission from its inception in 1969 up to his retirement in 1978. That function was filled by **Prof. Krzysztof Kędzior, Ph.D., Habil., Eng.** over the years 2011–2015. Over the years 1982–2002 he was successively the Deputy Director and Director of the Institute of Aviation Technology and Applied Mechanics at the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology. In parallel, over the years 1991–2002, he managed the Department of Theory of Machines and Robots, which continues the educational work and scientific activities shaped by Prof. Jan Oderfeld in the Chair of Theory of Machines and Mechanisms he created in 1965. Over the years 2000–2006 Prof. Kędzior was the Dean of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology.


Teresa Zielińska

The Secretary General for the IFToMM Executive Committee for the 2011–2015 term was **Prof. Teresa Zielińska, Ph.D., Habil., Eng.**, the Associated Dean of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology while at the same time being an academic teacher with the Department of Theory of Machines and Robots. This was where Prof. Kędzior also worked. This is where the buds of achievement and their later development in the area of the theory of machines and mechanisms in Poland took place. This is also where the beginnings of world recognition for these achievements should be sought. Prof. Zielińska concentrates of walking machines.

From the perspective of time, universal recognition of Professor Oderfeld as one of the main creators of the Polish school in this area of science and engineering has become firmly established. It all began with the moment that the Professor, facing a crisis situation in 1955, decided to stay with the Warsaw University of Technology and started pioneering work on introducing questions of the theory of machines and mechanisms into Polish schools.

From the memoirs:

I retired in 1978. Thus ended my professional work, but something remained: the Technical Knowledge Olympics started thirty years ago. I was one of its founders. Several hundred thousand high school students took part in those Olympics to date. For each winner there were 500 entrants. Up to the present, there have been no Olympic topics without one of my problems.
I treat the young participants in the Olympics as seriously as I treated my former student charges.

Thus I end my memoirs.
June 14, 2005 Jan Oderfeld

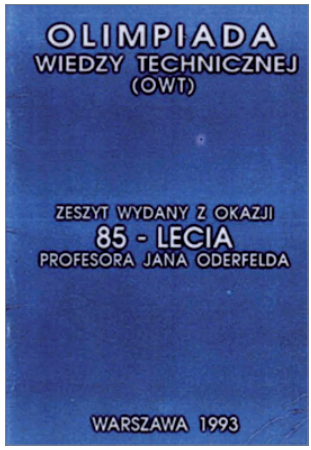
* * *

There can be no doubt that the Professor's rich legacy includes the Technical Knowledge Olympics. The first "tournament" was prepared and played out over the years 1973–1975. From the very beginning, the Olympics stirred great interest. This was no mean feat. Each successive edition attracted tens of thousands of young high school students. Prominent specialists developed the problems to be solved. Eminent scientists and practitioners were invited to review and grade the results. What is significant

is that this gave all participants and authors great pleasure. This is a clear sign of the influence of Prof. Jan Oderfeld's personality.

He was an undisputed authority. He was loved by the community of organizers and also quickly won the sympathy of participants.

The Head Olympic Committee issued a special brochure for the 85th birthday of the Professor. Instead of an introduction:



On February 19, 1993, Professor Jan Oderfeld celebrated his 85th birthday.
The initiative to publish this brochure came from the group of people close to the Celebrant—family, friends, and colleagues. Knowing what the Celebrant has done for the Technical Knowledge Olympics and knowing what it has meant and means to him, we are sure that he will be pleased with the brochure as a gift for his 85th birthday. In the name of the initiators: Barbara Oderfeld–Nowak, Elżbieta Pleszczyńska, Józef Jezierski, Janusz M. Kowalski, Maria Piechowiak, Wojciech Radomski, and Stanisław Wincenciak.

Ceremonies such as that prepared by the Warsaw University of Technology celebrating the 100th birthday of Prof. Jan Oderfeld ran a special course on his birthday—February 19, 2008. They were crowned by a ceremonial session of the Senate of the Warsaw University of Technology during which the Celebrant was awarded the degree of Doctor *honoris causa*. Among the numerous illustrations of respect and heartfelt feelings, was the metal plaque of the Technical Knowledge Olympics, which concluded with the words:


Wielmożny Pan
prof. dr inż. **Jan Oderfeld**

Czcigodny Panie Profesorze, nasz Mistrzu i Przyjacielu

Kochamy Cię !

Cała Rodzina Organizatorów i wiele pokoleń uczestników
Olimpiady Wiedzy Technicznej

Be with us forever,
Simply because
We Love You!
The Entire Family of Organizers
and many generations of participants of the
Technical Knowledge Olympics

The aviation virus student Jan Oderfeld caught survived in a somewhat modified form. In 1997, the WKSL Warsaw Senior Aviator Club:

STICKER

To the
Senior Aviator Club

Upon familiarizing myself with the Rules and Regulations of the Senior Aviator Club of the Republic of Poland, I hereby warrant and represent that I shall adhere to them and ask to be included among the members of the Senior Aviator Club. _____

ODERFELD

1. Given and surname: Jan ODERFELD
2. Parents' given names: Stanisław, Eugenia
3. Date and place of birth: February 19, 1908, Częstochowa
4. Address (including ZIP code): No. 222 Niepodległości Avenue, apt. 17, 00–663 Warsaw
   phone: 628–03–56 (home)
5. Profession: Professor of the Warsaw University of Technology, Faculty of Power and Aeronautical Engineering
6. Place of employment (position): retired as of 1978
7. Aviation training: Lecturer with the Reserve Officers' Training Corp, Warsaw, Aviation Engine Designer
8. Affiliation to political and social organizations:
   I have never belonged to any political organization, I have belonged to several social organizations, but it is difficult for me to name them from memory
9. Orders and awards (year awarded):
   Upon request, I can provide the exact dates by telephone.
   From memory: Officer's Cross of the Order of Polonia Restituta, Cross of Merit for Defense, Puławski Wings
10. Career development in aviation – professional and social

Period	Place and function
1931–1932	Jet engine design. The model may be found at the Museum of Technology, Warsaw
1932–1939	Designer with the Skoda Engine Works (later PZL). Last position: Design Team Manager
1945–1949	Lecturer in Aviation Engines at the Wawelberg School.
1944–1978	Lecturer (Professor *extraordinarius* and *ordinarius*) in Aviation Engines, Aviation Mechanisms, etc. at the Warsaw University of Technology (Faculty of Mechanics, Faculty of Power and Aeronautical Engineering)
in parallel	
1945–1951	Polish Committee for Standardization (from Editorial Bureau Manager to Director General)

Warsaw, September 2, 1997 /----------/
Initiating members: Candidate's signature
1. Jan Bandurski
2. Antoni Kulikowski
(given and surname)

KSL Decision
Accepted as a member as of September 1, 1997 /--------/
Refused acceptance due to: _____
September 1, 1997 /--------/ The Board

On September 1, 1997, the then President of the WKSL Warsaw Senior Aviator Club, Włodzimierz Wilanowski, the long–time President of PLL LOT Polish Airlines, signed the acceptance of Prof. Jan Oderfeld as member of the Club in accordance with a resolution of the WKSL Board. The Professor was endowed with great feelings of sympathy and respect by all. He was always occupied by discussions, often mildly polemic, during Club meetings, discussions with many former active staff members or activists of the various branches of Polish civil and military aviation who were currently members of the WKSL and who he had also infected incurably with the aviation virus.

The monthly meeting of the WKSL – Prof. Jan Oderfeld and General Pilot Stanisław Skalski, the famous Polish fighter pilot and participant in the Battle of Britain

Memories were rekindled. There was concern regarding the future fate of aviation as well as expressions of readiness to provide advice as was possible and in line with age.

In August of 2005, as petitioned by the WKSL, the Polish Nationwide Blue Wings Aviation Award Chapter honored Prof. Jan Oderfeld with the award in recognition of great esteem.

Another form of the continuous activity of the aviation virus was visible in "teatime" at the Professor's home. It was attended by former colleagues and students from various years and schools.

Tales of those meetings demonstrated the analytical efficiency of the Professor's mind in the face of declining mobility. The Professor voiced unconcealed complaint to one of his guests: "How have I sinned to have to live so long?"

His one–hundredth birthday was a significant event for the Professor. His *alma mater* awarded him the degree of Doctor *honoris causa*. It was a touching day that was full of unexpected intimate emotion. The Professor, not without physical effort, took part in all the constituent parts of the exceptionally grand ceremony. It was his last public appearance. After this event he only left himself meetings with his closest family and friends. That is how he spent his 102nd birthday. His physical strength and efficiency inescapably dwindled.

He passed away on March 17, 2010. He was buried at the Lutheran Cemetery on Młynarska Street in Warsaw. He rests in a grave alongside his wife, Maria.

* * *

The achievements of Professor Jan Oderfeld, Ph.D., Eng. often found recognition expressed in the form of awards, certificates of recognition, and honorable memberships in organizations. The presentation of these commendations took up several showcases at an exhibition organized for the ceremony of the awarding of the degree of Doctor *honoris causa* at the Warsaw University of Technology.

As the Professor said himself, closest to his heart were the expressions of recognition shown by aviation organizations, such as the "Pułaski Wings" awarded by the Aviation Section of the SIMP Polish Society of Mechanical Engineers and Technicians or the "Winged Age" awarded by the Polish Aero Club. He highly valued honors bestowed upon him by his alma mater both directly or as the petitioner for the award:

– The Officer's Cross of the Order of Polonia Restituta (1964);
– Medal of the Commission for National Education (1976);
– Medal of the Warsaw University of Technology, No. 3 (1997);

– Doctor *honoris causa* of the Warsaw University of Technology (2008).

* * *

A commemorative plaque—**Jan Oderfeld – Częstochovian**—was unveiled on the wall of the Henryk Sienkiewicz Preparatory High School No. IV building on June 15, 2012.

In place of the bench in front of the Faculty of Mechanics building of the Warsaw University of Technology, next to the fountain, where the Professor usually sat to rest, is a symbolic bench and two chairs that were unveiled on July 13, 2012. The whole bears the name: "Oderfeld's Bench."

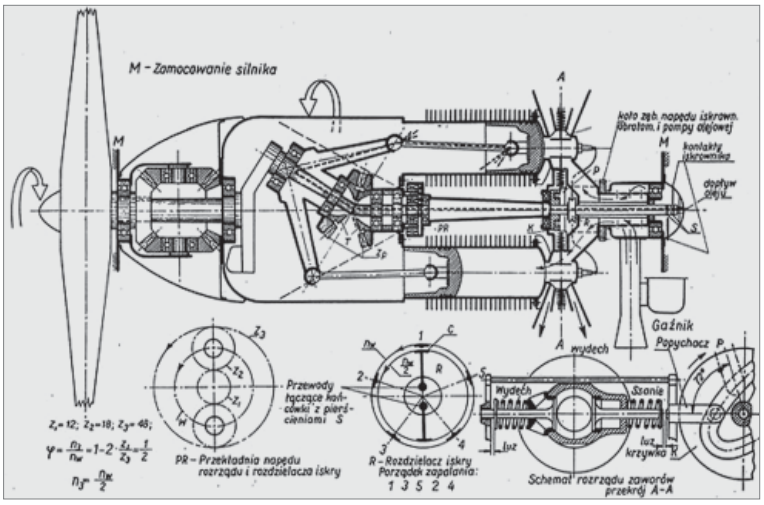
The Aircraft Engines of Professor Jan Oderfeld

Andrzej Glass

I came into closer contact with Professor Jan Oderfeld at the end of the nineteen-seventies when collecting information about Polish prewar aircraft engines.

In a note dating from 2002, Professor Oderfeld mentioned his first work on an aircraft engine:

> *It was 1926 or 1927 when I was on my vacation work-study program at the Pocisk Factory. I was assigned to the tool shop where parts for Brzeski's (birotary) engine were being machined. It was then that I noted the very costly, exquisite technology required by the engine. On the other hand, it was this very technology that was behind its low mass – 480 g/HP. The description of the engine by Engineer Stanisław Madeyski found in* Technika Lotnicza *[Aviation Technology] No. 3/1951 lists the various pros of the engine. However, it does not list its very serious con, which was the fact that the bulk of the engine's mass was a moving part. That, in my view, had to have a negative impact on its operation.*



Schematic diagram of the design of the engine designed by Engineer H. Brzeski: six-cylinder, N = 125 HP

At the start of the nineteen-thirties, engineers Jan Oderfeld, Józef Sachs, and Władysław Bernadzikiewicz were pioneers in turbojet engines in Poland. This work was described by Jan Oderfeld in *Technika Lotnicza* [Aviation Technology] No. 1/1948.

* * *

Jan Oderfeld

The Pioneering Years

(Reprint of the article published in *Technika Lotnicza* [Aviation Technology] in the September 1948 issue.)

It is thanks to the initiative of the ZPIL Association of Polish Aviation Engineers and through this note that I am trying to recreate the course of work on the jet engine and exhaust-gas turbine in which I participated from 1931 to 1939. This outline will, by definition, be incomplete. Of the three main contributors to this venture, two are no longer with us. I burned my own documentation in September of 1939, inclusive of several-hundred kilograms of drawings of the Research and Development Office of the PZL State Aviation Works – Engine Production Plant. For this reason, I can only recount the course of work on the basis of my memory, the partial notes of Engineer Sachs, and paltry printed documentation.

The search in the Patent Office that I conducted over these days gave no results. Records of submissions were destroyed for reasons that I shall discuss later, where payment for the first patents was never made. I only came across a granted patent relating to the turbine. I remember that a part of the work on the jet engine was presented at the SIMP Association of Polish Mechanical Engineers and Technicians Convention of 1933. That presentation was published in an automotive magazine, but I was unsuccessful in finding it. Some documentation for the turbine was found in Technika Lotnicza *[Aviation Technology] No. 8/37 and* Les Ailes *Nos. 853 and 864. Engineer Strzeszewski reminded me of certain details.*

This note does not apply to work carried out in this field by other Polish teams. I think there was at least one more team in Lwów, but I have no documentation at my disposal.

The Jet Engine Chronicles

In 1930, while serving in the Infantry Reserve Officers Training Corps in Zambrów, I met recruit Józef Sachs, who already knew more about arms, tanks, and aviation than the full training course of the Corps could provide. I have no idea where he learned it all. A significant portion of the information he held was not a part of the official program of the Polytechnic in Ghent, which he started, or in Toulouse, which he finished prior to being called up for military service.

Nevertheless, recruit Sachs had clearly crystalized views on airplane power plants that, at that time, had just exceeded the limit of 200 m/s. Sachs predicted that a further increase in speed justified vigorous studies on reaction engine (which is what they were called at that time).

In early autumn of 1931 we concluded our service in the army. It was a time of crisis, cutbacks, and dejection, but we were brimming with enthusiasm. I cannot today recreate the organizational details. That was the lot of Sachs. Anyway, the venture started quickly. Apart from us, Engineer Władysław Bernadzikiewicz and Julian Machlejd, the director of Haberbuch and Schiele, joined us.

Bernadzikiewicz, a graduate of the Polytechnic of Zürich, had over thirty–years of design experience at both Polish and foreign companies in the fields of casting, textiles, and machine tools. He brought significant know–how to our team, but primarily the concept of the tubular combustor, on which he had been working independently for some time.

Machlejd took it upon himself to be the patron of the venture. This social activist and eccentric, former pastor and former principal of Mikołaj Rej High School, invested thousands of zlotys in the jet engine in a nice and nonbinding manner, treating it as a "fluke on the highway."

The scarceness of funds forced us to take risks and build a big model. It was obvious that very significant sums would be needed in the long run. Only the Army could supply them. However, the Army had to be impressed. Thus, we hazarded construction of a large-scale demonstration model.

We performed the design, calculations for the model castings, a significant portion of the machining, and assembly ourselves at our workshop on Żelazna Street. Actually, only the aluminum casts were outsourced. We even executed the difficult milling of the rotor vanes, adapting a lathe to meet our needs by installing an ingenious device for pantographic copying.

If I remember correctly, the demonstration model worked in line with the following scheme: Combustion in the chamber, where the volume was fixed, which meant the chamber had valves; an axial compressor with guide vanes; a single-stage axial turbine; multiple diffusers in order to improve external efficiency.

The cam-operated valves were driven by the turbine shaft through a gear assembly, depicted in Figure No. 1, where it is also possible to note the guide vane flange as well as the injectors in the lower right and upper left corners. The horizontal intermediate shaft also powered the accessories. The turbine placement was such that it was partially cooled by the load stream reaching the injector nozzles.

Figure No. 1. Valve diagram of the large-scale model

We determined that assuming a complicated cycle with a fixed volume was necessary in the face of low initial compression in the axial compressor that, in essence, was a fan, not a compressor. Moreover, at that time we

thought that pulsation provides a slightly greater static thrust. To this very day I am not sure if we were right. Nevertheless, it is easier to criticize the scheme today than it was to build it then.

It was at that time that Bernadzikiewicz managed to dig up the strangest ideas for machining and designing from the treasure throve of his experience. Sachs imbibed the design with the spirit of aviation. I took the calculations upon myself.

The engine specifications were: combustion chamber capacity – 5 liters, revolutions per minute – 1,000. We expected static thrust of approximately 20 kilograms.

I think we built the demonstration model over a period of five months. It made a tremendous amount of noise, expelled an impressive flame, and its thrust output was … very low.

Naturally, we learned a lot and had rational plans for modifications. Unfortunately, our cost estimates were so gloomy that we switched from the big model to a second eventuality, a one–kilogram model fueled by gasoline and compressed air. This miniature was intended to serve the conducting of systematic studies on the impact of pulsation on thrust. This series of experiments was conducted under better technical conditions at the Experimental Workshop of the National Engineering Works (P. Z. Inż.) in Ursus. Ultimately, the demonstration model proved useful.

Over the course of the next year, my colleagues performed much valuable and well-targeted research work, albeit very ineffective. I personally had to limit my collaboration to part time work because I joined the Skoda Aircraft Engine Plant. In May of 1933 I submitted a report to the SIMP Association of Polish Mechanical Engineers and Technicians Convention in Warsaw. There was no discussion after the presentation as that day of the Convention was overshadowed by an indirect attack against the National Engineering Works (P. Z. Inż.). Thus, it was decided not to touch upon technical matters so as to have time for healing Polish motoring.

Incidentally, the attack must have been successful. Soon afterwards, relevant agents got to the jet engine applying the slogan: "Away with waste!"

Thus, it was hard to continue spending State Treasury money that, by that time had, according to my estimates, reached a whole 3,000 zlotys. The epilogue was near. A commission was set up. It consisted of two professors, theoreticians, and a colonel. The sentence was brief: The immediate series of major tests requires 300,000 zlotys, where even if such a sum for aviation research was to be found in Poland, it would be a shame to waste it on a jet engine.

We disbanded our company. There was no use in upholding our patent applications. Machlejd died soon afterwards. Bernadzikiewicz returned to machining (the Society of Mechanics and Ciegielski – Rzeszów). As for me, my collaboration with Sachs developed into a warm friendship that survived many years. In the field of aviation, it encompassed a lightweight cathode indicator, a centrifugal lubricant filter, and first and foremost, an exhaust gas turbine.

The Turbine Chronicles

In 1932, the most difficult component of the jet engine was the turbine assembly. I think the same was true in 1948. We decided to find a solution for that assembly. This was definitely a good idea as it could be built and tested separately as a component of a normal piston engine.

It is a known fact that a high exhaust temperature is coupled with high efficiency. However, this puts up high metallurgical demands on the turbine materials. We tried to bypass these difficulties by cooling the vanes at the top, as materials sufficiently resistant to creep at high temperatures (HTC) were not being produced in the country at that time.

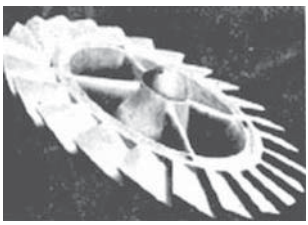


Figure No. 2. The turbine rotor of the large model

The second sensitive element was the turbine shaft bearings. Since work on the combustion turbine was being carried forward privately, on the edges of our professional work (Sachs at the Experimental Workshop of the P.Z. Inż. National Engineering Works and subsequently at Steinhagen and Stransky, and I at Skoda and later at the PZL State Aviation Works) and because our only research facility consisted of our drawing boards, and because this work was truly just a matter of "honor" in the actual sense of the word, our harvest of 1932–1936 was minor—a few patents, a few articles, and a lot of paper with drawings and notes. Figure No. 3 shows the schematic diagram of our turbine as we imagined it at that time.

In the meantime, the hot blasts of the approaching storms of war slightly warmed the arctic climate in which technical research was vegetating in Poland. There occurred a certain general orientation towards aviation.

Taking advantage of this, Director Łoziński purchased our entire archives on the turbine for the Engine Division of the PZL State Aviation Works. At the same time, he commissioned us with redesigning it. His only condition was that the work is not to be done to the detriment of the Research and Development Office's routine operations. Thus, this was more a matter of "venting the issues."

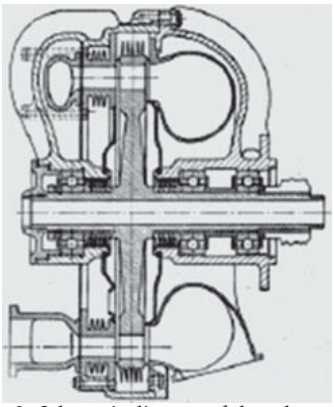


Figure No. 3. Schematic diagram of the exhaust gas turbine

Due to the requirements of the military authorities, the Research and Development Office operated in a room that was so top secret that its only connection with the rest of the factory was the telephone. I loyally promised to not inform Sachs of the progress of work. In exchange for this, that amazingly talented designer, a true fanatic of the idea and a real patriot, showered me with valuable ideas for improvements whose implementation he was not allowed to see.

The "venting of issues" did him good. I remade the design, painstakingly adapting it to the enormous potential provided by the PZL.

From among the factory staff, valuable input came from H. Jackowski (who lost his life in 1939). The successful conducting of tests goes to the credit of W. Strzeszewski. E. Kotarski (who also lost his life in 1939) and B. Górski who took part in solving difficult questions regarding machining.

The turbine found its way onto the test stand in 1938.

A Cirrus engine served as the source of the exhaust fumes. It was hooked up to the turbine using the shortest possible ducts. The arrangement of measuring devices made it possible to measure both the power of the engine and of the turbine. A Junkers engine test stand was connected to the turbine. Initial tests lasting a few minutes were successively lengthened until ninety minutes of nonstop operation was achieved. The peak power amounted to 11 HP and 12 HP, in line with expectations. This gain significantly exceeded the drop in engine power caused by the backpressure.

Problems did crop up with the bearings, of course. However, upon introducing minor modifications all problems disappeared. The oil cooling of the shaft was never even switched on. A major defect did make itself known: the inner cooling ring—fitted and riveted—failed. Because this had been expected, at the moment of the accident, which was in no way dangerous, a method of machining the rotor from a single piece had already been tested. However, in order not to waste time, the cooling was completely shut off, thus demonstrating that the danger of the burning of the vanes proved to be much smaller than expected.

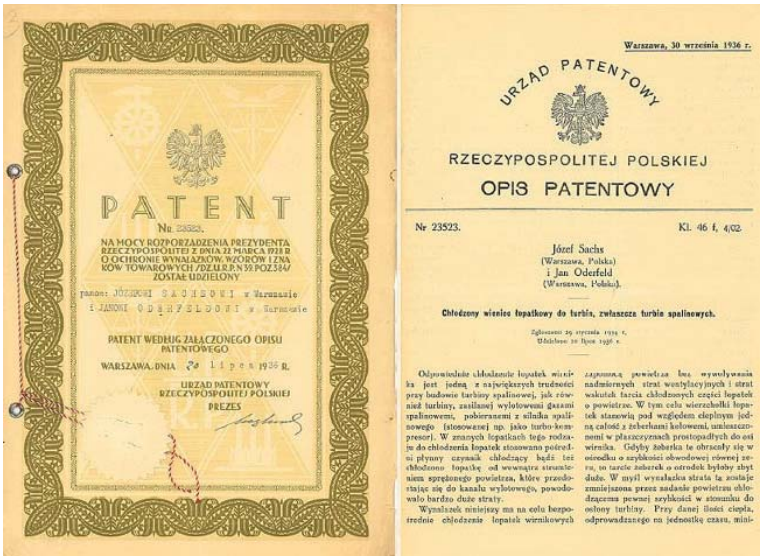
The result was that by February of 1939 quite a significant amount of quite promising material was amassed, but then work was suspended. The events of 1939 proceeded forward at such a rate that the hierarchy of priorities—urgent, very urgent, most urgent, even more urgent, government urgent, etc.—extended off into infinity and no one had time for turbines.

During the Occupation, Bernadzikiewicz worked at PZL–Rzeszów and subsequently applied his ideas in metal hardware. He headed to the Technical Office at Cegielski's after the war. He died in 1946.

In September of 1939, Sachs fought in the defense of Warsaw. He was lightly wounded. As the year 1940 arrived, the German grip increasingly clamped down. Sachs belonged to a secret military organization and decided to get to Hungary. The first attempt was unsuccessful. In his second try in September of 1940 he was in the wake of a serious illness and stopped for a moment in a forest to gather his strength. The whole group passed through successfully. Only he fell into the hands of the Germans. This was followed by transitional arrest and ultimately Auschwitz. News of his death came in 1941.

Looking from the perspective of years gone by, I think that our team could have done more given better conditions. I think the words I found in Sachs'

notes after the war were not a symptom of megalomania: "An important piece of information has to be added here. On September 30, 1936, Messrs. Józef Sachs and Jan Oderfeld were granted Patent No. 23523 from the Patent Office of the Republic of Poland."



PATENT

Nr 23523.

NA MOCY ROZPORZĄDZENIA PREZYDENTA RZECZYPOSPOLITEJ Z DNIA 22 MARCA 1928 R. O OCHRONIE WYNALAZKÓW, WZORÓW I ZNAKÓW TOWAROWYCH (DZ. U. R. P. Nr 38 POZ. 344) ZOSTAŁ UDZIELONY

panom: JÓZEFOWI SACHSOWI w Warszawie i JANOWI ODERFELDOWI w Sarnowie

PATENT WEDŁUG ZAŁĄCZONEGO OPISU PATENTOWEGO.

WARSZAWA, DNIA 30 lipca 1936 R.

URZĄD PATENTOWY RZECZYPOSPOLITEJ POLSKIEJ

PREZES

Warszawa, 30 września 1936 r.

URZĄD PATENTOWY

RZECZYPOSPOLITEJ POLSKIEJ

OPIS PATENTOWY

Nr 23523. Kl. 46 f, 4/02.

Józef Sachs
(Warszawa, Polska)
i Jan Oderfeld
(Warszawa, Polska).

Chłodzony wieniec łopatkowy do turbin, zwłaszcza turbin spalinowych.

Zgłoszono 29 stycznia 1934 r.
Udzielono 30 lipca 1936 r.

Odpowiednie chłodzenie łopatek wieńca jest jedną z największych trudności przy budowie turbiny spalinowej, jak również turbiny, zasilanej wylotowemi gazami spalinowemi, pobieranemi z silnika spalinowego (stosowanej np. jako turbo-kompresor). W znanych łopatkach tego rodzaju do chłodzenia łopatek stosowano pośrednio płynny czynnik chłodzący bądź też chłodzono łopatkę od wewnątrz strumieniem sprężonego powietrza, które przedostając się do kanału wylotowego, powodowało bardzo duże straty.

Wynalazek niniejszy ma na celu bezpośrednie chłodzenie łopatek wirnikowych zapomocą powietrza bez wywoływania nadmiernych strat wentylacyjnych i strat wskutek tarcia chłodzonych części łopatek o powietrze. W tym celu wierzchołki łopatek stanowią pod względem cieplnym jedną całość z żeberkami kołowemi, umieszczonemi w płaszczyznach prostopadłych do osi wirnika. Gdyby żeberka te obracały się w ośrodku o szybkości obwodowej równej zeru, to tarcie żeberek o ośrodek byłoby zbyt duże. W myśl wynalazku strata ta zostaje zmniejszona przez nadanie powietrzu chłodzącemu pewnej szybkości w stosunku do osłony turbiny. Przy danej ilości ciepła, odprowadzanego na jednostkę czasu, mini-

Patent for a cooled turbine vane ring, especially for exhaust gas turbines

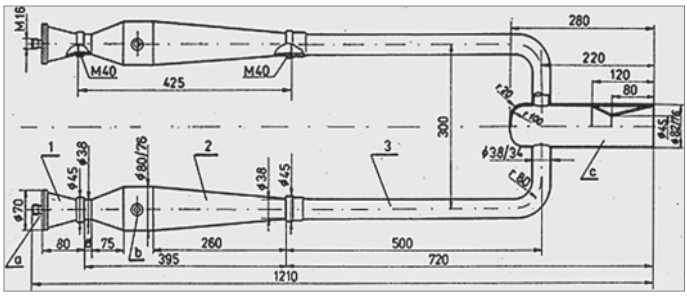
* * *

Jan Oderfeld's first publication on the turbine appeared in *Technika Samochodowa* [Automotive Technology], No. 5/1933. I wrote about the efforts to build a turbojet engine in Poland in *Technika Lotnicza Astronautyczna* [Aviation and Astronautic Technology] No. 6/1982.

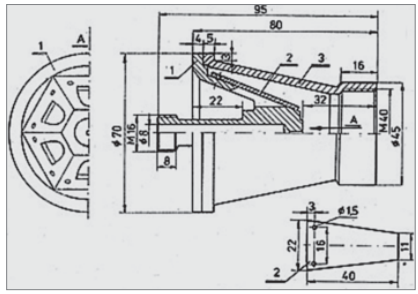
When Warsaw's Museum of Technology displayed a 1933 pulsejet engine as designed by the Jan Oderfeld, Józef Sachs, and Władysław Bernadzikiewicz team, Associate Professor Tadeusz Gajewski, Ph.D., Eng. of the Polish Air Force University wrote an article for the *Technika Lotnicza Astronautyczna* [Aviation and Astronautic Technology] about it. It was then that I conducted measurements of the engine and produced technical drawings and its technical description, including measurements, at the Museum.

Professor Jan Oderfeld's comments to the exhibit include information such as: "The model is a supplement to a significantly damaged prototype that, in an unknown manner, found its way into the hands of Professor Stanisław Wójcicki and thanks to whom was rebuilt at the WSK Transport Equipment Manufacturing Plant, Okęcie." Continuing,

Exhibit: Engine model in the Museum of Technology



The Polish pulsejet engine from 1933. 1 – Air intake into the engine, equipped in an injector (a) and inlet valves; 2 – Combustion chamber with a spark plug (b); 3 – Exhaust pipes; e – Common propelling nozzle. Reconstructed on the basis of measurements made by Andrzej Glass



Pulsejet engine inlet with valves: 1 – Inner air intake cone with openings; 2 – Flap valves loosely mounted using rivets; 3 – Outer air intake cone; A1 – View of only the inner cone, reconstruction based on measurements made by Andrzej Glass

he stated that "… a certain role in the concept behind the engine was played by the work of engineers Wiciński and Bujak (at the Parowóz Factory) on utilizing the vibrations of the exhaust system of a internal combustion piston engine for dynamic supercharging (known as the WIBU system). The Bernardzikiewicz model worked, but it was never developed or applied."

The selection of materials and production technology was a separate problem facing the designers. The primary material consisted of thin-walled tubes (with a maximum thickness of 3 mm) of low–carbon structural steel that was not resistant to high temperatures. For reasons of technological simplicity the joints were welded. The flap valves were made of thin elastic sheet metal of a thickness of 1.5 mm. Thus, the engine was a multifaceted pioneering achievement of Polish design in the field of aviation technology.

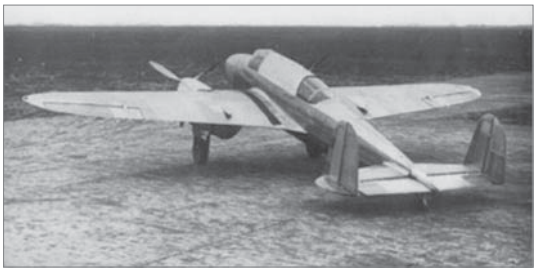
The PZL Foka Engine

In the second half of 1934, the Department of Aeronautics of the Ministry of Military Affairs came to an agreement with the PZS Polish Skoda Plant regarding conditions for building an engine for the Wilk PZL-38 fighter plane as designed by Engineer Franciszek Misztal. It was assumed that the engine was to be an inverted V–eight engine with a displacement of 10 liters and take-off power amounting to 309 kW (420 HP) at 4300 rpm. The engine was also to be equipped in a frontend reduction drive and supercharger.

Engineer Stanisław Nowkuński (1903–1936), a graduate of the Warsaw University of Technology, was the author of the engine design. He started work on it in 1934 and subsequently headed an engineering team put together to design it. The engine was named the "Foka" [Seal]. It was with this team that Engineer Jerzy Bełkowski developed the crankshaft mechanism and torsional vibration suppressors, Engineer Kazimierz Księski worked on the exhaust system (compressor and intake tubes), and Engineer Jan Oderfeld was responsible for the camshaft and cooling.

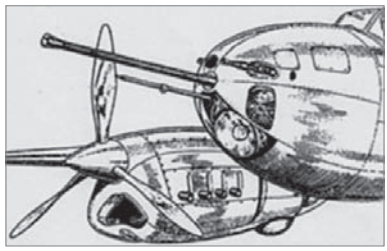
The basic design documentation for the engine was developed in 1935 and the first half of 1936. In July of 1936 Engineer Stanisław Nowkuński died tragically in the Tatra Mountains. Engineer Jan Oderfeld took over the management of the design work.

The engine prototypes were built. They were intended for a series of tests on an engine test stand. Several design mistakes and defects in implementation were identified. I included more detailed descriptions of these works in an article published in *Technika Lotnicza Astronautyczna* [Aviation and Astronautic Technology] No. 2 in 1980. Here, I will limit myself to presenting problems involving major vibrations. It turned out that the mass of the counterweights proved too small. Engineer Jan Oderfeld designed new ones, increasing their mass and balancing the engine. After a meticulous analysis of the results of fifteen hours of testing as well as a detailed overview of the entire design, during which one of the things discovered were cracks on the engine block, the engines were installed on the PZL-38 Wilk [Wolf] airplanes.



The PZL-38 Wilk

The airplane was displayed at the International Aviation Show in 1938. The engine's power output was not stated, however.



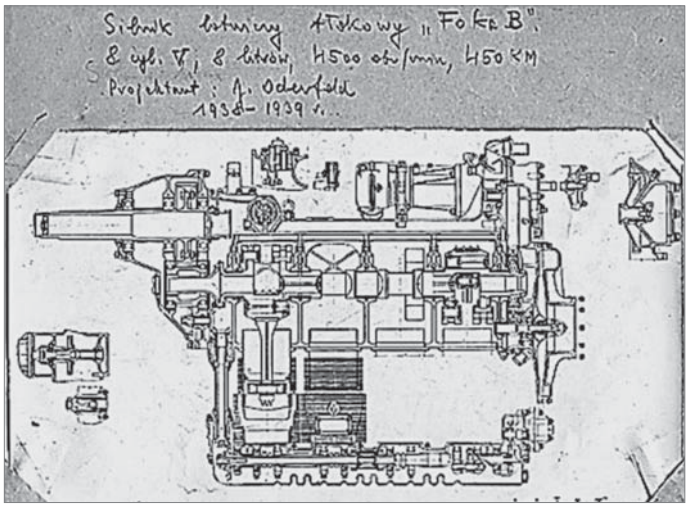
The Foka (PZL–38) engine nacelle

In the spring of 1939, test flights of the Wilk demonstrated that it needed engines with more power than the designers had foreseen. The decision was taken not to mass–produce the Wilk. Work was launched on an improved version of the PZL P-48 Lampart [Leopard], equipped in two Gnöme-Rhöne Mars engines with a rated power of 500–516 kW (680–700 HP). Avia of Warsaw had been licensed to build these engines.

It was then that Engineer Jan Oderfeld started work on the design of a new 12-cylinder engine rated at 440 kW (600 HP) at an altitude of 5,000 m. The documentation was completed and workshops made elements for the engine, but there was not enough time to start testing prior to the outbreak of the war.

In the wake of the bombardment of the factory on September 3–4, 1939, documentation for the Foka engine was transported to the home of Engineer Jan Oderfeld at No. 11 Słupecka Street in Warsaw on September 4. The Design Office also moved to his apartment. It is there that the documentation was transferred to microfilm and the actual drawings were destroyed.

The prototypes for the Foka were neither destroyed nor evacuated. One of them, fully assembled and in the process of final testing, was

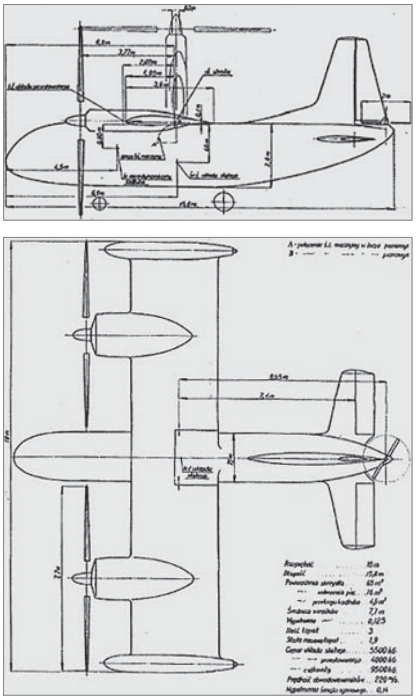


Cross-section of the Foka B engine (design diagram). Sketch labeled by Professor Jan Oderfeld

abandoned on September 6 in the Research Workshop. Like all Foka engines, it was painted blue. It most probably fell into the hands of the Nazi army that occupied the Okęcie PZL State Aviation Works – Engine Production Plant in Warsaw.

The Tur Engine

It was at the OKL Aviation design Office established at the WSK Transport Equipment Manufacturing Plant at Okęcie that work was taken up on three research topics in parallel over the years 1959–1969. The topics had a common thread: to design a transportation plane with vertical or short take-off. A team was put together in that Office, headed by Bronisław Żurakowski, to develop a design for a vertical take–off and landing plane. The plane was designated PS. Three designs were developed, the PS-1, PS-2, and PS-3, with a substitute truss fuselage earmarked for the steering test program. The team was headed by Jan Koźniewski, M.Eng. At the same time, two other teams were working on short take-off transportation planes. A design for a single-engine plane, designated the KS–1, was developed by the team headed by Engineer Stanisława Raboszuka while a two-engine plane, the KS-2, was developed by the team of Marcin Marcina Fortuński, M.Eng.



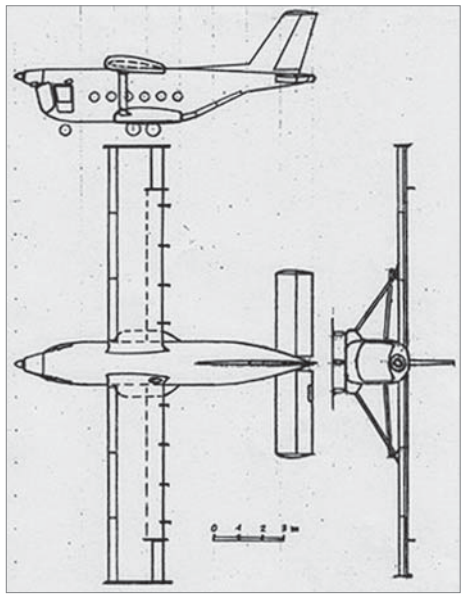
Silhouette of the PS-2 airplane, power plant: two units, two TUR engines, designed by Jan Koźniewski

Among the primary assumptions of all three projects was the use of the turboprop engine, whose development was headed by Dr. Jan Oderfeld, Eng., at the Office managed by Engineer Wiktor Narkiewicz.

The original idea for the PS-2 power plant was the coupling of two Tur engines working as an assembly of two engines powering a single transmission to the propeller shaft. The air intake of one of the engines was from the front while the other one, positioned in reverse, had its intake

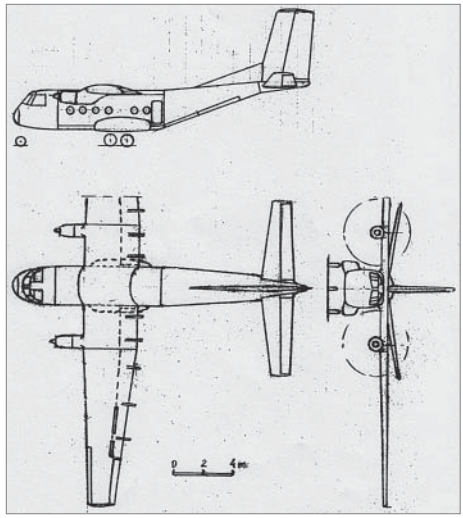
from the back. Such a scheme eliminated the engines gyroscopic torque as the effects mutually cancelled each other out. Professor Jan Oderfeld consulted this concept.

Unfortunately, no potential military or civilian user expressed any interest in the purchase of any of the designs. Absent funding for implementation, work on all designs for short and vertical take-off planes was halted without starting work in the shops. This also marked the end of Professor Jan Oderfeld's design work in the area of aircraft engines.



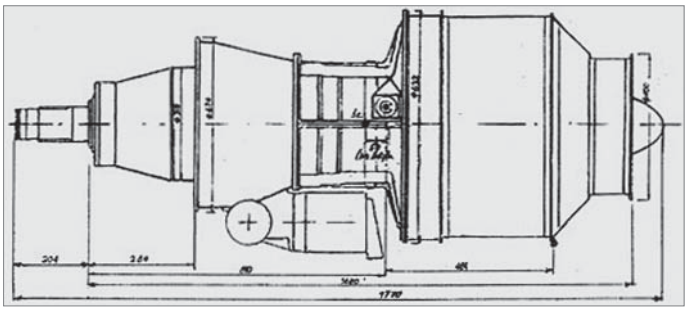
Silhouette of the KS-1 airplane, powered by a TUR engine, designed by Stanisław Raboszuk

In 2002, Professor Jan Oderfeld, together with Engineer Jan Wyganowski and myself, planned on developing a work entitled *Polska myśl techniczna w dziedzinie silników lotniczych* [Polish technical thinking in the field of aircraft engines]. It was to have encompassed the history of the development of aircraft engines by Professor Karol Taylor's Chair of Internal Combustion Engines (1923–1939), the Technical Group of the Aviation Officer Training Corps (1936–1939), the Wawelberg and Rotwand School of Engineering (up to the year 1939 and the years 1945–1951), and his own Chair of Aircraft Engines (1951–1955). The work was also to have shown new Polish aircraft engine designs from the years 1926–1961, specifically the engines of H. Brzeski, S. Nowkuński, J. Oderfeld, and W. Narkiewicz.



Silhouette of the KS-2 airplane, powered by two TUR engines, designed by Marcin Fortuński

Materials were amassed for this work, a bibliography was developed, and Professor Jan Oderfeld wrote down his comments regarding the collected materials.



Sketch depicting the side view of the Tur turboprop engine rated at 1,200 HP; the lead designer was Dr. Jan Oderfeld, Eng. (drawing by Andrzej Glass)

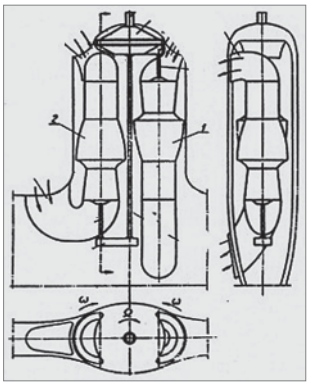


Diagram of the two Tur counter-rotating engine assembly for the PS-2 airplane

Unfortunately, work was suspended. I spoke with the Professor often. I experienced much kindness on his part regarding my research and work on Polish aircraft engines during those conversations. These discussions often stirred up memories reaching back to his studies in high school where, he said: "… I gained the most knowledge right up to graduation. College, on the other hand, only facilitated my finding professional literature.…"

When questioned about his adversaries, people who were obviously detrimental, he replied: "… one does not speak ill of the deceased…" This bears witness to his moral stance beautifully.

Jan Oderfeld: Designer and Visionary, Master and Teacher

Andrzej Moldenhawer

Engineer Jan Oderfeld offered me a job. He knew that my interests in pulsejet engines reach far back, all the way to when attending Wawelberg's I was president of the student aviation club and involved in the power plants of future airplanes. There, together with Aureliusz Misiorek, a sergeant at that time and also a Wawelberg student, we tried to get a small model of a ramjet engine to work, Unfortunately, taking into account our conditions, this proved impossible. Later, Misiorek, a colonel by then, looked at the possibility of modernizing military aviation. He later held managerial positions in civil aviation. He never came back to the subject of the pulsejet engine.

As it turned out, after more than a dozen years and as a staff member of the Aviation Institute, I took part in research into the ramjet engine. At that time the implementation of any design whatsoever was something like working on a desert island. The father of one of my colleagues had a store on what was left of Marszałkowska Street. He stocked various automobile parts as well as parts from other machines. Their source was dismantled ex-German scrape. That was our source for components important in our work: pumps, rubber seals, and valves. Engineer Jan Oderfeld also had to think up solutions for his ideas using what he could get. Our team included a very good worker who was a turner, grinder, and welder. Almost magically, he could make anything. Another very important member of our team was our supplier. He provided us with various parts and tools and just about everything that it seems we needed, all very difficult to get a hold of. There was also the very industrious and intelligent mechanic with whom I collaborated the most. We had at our disposal a small workshop with drills, lathes, welding machines, and grinders—tools that we received from the Wawelberg School. It

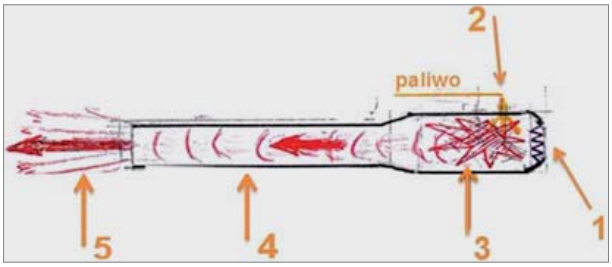


Diagram of the operation of the V-1 engine – "combustion" phase; 1. flap valves; 2. fuel supply and ignition system; 3. combustion chamber; 4. exhaust pipe; 5. fume outlet

was thanks to this that we could undertake various experiments. Initially with small model pulsejet engines with spring valves made in the United States that I had purchased earlier. These experiments interested Engineer Jan Oderfeld a great deal. This was something he and his colleagues felt passionate about prior to the war. Looking back, I think that that was probably the only time in his life when he could work totally independently. He selected the members of his team himself, he secured money from the PAN Polish Academy of Sciences, and he was able to involve himself in things related to powering planes with pulsejet engines.

During such tests I wondered if perhaps it might not be possible to build and test a valve-free engine that, in our model, might be something better, in terms of principles, than the huge pulsejet engines powering the German pilotless V-1 bombs in the last year of the war.

The engines of these bombs that flew like pilotless airplanes had "flap" valves, which were failure prone. During the combustion phase there was a fall in pressure inside the engine, fuel and air were sucked in because the flap valves opened, a mixture was created followed by combustion again. The cycle repeated itself in pulses. The flap valves often suffered damage during the almost hour-long flight. As is easy to deduce, little was known at that time about questions of material fatigue, especially at rather high temperatures.

How did we know this? At the start of the Cold War, some information was available in Poland regarding these engines and Engineer Jan Oderfeld knew how to get to such information.

He was most certainly aware of how very limited his and his friends financial and technical resources were when, prior to the war, they were building their ramjet. However, he was always of the view that it is possible to do something new in Poland and people like him and his friends, engineers Józef Sachs and Władysław Bernadzikiewicz, had just such a mutual, novel idea.

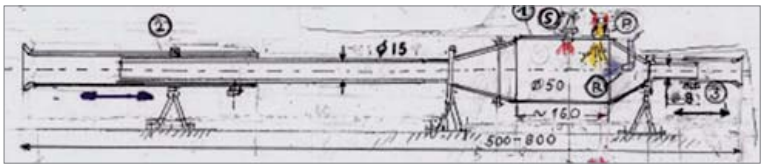
The Valve-free Pulsejet Engine

My idea was this: The building of a pulsejet engine without easily–damaged unidirectional moving valves is possible.

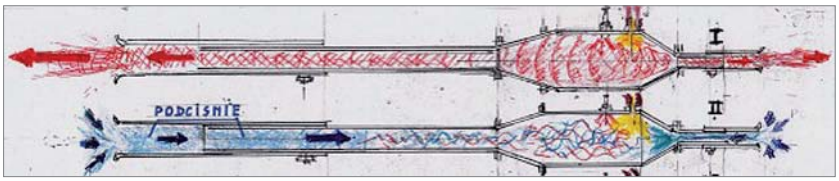
It would have been an engine whose operation would only be limited by the quantity of the fuel supplied. I asked Engineer Jan Oderfeld about it. He convinced me to try to build such an engine. Maybe the reason he tempted me to proceed with such experiments was because such a valve-free engine could simply be just a steel pipe of variable shape. Thus, it would be extremely inexpensive and lightweight. But what shapes should it have? What proportions? How could the calculations be made?

It was at this point that Engineer Jan Oderfeld hit upon an extraordinary idea that was later successfully implemented. Not having much knowledge at that time about German work on the V-1 eight years after the war, we wondered as to the sense of the work of our small, eight-man group under the leadership of Engineer Jan Oderfeld. The question that kept resurfacing was whether we could really do something new. Today, I wonder what problems Oderfeld's team would have come across if they had been successful in bringing the idea that he presented to life. What we wanted to do was build a small single-engine airplane, most probably serving the needs of the military, powered by such unconventional jet propulsion. Engineer Jan Oderfeld attentively listened to each one of us during the discussions we had on that question. He debated the matter very elegantly. At the same time, he had the enormous advantage over us of knowledge and experience.

How was it that our valve-free engine came to be? I built it of regular 0.8 mm carbon steel sheet metal. It was modeled after an American hobby engine with a combustion chamber approximately 50 mm in diameter and a length of 150 mm. Two exhaust tubes were welded to that chamber. The longer one had a greater diameter and exhausted fumes from the back while the shorter one, with a smaller diameter, did so from the front. I placed additional sliding tubes on the external surfaces of both those tubes that could be anchored at any point.



A sketch (from memory) of the first valve-free pulsejet engine: 1. combustion changer; 2. rear exhaust tube with external sliding tube; 3. front tube with a smaller diameter than the rear one with external sliding tube; P – fuel supply; S – initial ignition sparkplug; R – air intake for initial combustion



Schematic diagram of the operation of a valve-free pulsejet engine – to the sketch above: phase I – ignition; phase II – suction

Adjustment of the mutual positions of the tubes allowed this strange engine to start up. This idea, unknown in Poland and quite possibly in other countries, works on the assumption that following combustion of the flammable mixture in the combustion chamber, most of the fumes will flow to the back and a lesser amount to the front. During the suction phase, when fresh air flows in through the front tube to the combustion chamber, a fresh mixture will again be made thanks to the simultaneously injected fuel. Fumes remaining after the previous combustion phase will bring about successive combustion.

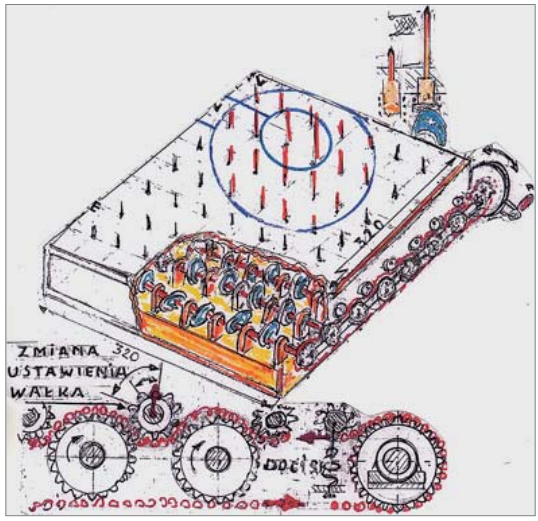
It was regarding such a system that we had had earlier long discussions with Engineer Jan Oderfeld. Among other things, attention was called to the problem of developing a system for initial start-up. How can one prevent the flooding of the combustion chamber with fuel if the first combustion event fails to initiate successive, pulsating, continuous engine operation? It is then that we found out from Engineer Jan Oderfeld that prior to World War II he and his team faced similar problems. When we started tests with our, already valve-free engine, or rather our strange tube, the valve-free engine suddenly began to work thanks to some chance combination of geometry. I remember that I was in the hall alone and it was evening. When the next day I told Engineer Jan Oderfeld that it works, he was very pleased with this "invention" and promised to try to calculate the proportions of tube lengths and shape so that the engine could operate optimally.

The set of parameters to be analyzed in simultaneous operation encompassed the diameter and length of the front tube, the diameter and length of the rear tube, and the diameters, lengths, positioning with respect to the internal tubes of both external ones. As yet, there were no computers in Poland and no one knew how to write a program for calculating over a dozen geometric interdependencies. This was without even getting into thermodynamics and sound waves that were important in the operation of such engines. This I learned several years later from Associate Professor S. Wójcicki. Thus, what had to be

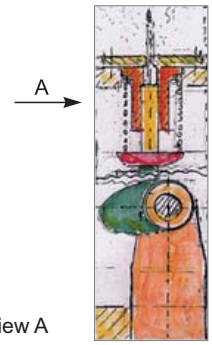
done was to make a device that would make possible the coordination of the moving of elements signaling a given state and correlating that shifting with the physical sense of the examined phenomenon.

The Secret of Jan Oderfeld's Black Box

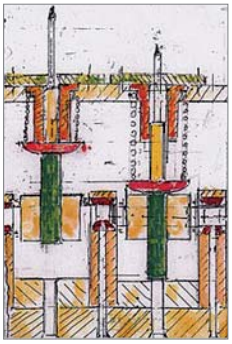
Engineer Jan Oderfeld's first action was aimed at building a mechanical assembly controlling the system state signaling device locations—prerequisite to making decisions regarding the optimizing of the system. Later, it was necessary to formulate conditions that would answer the question: What does optimum mean? Optimum criteria could be formulated as maximum thrust, minimum fuel use, unexceedable temperature at the most dangerous location, unexceedable noise level, etc. Economic premises could also be taken into account. All this is how work on the shaping of the valve-free pulsejet engine could be approached. It was on the basis of his preliminary calculations and sketches that our team went to work on a mechanical device based on the idea and design of Engineer Jan Oderfeld. We had complete trust in him. It took several weeks. It was necessary to procure bicycle parts and make no small number of turned and metalworked elements. During this strange building operation, Engineer Jan Oderfeld told us that in this design he utilized his own experience in shaping cams moving pushrods in controlling the opening and closing of valves in internal combustion engines. That is a difficult task. I do not remember if the "black box" looked exactly like the hand drawing, but I tried to show the main design idea of Engineer Jan Oderfeld, at least in outline form. There were seven shafts inside the box. Cams were attached to them not unlike the camshafts of piston engines. It was possible to attach the cams to the shafts at various angles. The rotary motion of the



Sketch of the diagram showing the workings of the "mysterious box" of Engineer Jan Oderfeld. Inside the box: camshafts (blue). The chain drive is seen from the front: gears driving the rotation of the shafts and the pushing of the rods. Red marks the most highly pushed up rods (optimum region?)



View A



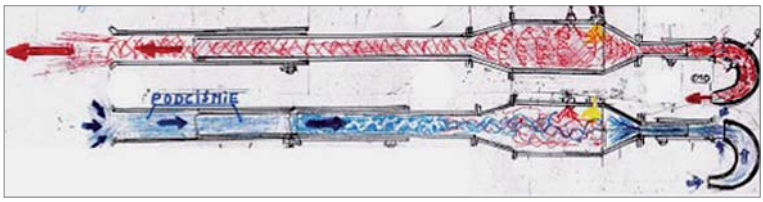
shafts was achieved by the chain movement whose lateral motion was transmitted to the rotating shafts by way of gears. The cams moved in line with the rotation of the shafts and pushed on rods made of bicycle spokes. This caused the pushing of these rods to various heights above the box cover. The rod tops defined a certain spatial surface. The region of the most extended rods could indicate the location of the most advantageous solution if the motion of the system was in agreement with the assumed parameters. Each change in position of the gear meshing of each of the shafts with respect to the chain as well as the changes in angles of the cams in terms of the shaft entailed a change in shape and dimensions of that imaginary surface marking the locations of the ends of the pushed up rods. On the basis of today's knowledge it can be said that this was a device that, if the correlation with concrete physical properties was maintained, could indicate the area of proposed optimum solutions.

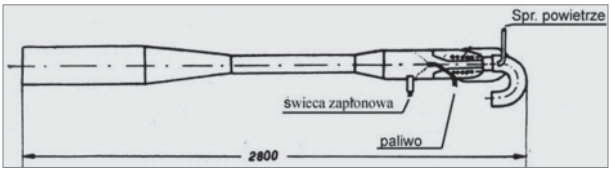
The action of the cams attached to the shafts involved the pushing up of the rods above the upper surface of the box cover. View A shows the two extreme positions of the rods alongside each other. When the tooth of the cam was located pointing up, the rod was at its highest point. If the tooth was pointed down then the rod barely extended above the box cover. Thus were created the imaginary surfaces of rod tips indicating the best solutions. Upon completing this phase of the program, it was necessary to move on to the most difficult part of the job: development of the functional relations between the controllable elements of the box, which many years after its startup was called a "mechanical computer" by those familiar with this subject matter, and the dependencies of the physical properties that have a significant impact on the design solution for optimum qualities. It was at this point that we were surprised by the information that a decision was taken to abort and close down the program as well as to disband out team.

Bocian Puls

Work on the development and possible application of the valve-free pulsejet engine was continued, however. A decision was taken to eliminate one of the basic defects of the current solution: change the

Sketch of the diagram for the Bocian Puls pulsejet engine operation





A sketch showing an external view of the Bocian Puls engine

View of a model of the Bocian Puls glider

direction of the thrust in front of the combustion chamber to make it in agreement with the direction of the thrust component behind the chamber. This effect was achieved by terminating the tube with what is known as a "snorkel" turning the front thrust by 180°.

In outline form that is what the pulse working cycle diagram looked like, but during combustion (upper sketch), the thrust in both outlets was directed in the same direction.

In striving to test such a valve-free pulsejet engine in practice, the Institute of Aviation launched a program. Its aim was to build a motor glider with such a propulsion system as well as to the test the system under flight conditions. The engines were developed by a team headed by Dr. Stanisław Wójcicki, Eng. Dr. Oderfeld, Eng. acted as a consultant.

The motor glider airframe was an adapted SZD-9 two-seater glider—Bocian—later referred to as the Bocian Puls. The team building the glider was headed by Dr. Justyn Sandauer, Eng.

Four valve-free pulsejet engines were used as propulsion. Their total thrust amounted to approximately 300 N. This was insufficient for independent take-off, but once launched by aerotow, the two-man crew was capable of horizontal flight at a low altitude of approximate-

ly 300 m. The motor glider completed fifteen flights in 1956. Total airborne time amounted to twelve hours. Test results were not deemed encouraging and the program was interrupted.

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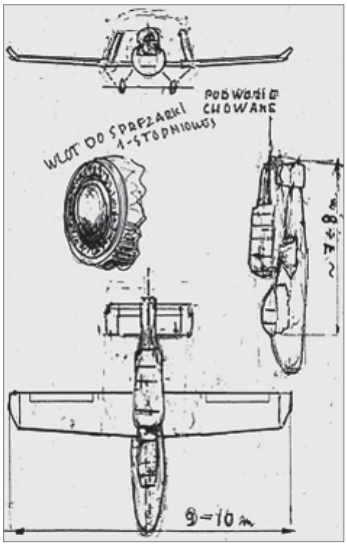
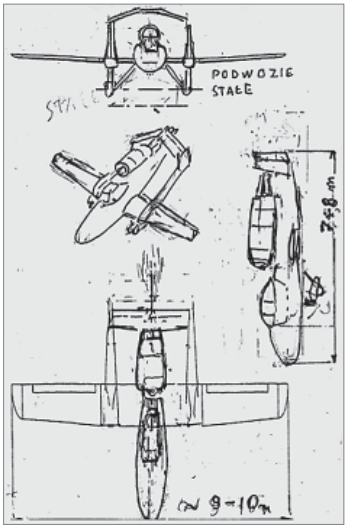




Conceptual sketch of the "postal" plane as imagined by Professor Jan Oderfeld around the year 1935 and recreated in 2006

The Professor, then already retired, lived on the fourth floor of a building on the corner of Niepodległości Avenue and Nowowiejska Street belonging to the Warsaw University of Technology. My sister, Mary, had an apartment on the opposite corner. Thus, when I visited her, very often I also dropped in on the Professor and recounted what I was working on. He was very interested and asked me about various details. We often looked back on the old work and ideas of the Professor.

Almost at the same time I started work on a new, propellerless airplane propulsion system and the Professor would unfurl visions of its applications. No notes or drawings on the concept of such a plane were created almost seventy years earlier. The Professor outlined the probable goals for which such a plane might serve. He mainly saw it from the perspective of military use and called it a "postal plane."

Discussions encompassing those memories resulted in my making sketches of the Professor's ideas because, as he sometimes shyly admitted, he did not like to draw.

The sketches of airplane systems received the Professor's approval as being close to those that emerged in his visionary imagination.

It is necessary to take into account the passage of time and new information on the subject, but the basic solutions in the overall system—i.e. the mutual placement of the airframe, fuselage with its cabin for the crew, and jet engine guaranteeing the intake of air to the engine and the exhaust of fumes—bear witness to insightful analysis of the question.

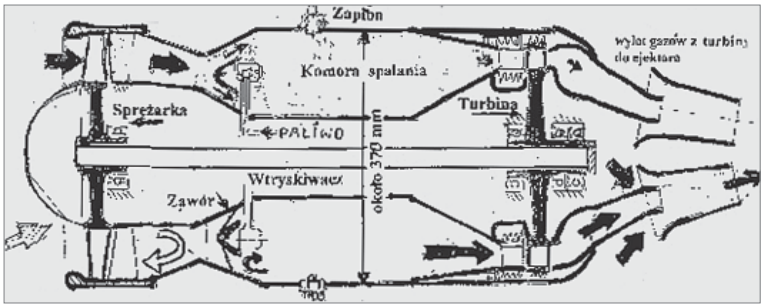
The First Jet Engine

This multiple recollecting of such world-scale pioneering endeavors and achievements led me to an expanded analysis and assessment of more than just the engineering and scientific aspects. Nothing concrete has been preserve of the original documentation. In recalling the 1932–1934 period, the Professor not only recounted the details of design work and research, but also tried to compare the conditions such activities faced in other countries. His trips down memory lane brought up certain design details of the engine started up in 1934. This made it possible to produce a successive sketch presenting the ideas of the then engineer Jan Oderfeld and his two illustrious colleagues—Engineer J. Sachs and Engineer W. Bernadzikiewicz. He never indicated who the primary designer was because that was neither possible nor important.

That engine contained design proposals that did not find mature application until many years in the future.

This job, which was the start of the entire design effort, included question regarding the dimensions and the shapes of just about all assemblies and subassemblies of the engine: the centrifugal compressor, combustion chamber, the shape and dimensions of the valves, turbine, and the common shaft with its bearings and bearing cooling system. An original idea improving engine thrust was the application of an ejector system to which turbine exhaust fumes were introduced. This increased the mass of gasses and resulted in increased thrust.

However, a financial barrier cropped up and a decision at government level was that it was "a waste of money" and there shall be no government subsidies. Most probably no one in Poland knew of any work on jet propulsion in other countries. Information surfaced regarding work in England and Germany after the conclusion of World War II.



Concept sketch of the first jet engine (1934)

It turned out that in their pioneering work—both in the case of Hans von Ohain in Germany before he garnered the interest and financial involvement of Heinkel, and Frank Whittle in England before he received the unwavering assistance of the Gloster Company—came up against serious impediments on the part of representatives of the military authorities who failed to see any future for this new type of aircraft propulsion system.

Melancholic thoughts on the part of the Professor were observable during discussions on this topic. In addition to topics from long ago, Professor J. Oderfeld was very interested in contemporary questions. His keen interest in my own current work provided me with no small dose of pleasure.

As before, he demonstrated his extreme inquisitiveness during explanations and descriptions on my part, which stirred great emotion in me. It was a little as if an apprentice reported to his master—very demanding, but also very affable.

The design and testing by me of launchers for unmanned models so interested the Professor that, together with Professor Stefan Szczeciński of the WAT Military University of Technology, he paid me a visit at my workshop, where a model of such a launching pad was being created. And once again, the astute Master demanded that the apprentice justify the selected solutions in line with his principle that for a designer, no detail is unimportant or even less important. This launcher, following the refining of the design and operation, and after functional tests, found application in firing ranges in the operations of the Polish military.

The Inquisitive Master: At home and in his workshop near the launching pad

Utilizing my non-engineering interests, I painted a picture of the Professor, albeit somewhat stylized. With no small dose of the jitters I brought that painting to the Professor's apartment and, to my great satisfaction, I heard many complements. The painting was hung in a very visible spot in the Professor's room.

After the Professor moved to a ground floor apartment in a residential building of the Warsaw University of Technology, in line with his request, I began to bring his former students to visit, both those from the Wawelberg and the more recent ones.

The Professor, in spite of deteriorating physical condition, maintained significant intellectual fitness. He enjoyed debating with guests, casually weaving in sayings characteristic of his first-rate sense of humor.

Portrait of the Professor painted by A. Moldenhawer

The Last Meeting

At a more advanced age, after his ninety-seventh birthday, his memory of day-to-day events faltered. His entire table and desk were strewn with cards bearing information as to the locations of important telephone numbers, his eyeglasses, essential keys, and many other vital pieces of information. Although I am twenty years younger, I am also beginning to apply that model. The Professor also suffered growing problems with the reading of the numerous books and journals that visiting former students brought him. One thing that interested the Professor greatly was an enormous album on the history of the helicopter by my school friend, a Wawelberg graduate and experienced helicopter pilot, Ryszard Witkowski, M.Eng.

In it, Ryszard also described his personal meeting with the designers and pilots of helicopters during wartime. Some of the names stirred the personal memories of the Professor. His memory of the distant past remained good, but his life-force obviously declined.

I paid him visits with increasing frequency. On the evening of the last day of his life, when he had become almost blind, he asked me to hold his hand. That was late in the evening.

By morning he was gone … gone to where we shall all meet.

Jan Oderfeld was very religious and was not afraid of death. As an active member of the Christian church, the Evangelical-Augsburg

Confession, he treated his faith very seriously. A few years earlier he had asked me to write something of the history of my forbearers for one of the historians of the Church because they had been active in financing the furnishing of that church.

Now, when I visit the grave of my great grandparents at the Evangelical-Augsburg cemetery in Warsaw, I also visit the grave of Jan Oderfeld. He is close by.

Doctor Honoris Causa of the Warsaw University of Technology

Bohdan Jancelewicz

It is a recognized and very respected tradition among many schools of higher learning to award those who are particularly deserving thanks to their contributions to science, education as well as engineering, the highest honors at their disposal. Such a distinction is recognition expressed in the form of the degree of Doctor *honoris causa*.

That tradition is also highly prized in Poland. The *Sejm* [Parliament] of the Republic of Poland even went so far as to elevate this honor in legislation: The Act on Schools of Higher Learning. The wording of the relevant regulations is as follows:

Article 16.

1. The academic title of honor is the degree of Doctor *honoris causa*.
2. The degree of Doctor *honoris causa* is awarded by the senate or, in the case of nonpublic school, by the collegiate body as indicated in the relevant charter, upon application by the relevant organizational unit of the school empowered to award the degree of Doctor habil.
3. Detailed terms for awarding the degree of Doctor *honoris causa* as well as the procedure to be followed shall be defined in the school charter.

The Charter of the Warsaw University of Technology formulated the relevant terms in line with legislation:

§ 13

1. The Warsaw University of Technology honors individuals for their outstanding contribution to the development of science, education, technology, and culture by awarding them the degree of Doctor *honoris causa* of the Warsaw University of Technology.
2. The degree of Doctor *honoris causa* of the Warsaw University of Technology is granted by the Senate upon application of the Faculty Council authorized to award the degree of Doctor habil.

3. The procedure preceding the application by the Faculty Council is initiated by the Rector on the basis of a proposal made by the Dean forwarded in collaboration with the Faculty Council. The Rector may also initiate the procedure preceding the application by way of his own initiative.
4. The Rector shall seek the opinion of the Honors Committee in the matter of the submitted candidature, where the Committee shall be made up of former rectors as invited by the Rector. The Rector shall hold the Chair of the Committee.
5. Upon receiving preliminary acceptance by the Rector, a resolution regarding the submission of an application as discussed in Clause 2 shall be passed by the Faculty Council by way of an absolute majority of votes.
6. The initiation of the procedure to grant the degree of Doctor *honoris causa* shall take place on the basis of the resolution of the Senate as passed by an absolute majority of votes.
7. The resolution regarding the granting of the degree of Doctor *honoris causa* shall be passed by the Senate by way of an absolute majority of votes following the seeking of the supporting opinions of the bodies of three institutions with competency in scientific matters to which the Senate made an application in this matter.

Over the course of its history, the Warsaw University of Technology granted the degree of Doctor *honoris causa* to a total of fifty-five individuals for their outstanding achievements, mainly scientific ones. The first three such degrees were awarded in 1924. One of the laureates was Ignacy Mościcki, who was so honored twice, the second time being in 1926. Among the other laureates from the year 1926 was Maria Curie-Skłodowska.

The spring of 2007 saw the beginning of efforts to honor Dr. Jan Oderfeld, Eng. with the degree of Doctor *honoris causa*. These efforts, in addition to his unquestioned scientific position, were stimulated by the exceptional fact that the Professor was fast approaching the dignified age of one hundred years. That birthday was on February 19, 2008.

The launching of further measures as stemming from procedures in force in Poland as well as at the University was a decision made by His Magnificence the Rector of Warsaw University of Technology, Professor Włodzimierz Kurnik, Ph.D., Habil., Eng. in agreement with the Dean of the Faculty of Power and Aeronautical Engineering, Professor Krzysztof Kędzior, Ph.D., Habil., Eng., who informed the Rector of the state of advancement and results of consultations conducted among the academic communities of both the Warsaw University of Technology and other schools, potential reviewers.

A session of the Faculty of Power and Aeronautical Engineering Council was held on September 25, 2007. The Council examined the draft application to the Senate of the Warsaw University of Technology. The minutes read:

The Dean of the Faculty of Power and Aeronautical Engineering, Professor Krzysztof Kędzior, Ph.D., Habil., Eng. presented the draft of a resolution regarding an application to grant the degree of Doctor *honoris causa* of the Warsaw University of Technology to Professor Jan Oderfeld, Ph.D., Eng. to the Faculty Council. In the justification of the application, the Dean presented the life and scientific, organizational, and educational achievements of Professor Oderfeld, stressing his input into the development of the University and undisputed position in the scientific community.

Professor Tadeusz Szopa, Ph.D., Habil., Professor Janusz Lewandowski, Ph.D., Habil., Professor Piotr Wolański, Ph.D., Habil., Professor Andrzej Miller, Ph.D., Habil., Professor Jerzy Lewitowicz Ph.D., Habil., and Professor Krzysztof Arczewski, Ph.D., Habil., took part in the discussion. All members of the Faculty Council taking part in the discussion decidedly supported the application, expressing the opinion that such an initiative should have been undertaken significantly earlier. Subsequently, the Dean ordered a secret ballot regarding the presented draft resolution.

The Committee of Tellers consisted of its chairman Professor *extraordinarius* Ryszard Markowski, Ph.D., Habil., and members Cezary Galiński, Ph.D., Habil and Maciej Jaworski, Ph.D., Eng.

Thirty-seven members of the Faculty Council out of **fifty-two** with voting rights took part in the vote. **Thirty-seven** were present at the session. Voting results: **37** valid votes were cast, of which **37** votes were for the application, **0** against, and **0** abstentions.

The Resolution of the Faculty Council passed as a result of the unanimous vote reads as follows (excerpt from the minutes):

Resolutions of the Council
of the Faculty of Power and Aeronautical Engineering
of the Warsaw University of Technology
of September 25, 2007
Regarding the application to grant Professor Jan Oderfeld, Ph.D., Eng. the degree of Doctor *honoris causa* of the Warsaw University of Technology

Pursuant to §13, Clauses 2 and 5 of the Charter of the Warsaw University of Technology, the Council of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology has hereby decided to approach the Senate with an application to grant Professor Jan Oderfeld, Ph.D., Eng. the degree of Doctor *honoris causa* of the Warsaw University of Technology,

The Faculty Council proposes the person of Professor Krzysztof Kędzior, Ph.D., Habil., Eng. as promoter of the honorary doctorate.

The Faculty Council proposes approaching the Senates of the Gdańsk, Cracow, and Łódź Universities of Technology for supportive opinions.

The application of the Council of the Faculty of Power and Aeronautical Engineering was taken under consideration by the Senate of the Warsaw University of Technology during its session of September 26, 2007.

Resolution No. 220/XLVI/2007 of the
Senate of the Warsaw University of Technology
of September 26, 2007
Regarding the commencement of the procedure to grant Professor Jan Oderfeld the degree of Doctor *honoris causa* of the Warsaw University of Technology

The Senate of the Warsaw University of Technology, upon familiarizing itself with the activities and scientific achievements of Professor Jan Oderfeld, acting on the basis of §13, Clauses 6 and 7 of the Charter of the Warsaw University of Technology, has hereby decided to commence the procedure to grant him the degree of Doctor *honoris causa* of the Warsaw University of Technology. In view of the above, the Senate of the Warsaw University of Technology has further decided to approach the Senates of the following schools of higher learning for their opinions:

1. Gdańsk University of Technology
2. Łódź University of Technology
3. Cracow University of Technology

/----------/
Danuta Soltyska, M.S.
Senate Secretary

/----------/
Professor Wlodzimierz Kurnik, Ph.D., Habil., Eng.
Rector

Pursuant to that resolution and taking into account the proposal of the Council of the Faculty of Power and Aeronautical Engineering, His Magnificence the Rector of the Warsaw University of Technology approached the Senates of the Gdańsk University of Technology, the Cracow University of Technology, and the Łódź University of Technology, requesting their opinions as required by the Act. At the same time he appointed Professor Krzysztof Kędzior promoter of the honorary doctorate.

Opinions from all three universities of technology approached by the Senate of the Warsaw University of Technology were provided in the second half of November of 2007.

The Senate of the Gdańsk University of Technology, upon familiarizing itself with the opinion presented by Professor Krzysztof Wilde in place of Professor Edmund Wittbrodt, adopted Resolution No. 182/07/XXI in support of the application on November 21, 2007.

Excerpt from the Minutes
of the XXXVI Session of the 2005–2008 Term
of the Senate of the Gdańsk University of Technology,
which took place on November 21, 2007

Ad. item 20

Professor Krzysztof Wilde, Dean of the Faculty of Civil and Environmental Engineering, in place of Professor Edmund Wittbrodt, presented the opinion regarding the scientific achievements of Professor *ordinarius* Jan Oderfeld, Ph.D., Eng., his accomplishments and merits, in connection with the commencement by the Senate of the Warsaw University of Technology of the procedure to grant him the degree and title of Doctor *honoris causa*.

The Senate of the Gdańsk University of Technology approved the opinion regarding the scientific achievements of Professor *ordinaries* Jan Oderfeld, Ph.D., Eng. as well as his accomplishments and merits in connection with the commencement by the Senate of the Warsaw University of Technology of the procedure to grant him the degree and title of Doctor *honoris causa*.

The results of the vote were:

Number of holders of voting rights:	43
Number present:	37
Yeas:	36
Nays:	0
Abstentions:	1

The Cracow University of Technology examined the application on November 23, 2007. The opinion regarding the achievements of Professor Jan Oderfeld was developed and presented by Professor Józef Knapczy, Ph.D., Habil., Eng. In the wake of a discussion and as a result of a vote, the Senate adopted the following resolution:

Resolution
of the Senate of the Cracow University of Technology
as adopted at the Session of November 23, 2007

Resolution No. 59/p/11/2007 of November 23, 2007 in the question of support for the application to grant Professor Jan Oderfeld the degree of Doctor *honoris causa* of the Warsaw University of Technology.

Upon hearing the opinion on the achievements of Professor Jan Oderfeld, Ph.D., Eng. as developed by Professor Józef Knapczy, Ph.D.,

Habil., Eng., the Senate of the Cracow University of Technology hereby supports the application to grant Professor Jan Oderfeld the degree of Doctor *honoris causa* of the Warsaw University of Technology.

/----------/
Professor Józef Gawlik, Ph.D., Habil, Eng.
Rector
of the Cracow University of Technology

The opinion of the Senate of the Łódź University of Technology served as the basis for a discussion that was prepared and presented by His Magnificence Rector of the University of Technology, Professor Jan Krysiński, Ph.D., Habil., Eng.

The Rector concluded his opinion with the following summary:

Bearing in mind the:

- Great scientific and engineering achievements in the fields of aircraft engines (including pioneering work), the application of mathematics in engineering practice, and in the theory of machines and mechanisms,
- Very significant input into the development of education at the Warsaw University of Technology and in Poland in the theory of machines and mechanisms by introducing new subjects in the training of engineers as well as by publishing numerous academic textbooks.
- Enormous input into the development of academic staff as well as personally teaching several dozen classes of graduates of the Faculty of Power and Aeronautical Engineering and Aviation of the Warsaw University of Technology,
- Exceptionally fruitful organizational activities in scientific institutes both at home and abroad bringing significant prestige to the Warsaw University of Technology and Poland, and
- Major awards and honors received,

I conclude that Professor Jan Oderfeld is an outstanding scientist and hereby submit an application to the Senate of the Łódź University of Technology requesting it adopt a resolution in support of the application of the Senate of the Warsaw University of Technology to grant the Professor the degree and title of Doctor *honoris causa* of the Warsaw University of Technology.

As a result of a vote, the Senate of the Łódź University of Technology adopted the following resolution unanimously:

Excerpt
from the Minutes of the Session of the Senate
of the Łódź University of Technology
of November 28, 2007

The Pro-Rector for Science and University Development, Professor Stanisław Bielecki, Ph.D., Habil., Eng., presented the opinion relating to

the scientific achievements, accomplishments, and attainments of Professor Jan Oderfeld, Ph.D., Habil., Eng. as developed by Professor Jan Krysiński, Ph.D., Habil., Eng. in connection with the initiative of the Warsaw University of Technology to grant Professor Jan Oderfeld the degree of Doctor *honoris causa* of that University.

The Senate of the Łódź University of Technology, on the basis of a review as developed by Professor Jan Krysiński, has unanimously adopted a resolution supporting the initiative to grant Professor Jan Oderfeld the degree of Doctor *honoris causa* of the Warsaw University of Technology.

The final phase of the formal procedure was the passing by the Senate of the Warsaw University of Technology of a resolution regarding the granting of the degree of Doctor *honoris causa* to Professor Jan Oderfeld. That Session of the Senate of the Warsaw University of Technology took place on December 19, 2007.

His Magnificence, the Rector presented the progression of the procedure to the Senate and informed it of the delivery to the University of Technology of three positive opinions from the Senates of the Gdańsk University of Technology, Cracow University of Technology, and Łódź University of Technology. As a result of a vote, the Senate of the Warsaw University of Technology adopted the following resolution:

Resolution No. 255/XLVI/2007 of the
Senate of the Warsaw University of Technology
of December 19, 2007
Regarding the granting of the degree of Doctor *honoris causa*
of the Warsaw University of Technology

The Senate of the Warsaw University of Technology, acting on the basis of §13, Clause 7 of the Charter of the Warsaw University of Technology, has hereby decided to grant Professor Jan Oderfeld the degree of Doctor *honoris causa* of the Warsaw University of Technology.

/----------/	/----------/
Teresa Ostrowska, Ph.D., Eng.	Professor Włodzimierz Kurnik,
Senate Secretary	Ph.D., Habil, Eng.
	Rector

The Senate also concurred with the proposal to officially announce the Resolution and present the degree diploma of Doctor *honoris causa* during a ceremonial session of the Senate of the Warsaw University of Technology in the Minor Auditorium (Main Building) on February 19, 2008, the one-hundredth birthday anniversary of the laureate.

PROGRAM

1. National Anthem
2. Official opening and greeting of guests
3. Speech by the Rector of the Warsaw University of Technology Professor Włodzimierz Kurnik, Ph.D., Habil, Eng.
4. The awarding of the degree of Doctor *honoris causa* to Professor Jan Oderfeld
5. *Gaudeamus*

THE RECTOR AND SENATE
of the
WARSAW UNIVERSITY
OF TECHNOLOGY

request the honor of your presence at the

CEREMONY

FOR THE AWARDING
OF THE DEGREE
OF DOCTOR *HONORIS CAUSA*

to

Professor
Jan Oderdfeld

On the day of the ceremony, long before its commencement at 1:00 PM, invited guests as well as the uninvited gathered in the Minor Auditorium as well as in front of the Auditorium. The Professor was a person who was very popular and well liked. This was apparent in the faces of those present and could be heard in the numerous discussions remembering him.

At 1:00 PM, in the Minor Auditorium, every last place was filled. The podium was occupied by His Magnificence the Rector of the Warsaw University of Technology, Professor Włodzimierz Kurnik, Ph.D., Habil, Eng. as well as the Pro-Rectors and Faculty Deans. The distinguished laureate took his place on a special chair. The school color guard also entered the Auditorium. There was also a delegation from the Henryk Sienkiewicz High School in Częstochowa.

The opening of the ceremonious session of the Senate of the Warsaw University of Technology on February 19, 2008 by His Magnificence the Rector of the Warsaw University of Technology

The ceremony was inaugurated by His Magnificence the Rector of the Warsaw University of Technology. This was followed by sounds of the National Anthem as performed by the Choir of the Warsaw University of Technology. His Magnificence

the Rector welcomed all who came to the ceremony and addressed the Laureate and Celebrant, Professor Jan Oderfeld very warmly.

After his address, His Magnificence the Rector asked the promoter of the doctoral procedure, Professor Krzysztof Kędzior, Ph.D., Habil., Eng., to deliver his Laudation.

* * *

Laudation to Professor Jan Oderfeld

Krzysztof Kędzior

I have been assigned the honor of presenting the silhouette of Professor Jan Oderfeld: engineer, scholar, academic teacher, organizer of the scientific community at home and on the international arena, elder of the Warsaw University of Technology, and elder of Polish aviation.

Professor Jan Oderfeld is an exceptional man. Such a short presentation cannot show all the important achievements of the Professor in the numerous fields of his activity. A characteristic feature of the Professor's silhouette is that he undertook many works and took upon himself many responsibilities in parallel, completing them all successfully and even exceeding expectations, leaving an indelible mark on each of the many field of his activity.

Jan Oderfeld was born on February 19, 1908 in Częstochowa. He graduated from that city's Henry Sienkiewicz High School in 1924. He was awarded Diploma No. 1892 of the Warsaw University of Technology upon completing studies in the general section of the Faculty of Mechanics on August 31, 1930. While still studying, he worked in industry, at the well-known Pionier Plant. After concluding his military service he assembled a team and undertook the ambitious task of building a turbojet engine. Thanks to private subsidies he built two models of the engine. They tested successfully. In 1932 that same team of engineers built a pulsejet engine at the Experimental Workshop of the Ursus National Engineering Works (P. Z. Inż.) with the intention of using it as the propulsion system for an unmanned plane. In 1933 the pioneering work of young Polish engineers—Jan Oderfeld, Władysław Bernadzikiewicz, and Józef Sachs—was interrupted for lack of funding. The jet engine model from that period can

Professor Krzysztof Kędzior, Ph.D., Habil., Eng. reading the Laudation for Professor Jan Oderfeld on February 19, 2008

be viewed at Warsaw's Museum of Technology. Engineer Jan Oderfeld worked as a technologist from 1932 up to the outbreak of World War II. Starting with 1936 he became the head of the group of designers at the Skoda-PZL Engine Factory. He took part in the design and directed the testing of the Foka airplane piston engine that was supplied for assembly in the PZL–38 Wilk airplane in 1938. In parallel, over the years 1937–1939 he was involved in his own work, including conversion of a carburetor-fueled aircraft engine to fuel-injection, which at the time was an innovative solution.

At that same time, starting with 1937, he started teaching as a lecturer in aircraft engines at the Warsaw Aviation Officers Training Corps. From among his students, seventy took part in the Battle of Britain. Many lost their lives.

During the Occupation, over the years 1940–1945, Engineer Jan Oderfeld worked in Skierniewice as the manager of a small cooperative mechanic's shop—Rolnik. Under his management, the small repair shop employing a handful of workers became a major agricultural machine manufacturing company, presently known as the Fumos Garden and Farm Mechanical Plant, Ltd.

Immediately following the war, starting with academic year 1945/1946, Engineer Jan Oderfeld took up a position at the Hipolit Wawelberg and Stanisław Rotwand School of Engineering as a contractual professor. He lectured in technical mechanics, aircraft engines, and statistical process control (SPC). In parallel, starting with 1945, he was employed by the PKN Polish Committee for Standardization. His input into recreating and supplementing the achievements in standardization of the interwar years was significant. He also initiated statistical process control (SPC) in Poland, bringing about its implementation in industry and the military. Initially, he worked as head of the Standard Editorial Department. Subsequently, he served as the Secretary General. In 1948 he became the Director General of the PKN Polish Committee for Standardization, a position he occupied until 1951. Of great importance for standardization and production research with respect to conformity to standards was his work with Professor Hugo Steinhaus. Of the mathematical works of Engineer Jan Oderfeld announced during this period, special attention must be called to a publication on what is known as the principle of dualism. It served as the basis for his doctoral dissertation, defended at the University of Wrocław and the Wrocław University of Technology in 1951. It was

entitled *Statystyczny odbiór towarów klasyfikowanych według alternatywy* [The statistical receipt of goods classified by alternatives]. His doctoral supervisor was Professor Hugo Steinhaus. He was the coauthor of *Schemat Klasyfikacji Norm (SKN)* [Standard Classification Scheme] together with Professor Zdzisław Rytel, which only recently has been superseded in Poland by the *International Classification of Standards (ICS)*. Over the years 1951–1974 he continued his activities in the area of applied mathematics, heading the Statistical Process Control Group of the Institute of Mathematics (later transformed into the Industrial Application Division of the Institute of Mathematics of the PAN Polish Academy of Sciences). His research there was related to the broad application of mathematics, not only in the machine industry, but also in the chemical, rubber, and defense industries and in medicine, biology, and pharmacology. Moreover, over the years 1951–1954 he lectured on statistical process control at the SGPiS (currently the SGH Warsaw School of Economics).

Professor Jan Oderfeld was active in various fields and collaborated with many scientific and industrial centers. However, starting with 1949 he was permanently tied with his *alma mater*, the Warsaw University of Technology. Initially, he worked as a contractual professor, but from 1955 as Professor *extraordinarius* and as Professor *ordinarius* from 1961. In the years 1949–1955 he headed the Chair of Aircraft Engines. From the year 1955 until retirement in 1978 he headed his own creation, Poland's first Chair of Machine and Mechanism Theory (presently the Department of Machine and Robot Theory of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology). In the first few years of its existence, the Chair served all the mechanical faculties of our University. Professor Jan Oderfeld created the material foundation for the unit (including teaching laboratories, mechanical workshops, and a library). Over a brief period of time he developed the curriculum for teaching the theory of machines and mechanisms (TMM) and wrote several textbook on the subject, the first in Poland. Over the years 1958–1968 he headed the Polish National Theory of Machines and Mechanisms Scientific Seminar Program. Over the years 1964–1966 he was the Dean of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology. In a later period, through his own initiative, he reformed the teaching program for the mechanical departments of universities of technology. He introduced into the canon of education of mechanical engineers the basics of auto-

mation, machine dynamic measurement, and experimental basics. He also promoted the introduction of numerical methods into education and scientific work.

Starting with his first publication, which came out in 1933, to the present, Professor Jan Oderfeld has announced approximately 200 works in various fields (almost forty after retiring), including fifteen books and textbooks. The wealth of his scientific achievements was always very strongly tied to practice. The multifaceted interests of the Professor make it very difficult to unequivocally assign his work to specific branches. All that can be done is to try to identify three periods of activity, three periods with significant overlap.

The first started before the war and lasted over thirty years. It was devoted to **aircraft engines**. The Professor was, as has already been mentioned, the co-creator (designer and tester) of the first Polish jet engines. He was also involved in piston engines, mainly their cooling, timing systems, and balancing. After World War II he collaborated with Wiktor Narkiewicz, the well-known aircraft engine designer, and looked at the design of timing systems (including cams), the optimum balancing of crankshafts, and questions of combustions in the WN series engine. He played a part in making them a very good design, used in Polish airplanes, such as the TS-8 Bies.

Another thirty-year period was one in which the Professor devoted himself to **applied mathematics**, mainly in the field of standardization and process control. Among the important achievements of Professor Jan Oderfeld it is necessary to list the results of his research into distribution clusters, pattern autocorrelation, dimensional functions in standardization, and empirical curve relationships. Examples of the Professor's interdisciplinary interests are the works in which mathematical statistical methods are applied to the study of biological systems (e.g., enzyme excretion processes). The Professor's great battle to order and unify units must also be mentioned. He placed great weight on this maintaining that mathematics as seen by the engineer is not only number–number relationships. From the very beginning Professor Jan Oderfeld was characterized by farsightedness. Challenging many authority figures he was in favor of a mass system. He also pushed this position in the years 1946–1960 on the ISO forum thanks to which he played an important role in introducing the SI system on an international scale.

The Professor's third period of work stretched over more than fifty years and involved the **theory of machines and mechanisms**. This

should be understood very broadly and incorporating surveying, automation and robotics, and biomechanics. This was the main field of his scientific activity. At this point it is necessary to mention the work of the Professor from the prewar years involving the balancing of engines and the design of cams for timing systems. Later, the Professor creatively expanded the theory of machines and mechanisms, especially in such areas as classification, kinematics, and mechanism precision as well as dynamic similarities, experimental basics in machine mechanics, and the optimizing of machine design. The Professor's name is especially strongly tied with the last topic. He is a world pioneer in the application of optimization in technology. His first embrace of this topic appeared in his works as early as 1954 against a backdrop of the efficient design of machines. In later years Professor Jan Oderfeld created his own scientific school in this field. It was based on linear and nonlinear programming for the optimum design of machines and mechanisms. Many of the methods and algorithms developed by the Professor found a place in the design of complex machines and equipment—e.g., many Polish outrigger cranes were designed using his methods of optimization.

Included in the Professor's achievements implemented into industrial practice on a grand scale is the original design for a magnetic memory drum, patented jointly with Wiktor Narkiewicz. Such drums, mass-produced by Elwro Wrocław, were standard equipment for computers in the Comecon countries.

Professor Jan Oderfeld was extremely active in national and foreign technical and scientific organizations for dozens of years. He was a member of the Presidium of the KBM Committee for the Building of Machines of the PAN Polish Academy of Sciences, he worked on the teams and commissions of the NOT Polish Federation of Engineering Associations, and was involved in the work of the International Standards Organization. He is also a member of the WTN Warsaw Scientific Society.

It was under the leadership of Professor Jan Oderfeld, Chairman of the PK TMM Polish Committee of Machine and Mechanism Theory of the Committee for the Building of Machines of the PAN Polish Academy of Sciences, that the 2nd World Congress on the Theory of Machines and Mechanisms was organized in Zakopane in 1969. It was during this Congress that the representatives of sixteen countries established the International Federation of the Theory of Machines and

Mechanisms (currently the International Federation for the Promotion of Mechanism and Machine Science) where Professor Jan Oderfeld was one of the founding members and a member of its board for ten years. Presently, the IFToMM associates several dozen National Committees of the Theory of Machines and Mechanisms. Many Polish scholars, students of the Professor, serve many responsible functions in the authorities, commissions, and committees of the organization. This bears witness to the prestige of the Polish school of the Theory of Machines and Mechanisms as created by Professor Jan Oderfeld.

In 1953 Jan Oderfeld was a cofounder of the *Applicationes Mathematicae* periodical. Over the years 1954–1991 he was also a member of the Editorial Council of the *Archiwum Budowy Maszyn* [Archives of Machine Building] scientific quarterly.

Especially worth stressing and recognizing is the over thirty years of the Professor's activity as co-creator and organizer of the Technical Knowledge Olympics for high school students.

Professor Jan Oderfeld received many awards, many times for his scientific, educational and organizational work, including the Order of Polonia Restituta (1964), the Bronze Medal of Merit for National Defense (1968), and the Medal of the Commission of National Education (1967). He received many awards and distinctions, including of the Minister of Higher Learning (including an individual award of the 1st degree in 1963 and 1978), of the Rector of the Warsaw University of Technology, of the Polish Mathematical Society (1974), and of many other institutions. He received the Gold Badge of Honor of the NOT Polish Federation of Engineering Associations (1980), the distinction of being an Honorary Member of the PTMTiS Polish Society of Theoretical and Applied Mechanics and of the Wings of Puławski of the Aviation Section of the SIMP Association of Polish Mechanical Engineers and Technicians (1986). During the World Congress of the International Federation of the Theory of Machines and Mechanisms (Milan, 1995) he became an Honorary Member of the Federation and an Honorary Member of the Editorial Advisory Board of the *Mechanism and Machine Theory* IFToMM journal. In recognition of the Professor's contributions to our University, in 1997 he was awarded the Medal of the Warsaw University of Technology (serial no. 3).

This presentation of the achievements of Professor Jan Oderfeld paints a picture of a great, versatile scholar whose authority is unquestioned, a creative engineer, and a talented and effective inspirer and

leader of many organizations and ventures. For many of his students, including me, he is primarily a wonderful and universally respected Teacher who was always demanding and just. Over his more than fifty years of teaching, he educated several classes of air force officers, several classes of engineers, and ten doctors of technical science.

His motto, which he continuously stressed and transmitted to all his students, consists of three principles: "There is no separate engineering theory of practice, there is only the common art of engineering," "Every experimental result necessitates an estimate of error," and "For the engineer, every detail must be important." We now transmit these principles to our students.

There can be no doubt that Professor Jan Oderfeld is a scholar who is exceptionally deserving with respect to the academic community of the Warsaw University of Technology and for the whole for the Polish academic community. This justifies the decision of the High Senate of our School, supported by the High Senates of the Gdańsk, Cracow, and Łódź Universities of Technology to raise him to the distinction of honorary doctor.

* * *

The Laudation was accepted amidst rapt attention on the part of the Laureate as well as the distinguished guests filling the Minor Auditorium.

Following the Laudation, His Magnificence the Rector proceeded with the main part of the ceremony. He presented the Resolution of the Senate of the Warsaw University of Technology regarding the granting of the degree of Doctor *honoris causa* to Professor Jan Oderfeld, Ph.D., Eng., and then, with the assistance of Professor Krzysztof Kędzior Ph.D., Habil, Eng., presented the Laureate with the ornamental diploma.

Representatives of student youth were the first to congratulate and wish all the best to the decidedly touched Laureate and Celebrant. They presented him with a bouquet of flowers.

Further best wishes and congratulations flowed to the Laureate and Celebrant from the representatives of authorities, colleagues, friends, and students, both through direct contact with the podium and in the form of cordial speeches from the rostrum.

At the request of the Laureate, His Magnificence the Rector asked him for a few words. The speech of the Professor has been preserved in the acts of the Senate.

Ceremony of the awarding of the degree of Doctor *honoris causa* of the Warsaw University of Technology to Professor Jan Oderfeld

The Doctorate *honoris causa* of Professor Jan Oderfeld

* * *

Your Magnificence,
High Senate,
Dear Friends,
Ladies and Gentlemen,

I wish to convey my sincerest thanks for the great distinction and honor, which is granting me of the degree of Doctor *honoris causa* of the Warsaw University of Technology. I am deeply moved and grateful to the Rector, my promoter and reviewers, and also the Senates of the Warsaw as well as the Gdańsk, Cracow, and Łódź Universities of Technology for their initiative in conducting this procedure and showing so much kindness.

Throughout my life I have been on many teams of people and in many institutions, but I have never been tied with anyone or anything for as long as I have with the Warsaw University of Technology. Our contact began with my matriculation in the Faculty of Mechanics (that was the year 1924) and has not ended. Even with my retirement (which took place all of thirty years ago), I still try to take part in the life of my Institute all the time. After subtracting breaks, I have calculated that my contact with the Warsaw University of Technology amounts to a total of sixty-five years. Reaching back to the memory of my studies, which gave me a firm scientific foundation and taught me reliability in work, I can say that what I received from the Warsaw University of Technology helped me in my later professional life and prepared me well for unforeseeable particulars of life.

Today I would like to go back to the distant past of my studies at the Faculty of Mechanics of the University of Technology and I would like to mention some of my teachers, expressing my gratitude to them.

In those times and at that Faculty, the basic subject taught during freshman and sophomore years was mathematics. It was taught by Witold Pogorzelski, who became a professor at the exceptionally young age of twenty-eight. He had a special program for students of the Faculty of Mechanics that was based on the assumption that mathematics was a tool for formulating and solving technical problems, not an objective in and of itself. That is why he painstakingly selected topics and established levels to be achieved. He was happy to benefit from examples in physics, technology, and everyday life. He successfully strove for us to absorb the content of his lectures in an active way.

Since then much has changed as to the requirements that technology puts before mathematics, but the method of Professor Pogorzelski in teaching mathematics is something I still consider as being up-to-date.

To this very day I remember the captivating lectures of Professor Mieczysław Wolfke on entropy. He lectured in physics. Professor Czesław Witoszyński, a world authority and creator of the Institute of Aerodynamics, taught us the secrets of flows while from a practical side, Professor Stanisław Zwierzchowski brought to Poland the enormous experience he gained in America. Electrical engineering was the domain of Professor Mieczysław Pożaryski while technology belonged to Professor Henryk Mierzejewski. In later years, practice taught me that without these two fields a mechanical engineer cannot be a good designer.

However, two professors had the greatest influence on me—Bohdan Stefanowski and Wiesław Chrzanowski.

The silhouette of Professor Stefanowski, patron of the Institute of Thermal Technology of the Warsaw University of Technology, is well known to many people gathered in this auditorium. Thus, I will limit myself to just a few memories. Professor Stefanowski's lectures encompassed thermodynamics and the principles of operation of major thermal machines and equipment and combustion as well as thermal management. In teaching this vast subject, Professor Stefanowski provided us with basics from which it was possible to move on to specialization.

From my own experience, I remember how very useful that was very shortly after I completed my studies and specialized in aircraft engines. The auditorium lectures conducted by Professor Stefanowski were interesting and easy to absorb. They were supplemented by a marvelously organized thermal laboratory. I can also add that Professor Stefanowski was a real friend to students.

Now, I would like to devote some time to my Master of those years. That would be Professor Wiesław Chrzanowski. Long before he took on the professorship at the Faculty of Mechanics of Warsaw University of Technology (that was probably the year 1920) he had already achieved much success as a designer of piston steam engines and turbines. Professor Chrzanowski was an outstanding specialist in those fields, but he was also outstanding in every other design field because it interested him, because he was a designer touched by the grace of God. That is what convinced me to strive to receive my diploma from his Chair. The regulations there were very strict. As a graduating student I spent eight hours a day for half a year in his drafting studio.

Professor Chrzanowski visited the studio every Tuesday and devoted over a dozen minutes to each graduating student, assessing his progress, weekly progress, conducting a critique, and providing suggestions. All other graduating students assisted in this process. Thus, our entire collective became familiar with all topics, defects, and remedies. This was the teaching of the art of engineering on errors. It was an excellent school of design. Moreover, we absorbed the general principles of proper design. An example: "In designing a machine it is necessary to remember three groups of questions: design, technology, and operation." Another example: "In engineering work there are no unimportant details." I never had anything to do with steam engines in my later professional life, but I became convinced that these and similar principles prove accurate in the broad scope of technology.

To the best of my ability and skills, I always tried to transmit the knowledge and principles I received from my teachers at the University of Technology to the academic youth with which I had contact during my later, long activities as a lecturer.

I lectured during various periods on various topics: aircraft engines, mechanical technology, machine and mechanism theory, and mathematical methods in technology and the economy. Over the years 1937–1939 I lectured at the Technical Section of the Aviation Officers Training Corps, over the years 1945–1949 at the Wawelberg and Rotwand School of Engineering, over the years 1951–1954 at the SGPiS (currently the SGH Warsaw School of Economics), but for the longest time, for the entire period from 1949 up to my retirement in 1978, at my *alma mater*, the Warsaw University of Technology, where even later I had various commissioned lectures, seminars, and supervision over doctoral students.

For over thirty years I also tried to transmit the principles I received from my teachers to the young participants in the Technical Knowledge Olympiads. I treated them as seriously as I treated my own former students.

In concluding this brief presentation, I would once again like to sincerely thank everyone who played a part in today's beautiful and touching ceremony.

* * *

Following this speech, everyone got up for a standing ovation, thus expressing their feelings for Professor Jan Oderfeld, Doctor *honoris causa* of the Warsaw University of Technology.

The official part of the ceremony came to a conclusion. His Magnificence the Rector once again turned to the Professor with best wishes and invited all for a sociable reception. The traditional knock of the Rector's scepter signaled the conclusion of the ceremony.

The Choir of the Warsaw University of Technology went on to sing *Gaudeamus igitur, juvenes dum sumus!* This old student banquet song was most probably composed in the 13th century. According to those who are knowledgeable, the original words are from Seneca the Younger, from his essay "De Brevitate Vitae." However, as time passed, they took on a broader meaning. The author of the music is not known. Nevertheless, it has found recognition among such prominent composers as Johannes Brahms who in 1879, when he was awarded the degree of Doctor *honoris causa* by the University of Wrocław, dedicated the "Academic Overture" to that school, concluded with the triumphant finale: *Gaudeamus*. Today, it is an academic hymn sung by choirs in Latin. Usually, the first and fourth verses are presented: "Gaudeamus…" and "Vivat academia! Vivant professores! ... Semper sint in flore!" respectively. The performance of this hymn always evokes emotion. The same was true this time.

The friendly reception took place in the Senate Chamber and in the adjacent reception room. A huge birthday cake awaited the Celebrant as well as many successive meetings with friends and students.

An exhibition was waiting in the reception room. It contained many exhibits documenting the achievements of the Professor. It was possible to see the pulsejet engine model developed by the team that included the Professor. The model was made available by Warsaw's Museum of Technology for the duration of the ceremony.

Professor Jan Oderfeld and his birthday cake

The big table of the Senate Chamber displayed the Commemorative Book. It was a successive opportunity to show respect for the Professor. Many took advantage of this and at times it was necessary to wait in line.

The awarding to Professor Jan Oderfeld, Ph.D., Eng. of the degree of Doctor *honoris causa* was an event that was unprecedented on a world scale. This outstanding scholar and exceptional man was honored with this degree on his one-hundredth birthday.

The copies of the documents of the University as well as photographs of the Ceremony were made available to the Warsaw Senior Aviator Club thanks to the courtesy of His Magnificence Rector of the Warsaw University of Technology, Professor Jan Szmidth, Ph.D., Habil., Eng. Thank-you.

The special exhibitions with many exhibits documenting the achievements of the Professor

The Commemorative Book for the Ceremony

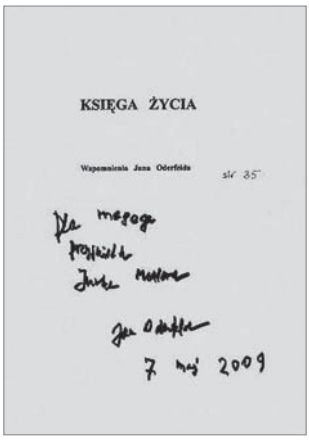
Professor Jan Oderfeld

Memories of Professor Jan Oderfeld

Tea at the Professor's

Jerzy Madler

It was in the years 1998–1999 that I started taking part in monthly meetings of the WKSL Warsaw Senior Aviator Club. There, I met Professor Jan Oderfeld. I knew him on the basis of his many years of work, first at the Faculty of Aviation and subsequently with the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology, where the Professor had been the Dean for a certain period of time. The Chair of Machine and Mechanism Theory that the Professor headed was adjacent to the Chair of Aviation Equipment, where I worked. Thus, there were contacts as well as less formal relations. Additionally, he gained my personal respect when during a session of the Faculty Council he extended great kindness to me.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Wspomnienia Jana Oderfelda

str. 35

7 maj 2009

An honorable mention with a dedication… – The title page of the Memoirs of Professor Jan Oderfeld

At this point I should mentions that several friends and I, all college students, had met Barbara, his daughter. It was obvious that after the WKSL meetings I would take the Professor home and, as time passed, even take him to the meetings.

I do not recall how it came to be that I began to be invited inside for tea and "talk." Over time, Ryszard Witkowski and Andrzej Moldenhawer began to come to those meetings as well. These were interesting recollection that, for us, were news. The meetings were steered by the Professor in a very friendly atmosphere. The Professor's hospitality was wonderful. He was an excellent host. It can be no surprise that we were glad to take advantage of these meetings. While the Professor's health was still good, he brought tea from the kitchen himself. At

times, his daughter would drop in on those meetings. Once, at his new apartment, I saw a pile of handwritten papers on his desk. It turned out that those were his memoirs. However, the manuscript was very difficult to read. I managed to convince the Professor's daughter to take charge of those papers. After a while, she showed me a multipage typewritten work.

Probably the last photograph of the Professor … only two candles, but for the second hundred years!

I received one of the few copies, which the Professor dedicated to me. Some meetings had a special framework—holidays or special celebrations such as the Professor's 95th or 100th birthday anniversary. Ryszard Witkowski made some very special pictures during his 102nd birthday.

I have to admit that writing three digit numbers in such a context makes an impression.

Jerzy Madler was born in 1933 in Lublin. There, he received his high school diploma from the Hetman Jan Zamoyski Junior and Senior High School. That was in 1951. Upon graduating he started studies at the Warsaw University of Technology. Prior to graduating, he was already employed by Professor Kazimierz Głebicki with the Chair of Aviation Equipment as a deputy assistant. He ended work there in 1998 as senior lecturer. During that time he supervised over one hundred graduate students, engineers, in their Master's degree work and developed several new lectures related to aviation measurements and automation. He took part in the work of a design team established with the Chair. The team developed equipment and measuring devices, including a novel solution for a gyroscopic platform for measuring the motions of an object. Upon retiring, he became active in the Warsaw Senior Aviator Club as its president. He was also secretary in the Senior Aviators Council within the framework of the Polish Aero Club for over a dozen years.

Remembering Professor Jan Oderfeld

Jerzy Lewitowicz

Upon receiving a proposal from the Rector of the Warsaw University of Technology and the Dean of the Faculty of Power and Aeronautical Engineering, I went to work at that school. In May of 1993 I was entrusted with the leadership of the Department of Airplanes and Helicopters of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology. One day, along a corridor on the fourth floor of the Aviation Building, among lecture halls commonly referred to as drafting rooms, the location of my department, I met Professor Jan Oderfeld. The reason for his strolls down that corridor was the fact that the Professor lived behind one of those drafting rooms. He was already over eighty at that time.

I had met the Professor earlier. Coaxed by Professor Adam Morecki, a close colleague of Professor Oderfeld, I joined work on the Technical Knowledge Olympic Committee. It was a competition for high school youth. There were district committees operating within the framework of the Head Committee, which was concerned with the whole of Olympic activities. Professor Jan Oderfeld headed the work of the Mazovia District Committee. He was exceptionally conscientious during the working meetings. He was very inventive in developing competition problems. He was always very elegant, treated his coworkers in an outgoing manner, and always had a warm smile and velvet voice.

One day, I invited the Professor for a talk. Drinking tea I told him about my observations and work in the Department, where two education profiles were dominant. This stemmed from the two paths in the program for aircrafts: the design and building of aircraft (airplanes, helicopters, and gliders) and technology, the making and production of aircraft. Work had been underway in the Department on gliders.

The Aviation Composite Structures Technology Team, headed by Roman Świtkiewicz, Ph.D., Eng., was under the special care of Professor Leszek Dulęba, an outstanding designer and scientist. The team worked "full cycle." Work encompassed design and building, technology and manufacturing techniques, and complete operational development. Each aspect of this program entailed the necessary static and strength of materials calculations, ultimately including in flight situations. Due to the wide-ranging application of polymer composites in the project, there were pioneering challenges in design, technology, and operation.

Professor Jan Oderfeld spoke of the work of the team with the greatest recognition precisely because of its comprehensive approach to the matter. When I was employed at the Warsaw University of Technology, the team was finishing work on the single-seat PW-5 glider, which turned out to be an exceptionally successful model. It won first prize in the FAI international competition for gliders of its class. Mass production was started up in Poland and licenses were sold abroad. The team was awarded a prize by the Chairman of the Council of Ministers.

The PW-6 two-seat model came into existence soon. It was developed under the assumption of ergonomic continuity in the training of pilots as well as improving their skills. Bearing in mind the task that the Rector of the Warsaw University of Technology, in conjunction with the Dean of the Faculty of Power and Aeronautical Engineering, assigned me when establishing my employment with the University, I shared my concept aimed at starting up a new profile of studies as a part of the Aviation (aircraft) specialty with the Professor—operation of airplanes and helicopters. The Professor seemed to have been waiting for just such news. He acknowledged his full recognition for such an ambitious initiative and promised support in the Faculty of Power and Aeronautical Engineering Council. I had already received a promise of similar support from the Dean at that time, Professor Andrzej Styczka. The Professor had, for a long time, seen the need for educating and developing the scientific foundations of the operation of technical equipment. This was in the footsteps of Professor Stefan Ziemba, a great supporter of developing matters relating to operations, in terms of both theory and practice, in Poland. The Professor looked favorably upon the outline of a two-volume textbook—*Eksploatacja samolotów i śmigłowców* [The operation of airplanes and helicopters]. I also found backing in the Professor in all discussions in the Faculty of Power and

Aeronautical Engineering regarding the details of the program of lectures, exercises, and topics for seminars and diploma theses.

The development of the "operation of airplanes and helicopters" lecture program proved to be extremely fertile in subject matter. So much so that it demonstrated a need to develop a series of monographs under the joint title of *Podstawy eksploatacji statków powietrznych* [Airship operation basics]. I presented the first volume of this series—*Statek powietrzny i elementy teorii* (*eksploatacji*) [The airship and its theory (operation)]—to the Professor in 2001. I also gave him the manuscript to the successive volume entitled *Własności i właściwości eksploatacyjne statku powietrznego* [The properties and operational properties of the airship]. In a letter I received from the Professor, he expressed his delight and encouraged work on successive volumes. Four more were planned.

The Professor was fast approaching the age of ninety. At his 90th birthday party organized at the Faculty, I had the pleasure of wishing the Professor all the best as well as presenting him with a letter of congratulations from the Chief Aviation Engineer, Brigadier General Ryszard Dębski. I congratulated him wearing my own general's uniform. The Professor, with his usual warm smile wholeheartedly thanked me and added: "… and do you know, General, what my military advantage over you is? You, General, are already in the reserve, while I, a lieutenant, have never received any document regarding transfer to the reserve. I continue to be on active duty!"

After a period, the Professor received a new apartment from the Rector. Taking into account the increasing difficulty the Professor faced in moving about, the apartment was located on the ground floor of a building belonging to the Warsaw University of Technology on

Lieutenant Jan Oderfeld
and General Jerzy Lewitowicz

In the Professor's apartment following presentation
of the fourth volume of the monograph

Koszykowa Street. Our meetings became less frequent. He continued to receive successive volumes from me, the second *Własności i właściwości eksploatacyjne statku powietrznego* [The properties and operational properties of the airship] and third *Systemy eksploatacji statków powietrznych* [Airship operating systems].

The Professor approached his 90th birthday. He was extremely pleased to receive the fourth volume entitled *Badania eksploatacyjne statków powietrznych* [Airship operational testing]. However, he already had difficulties in discussing complex operating problems. He left a grateful memory!

Jerzy Lewitowicz was born in Hrubieszów. He graduated from high school in 1951. He studied at the Gdańsk University of Technology over the years 1951–1952. He continued his studies at the WAT Military University of Technology, specializing in aircraft weapons. He was also an extramural student at the Faculty of Mathematics and Physics of the University of Warsaw. He received his doctoral degree in technical sciences from the Faculty of Electrical Engineering of the AGH University of Science and Technology of Cracow. He was awarded his habilitation doctorate in 1973. He completed internships abroad, at the Joint Institute for Nuclear Research at Dubna, near Moscow, and in Hampton in the United States. He started his professional career at the Air Force Technical Institute in Warsaw. There, he advanced quickly and became Institute Commander in 1982. He was awarded the title of Professor *extraordinarius* in 1979. As part of his military service he became head of Military Technique Research and Development, deputy to the Chief Inspector for Technology of the MON Ministry of Defense. In May of 1990 he was nominated Brigadier General of the Air Force. Upon leaving active service in 1993, he started work at the Warsaw University of Technology where he became the head of the Department of Airplanes and Helicopters. There, he was first to introduce questions of airship operation into the program.

He is the author of several hundred scientific publications and books. He promoted twenty-three doctors. In spite of reaching retirement age, he remains very active and creative in the interdisciplinary sciences relating to the operation of complex technical equipment.

Personal Memories of Professor Jan Oderfeld

Elżbieta Pleszczyńska

Starting at the End: Celebrations of the Year 2008 Marking the Professor's One-Hundredth Birthday

I was half an hour early, already standing at the entrance to the two rooms of the Warsaw University of Technology, the venue of the celebrations. The main hall was almost devoid of empty seats! Several hundred people had already arrived while newcomers formed a standing "bagel" around the entry doors. The Professor's entry was greeted with a standing ovation, as was his brief, but heartwarming speech. What followed next was the appearance of representatives of all phases of his activities, so very rich, multifaceted, and full of discovery at a multitude of colleges and scientific institutes, in aviation, machine and mechanism theory, statistics, and mathematics. The Professor was capable of instilling his passion for research, the joy of creating and acting, and his imaginative mind, into all of them. The ceremony lasted many hours. A line kept forming to the Professor. It consisted of all those who wanted to be remembered, thank him, and tell him what they were doing now. He was tireless, affectionate, and joyful. And the flow of people went on and on… It was probably there, in the hall, that I fully realized just how exceptional the Professor really was…

For Me It started in that Very Memorable Year: 1956

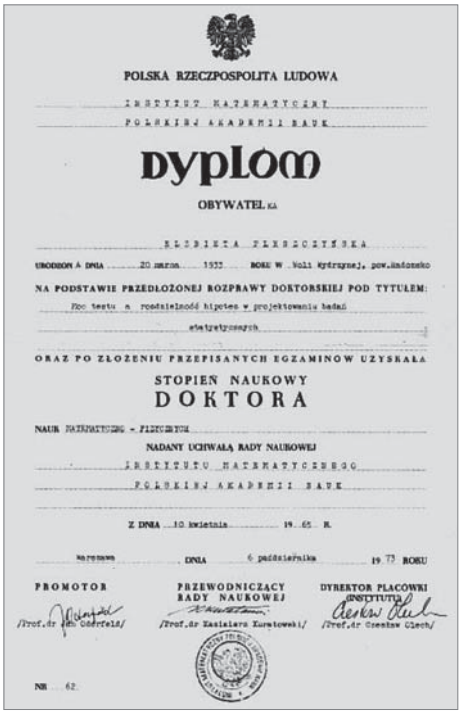
In February of that year I finished my studies at the University of Warsaw, at what was then the Faculty of Mathematics, Physics, and Chemistry. I studied mathematics, specializing in statistics. It was statistics that fascinated me. Thanks to a mix of chance events I was prom-

ised a position at the Institute of Mathematics of the PAN Polish Academy of Sciences, with the Department of Statistical Process Control that was headed by Professor Jan Oderfeld. All that I was missing was a placet from the political powers that be. For that I had to wait until mid-June of 1956. I survived thanks to private tutoring. Thankfully, I received employment and got to face statistics, that interdisciplinary field applied everywhere—technology, archeology, biology, psychology, linguistics … and everywhere else.

Professor Jan Oderfeld was a man of the Renaissance. He knew a little about everything. His seminars at the PAN Institute of Mathematics were held every Thursday at 9:00 AM. Afterwards, over a dozen people always approached him for consultations. Those people were assigned to various staff members. He acted without any preliminaries, no personal discussions. The stress I was subjected to is difficult to describe! Independence, certainly, but a nightmare for a barely hatched statistician—me! To make matters worse, it was necessary to present a paper at the seminar every few weeks. Topics were selected on the basis of articles published in one of the journals available at the library of the PAN.

In the Meantime: The Din of Events Taking Place in the Autumn of 1956

Hungary and Poland, October, people were returning from prison, including those close to me. I had no apartment of my own. The apogee of difficulties arrived in 1959 when my son was born. It was then that the lack of an apartment became critical. To make matters worse, earnings at the PAN Institute of Mathematics became completely insufficient and, what is more, the Institute insisted on the quick preparing of a doctoral thesis! It was then that a full time job proposal came from the Department of Experimental Mathematical Machine Production (eight hours a day, six days a week) as a programmer for Poland's first digital ma-



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POLSKIEJ AKADEMII NAUK

DYPLOM

OBYWATELKA

ELŻBIETA PLESZCZYŃSKA

URODZONA DNIA 20 marca 1933 ROKU W Woli Rzędzkiej, pow.Radomsko

NA PODSTAWIE PRZEDŁOŻONEJ ROZPRAWY DOKTORSKIEJ POD TYTUŁEM:

Poc testu a rozdzielność hipotez w projektowaniu badań
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Warszawa DNIA 6 października 19 73 ROKU

PROMOTOR /Prof.dr Jan Oderfeld/

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NR 62

Doctoral Degree of Elżbieta Pleszczyńska

chine, the XYZ. After dramatic discussions the offer was change to part time. For me, this was the beginning of a time of professional madness. I had to combine it with care over my baby. Professor Oderfeld took the risk of being my doctoral supervisor on the basis of my very poorly outlined topic, where a major role was to be played by calculations performed on the XYZ. His intuition proved right and as a result, after five years, I defended by doctorate before the Scientific Council of the PAN Institute of Mathematics.

Professor Hugo Steinhaus and "Mathematical Applications"

The main center for statistics at the PAN Institute of Mathematics was the department in Wrocław, with its many excellent statisticians. Among them it was Professor Stefan Zubrzycki who was especially creative. Most importantly, Professor Hugo Steinhaus (of Lwów) was in Wrocław. He oversaw both the Wrocław and Warsaw departments of the PAN Institute of Mathematics, managed by Professor Jan Oderfeld. The two professors—Steinhaus and Oderfeld—were close friends. Professor Steinhaus often came to Warsaw. He came for our seminars and took very active part in them. Staff members of the Professor's Chair at the Warsaw University of Technology also made their appearances.

A joint work of the two professors was the *Zastosowania Matematyki* [Mathematics Application] journal. Its first editor-in-chief was Professor Steinhaus, while his deputy was Professor Oderfeld. Initially, authors writing for this journal were staff members of the PAN Institute of Mathematics from Wrocław and Warsaw. I was in that group. Once or twice I had the honor of being a coauthor together with Professor Oderfeld. At first, the journal was in the Polish language, but it slowly shifted to English with articles from Poland and abroad. Papers presenting concrete applications for statistical methods were in the forefront. One of my papers, written with Professor Oderfeld, was about turbine blades.

It was thanks to the initiative of the two professors that the first conference on the application of statistic was organized in Warsaw. It was very memorable for me. Together with a friend with whom I had studied who worked in the Institute of Communications, I presented a solution to a certain problem relating to the operation of a simple electric circuit, the diagram for which was drawn on a blackboard. Professor Steinhaus entered the auditorium during the presentation. He sat down, but after a moment he asked in a stage whisper: "Does

that circuit on the blackboard really exist or is it just a make-believe model?" Yes, both professors valued the "real" much more highly than the "make-believe." That is how Professor Oderfeld wrote his articles, including his last paper for a conference on application that took place in Jurata in the summer of 1981. We went to that conference together and along the way stopped for a moment outside the hall in Oliwa, the venue of the 2nd Solidarity Convention.

Professor Steinhaus was active in the defense of Professor Oderfeld against the consequences of his review of a certain winner of a State Award. When asked to review the work, Professor Oderfeld praised the technical aspects, but pointed out a probabilistic error, which impacted negatively on the quality of the whole work. In the meantime, the decision–makers had gone ahead and awarded the prize without waiting for the review. They then demanded that the Professor modify his review or withdraw it. He consented to neither. A meeting of the PAN Polish Academy of Sciences was called to find a solution to the situation. Professor Steinhaus was asked for his opinion. He presented a position supporting that of Professor Oderfeld. Professor Steinhaus was not invited to the PAN meeting where the matter was discussed. Professor Oderfeld did not bend to pressure. He suffered unpleasantness, but he was not a man who might be broken by such mundane matters.

Circles and Madam Kazimiera

The work performed by the Professor at the PAN Institute of Mathematics and the Warsaw University of Technology was enormous. A very important component of this was the effort put into reading everything that his staff submitted for publication or readied for a conference. He returned each and every paper with his comments on a separate piece of paper, marking the relevant spots with a number in a circle in the original text. One could discuss those comments later. This way, errors could be eliminated from a paper. I remember those famous circles as a great gift that made it possible to come a bit closer to the requirements advanced by Professor Steinhaus: "A good scientific environment is one from which no poor work is released."

How is it possible that Professor Oderfeld managed to keep step with such responsibilities? To a certain degree this was thanks to the Department Secretary, Mrs. Kazimiera Olsztyńska, a distinguished older wom-

an and very industrious fan of the Professor. She prepared everything for him, everything possible. Every boss dreams of such an employee.

The Nineteen-Eighties and Nineties

In 1973 I defended by habilitation doctorate at the PAN Institute of Mathematics and started to work at the PAN Calculation Center, which was later transformed into the PAN Institute of Computer Science Fundamentals. Professor Oderfeld stopped working at the PAN Institute of Mathematics somewhat earlier. Completely unexpectedly, it was the nineteen-eighties and nineties that became a period of very close and friendly contacts with the Professor. At that time (and up to the present) I was professionally involved in multidimensional grade data analysis. The Professor called our work, or more precisely its graphic interpretation, "croissants." However, he never delved into exactly what those croissants were for. However, he did show me very much warmth when on December 13, 1981 my son, a student at the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology was interned in Białołęka.

We traveled with the Professor to Roztocze Lubelskie several time in the summer and had long walks. The Professor was an excellent companion on trips…

As the years passed, the Professor left his armchair located by a window with a view of the trees growing in the Warsaw University of Technology garden. He was enchanted by the moving leaves and often spoke about that. He never complained. I visited less and less often and stayed for increasingly shorter periods of time, but when leaving I was always endowed with his warm smile… until that telephone call from Barbara Oderfeld saying that her father was no longer with us…

Tea at the Professor's (2006)

After receiving that sad news my son, Krzysztof, also wrote his recollections, out of the needs of the heart.

Professor Jan Oderfeld, 1908–2010

I do not know how to write obituaries or epitaphs. I do not like pathos or great words.

But I owe it to him. Professor Jan Oderfeld died this morning at his home in Warsaw. One month ago he celebrated his 102nd birthday. I will not describe his eighty-year-long career in the aviation industry and Polish science. That is not what impressed me, at least not the most.

He really made a place for himself in my consciousness in the mid–nineteen-sixties. It was then that as a six-year-old I suffered from lack of self-sufficiency at a dormitory in Rabka when I received a card from him. On it, in a steady hand, he drew the MIG-15. I came to love that card and even that plane.

I know that the Professor's help meant a great deal to my mother's scientific development. I studied at the Faculty where the Professor lectured, but I had no classes with him except for a few substitute lessons. He was a friend always ready to help with a good word—my mother, me when I was a kid, and most recently my own son. The youngster also has some of the Professor's pictures hidden away somewhere.

It's a symbolic day, but a sad one. Recently, the Professor has been saying that a long life is a well-deserved punishment. He suffered greatly of late. Where he is now he most certainly knows that a lot of people on this earth will have very warm memories of him.

Post scriptum

The Professor, to his last years, went to "his aviators" every year and very joyfully told me about those meetings.

Krzysztof Leski

Elżbieta Pleszczyńska was born in Wola Wydrzyna, near Pajęczna in the Łódź Voivodeship. After a very difficult childhood, especially during the war, but also after the war, she completed high school in Warsaw. In 1954 she was awarded a Master's degree in mathematic following her studies at the Faculty of Mathematics, Physics, and Chemistry of the University of Warsaw. Upon graduation she took up work at the Institute of Mathematics of the PAN Polish Academy of Sciences. Her special area of interest encompassed questions of mathematical statistics. She received her doctorate in 1965 on the basis of the dissertation entitled *Moc testu a rozdzielczość hipotez w projektowaniu badań statystycznych* [Test power and hypothesis resolution in the design of statistical investigation]. Her supervisor was Professor Jan Oderfeld, Ph.D. She maintained very friendly relations with the Professor.

With her doctorate in hand, she underwent internship programs at the University of Wales (United Kingdom) and at the University of Montreal (Canada). As a result of a habilitation procedure carried out at the PAN Institute of Mathematics, where she presented her dissertation entitled *Problemy estymacji trendów w analizie statystycznej szeregów czasowych* [Problems in estimating trends in the statistical analysis of time series], she was awarded her habilitation doctoral degree. Following habilitation, she started work at the PAN Institute of Computer Science Fundamentals in 1973. In 1993 she was awarded title of Professor in mathematics. For many years, up to formal retirement, she headed the Department of Statistical Data Analysis in that Institute.

The conclusion of professional work in no way interrupted her scholarly activities. The effect of this is seen in her numerous scientific publications of fundamental importance for science as well as with practical application in engineering.

Professor Elżbieta Pleszczyńska is also known for her creative social activities. The year 1990, on the basis of her idea as well as effective participation, saw the establishing of the FPMiINRiIP Help Foundation for Physically Disabled Mathematicians and Computer Scientists. Thanks to her initiative, a new organization was created in 2010—SMiIzNiIP Association of Disabled Mathematicians and Computer Scientists and Their Friends, registered under name of Integrał [Integral]. The association brings aid to its members in difficult life situations.

Krzysztof Leski, son of Elżbieta Pleszczyńska, was born in 1959 in Warsaw, where he graduated from high school and subsequently from the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology. He also studied at the Faculty of History of the University of Warsaw for several years. As a student, he was involved in social and political activity, mainly as author and editor of various publishing houses of the NZS Independent Student Association of Warsaw University of Technology and the University of Warsaw. In December of 1981 he was interned at Warsaw's Białołęka. Upon being released in March of 1982 he continued his activities as editor and author. Among other things, he was the cofounder and editor of the *Kurier Okrągłego Stołu* [Round Table Courier] and collaborated with the *Tygodnik Mazowiecki* [Mazovian Weekly] over the years 1982–1988. He provided opinion pieces for various periodicals and worked with Polish radio and Polish television to which he devotes his work.

Professor Jan Oderfeld and His Technical Knowledge Olympics

Wojciech Radomski

This title is not random. Professor Jan Oderfeld—prominent scientist and engineer, a true authority figure whose name and achievements are universally known, highly acclaimed and synthetically described in other texts of this publication—had his best loved fields of activity to which he devoted his knowledge, wisdom, and, it must be said, heart through special personal involvement. One such area was undoubtedly the Polish nationwide Technical Knowledge Olympics, organized for high school youth from both preparatory and vocational schools. Participation of the latter is one of the special features of these Olympics. The first was organized in 1974. Starting with that year it has been held annually. Thus, in 2014, which is when I am writing these words, it was forty years old. Professor Jan Oderfeld was coupled with it from the very beginning and immediately had a clear impact on its substantive values. He treated this important social event as his brainchild. Again, one should not be afraid to use such a term. It was so to his last days. The Technical Knowledge Olympics were his Olympics. That is why the title is formulated the way it is.

Quite immodestly, I must state that I feel particularly empowered to present the connections between Professor Jan Oderfeld and the Technical Knowledge Olympics. The form must of necessity be abbreviated. The reason is that I have been active in these Olympics since 1975, without any breaks. This means, from the second Olympics held. To this very day, I have had the good fortune and honor (there is no insincerity in phrasing it thusly) to collaborate directly with the Professor for many, many years, right up to the end of the nineteen-nineties. It is for this reason that this text cannot be deprived of personal threads. I will strive to write about him, as I knew him. I admired him

and simply liked him. I learned a great deal from him. In a word, I will write about the Professor as a learned man while providing information about the Olympics, their structure, organization, and course to only a small degree as necessary to demonstrate the great role that Professor Jan Oderfeld played in its history.

The deceased Professor of the Warsaw University of Technology, Janusz Tymowski, the first chairman of the Main Olympics Committee, invited me to participate in the Technical Knowledge Olympics. Questions and what are known as technical problems were prepared in three thematic groups—mechanical-construction, electrical-electronic, and material-chemical. The authors were mostly staff members of the Warsaw University of Technology. Having just defended my doctorate at the Faculty of Civil Engineering, I was an adjunct professor when I started my collaboration. I found myself a "layer" of problems in the building sciences for the first of the listed groups. Professor Jan Oderfeld headed this group. Apart from the fact that I obviously knew who he was and of his high position, I had never had an opportunity to get to know him better. Now I had. Our direct contacts, as I have already mentioned, spanned decades.

My first observation, confirmed over successive years, was that the Professor looked at everyone with great seriousness, even in cases of seemingly trivial matters. He was very careful, precise, brought everything to its conclusion, and cherished the simplicity and lucidity of the message. All these qualities found their reflection in assessments of tasks for Olympic participants that I presented for verification in my capacity as head of the mechanical-construction team. Usually, the Professor invited me to his office, adjacent to his private apartments on the highest floor of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology on Niepodległości Avenue. That office was furnished very modestly. It generated a climate of concentration. Usually, I first delivered the problems and the Professor would make an appointment with me and other authors in two or three days, after he had had time to look over the specific questions and proposed methods for solving them. For me, this was very educational. No substantive, arithmetical, or language error slipped by the Professor. As head of the team he took complete responsibility (obviously in addition to the specific author) for the tasks and technical problems handed out to Olympic participants. This was reflected in the visible fact that each one named the author and reviewer—Professor Jan Oderfeld.

However, in spite of his seriousness and absolutely exceptional inquisitiveness and precision of actions, the Professor was simultaneously a very warm person, something that I observed very early on. He had a specific sense of humor, which not everyone was at ease with. At the same time, in his behavior with respect to the whole of the "Olympic staff," he was very gentle, tactful, and calm. I never saw him annoyed, though there certainly were many matters—basic and general in importance, and simple and mundane—that simply irritated him. However, he never showed it.

But getting back to our joint work on the problems, an excellent sample of the Professor's delicacy when he noticed an error in the author's calculations—he checked all calculations personally—where usually, he spoke never raising his voice: "I think I have some other type of calculator, because my solutions are somewhat different than yours." I do not have to add that everyone tried to avoid such comments. Simply by his approach, the Professor obligated all "layers" of problems to be very meticulous. This was not only true of the developing of the problems, but also in the matter of their checking. All the team members always submitted their preliminary assessments to him, and he usually honored that, he rarely changed them, but he had to know and be convinced that no Olympic participant was harmed.

By participating in meetings during which a selection was made of problems developed in all three thematic groups, I became convinced as to just how wide-ranging and in-depth the Professor's knowledge was. This applied to not only his own scientific and technical specialty, but many other areas of technology as well. Statements he made were knowledgeable, be they on electrical engineering or material science. He often introduced a new way of looking at the content of the problems in those thematic fields. This bore fruit in the making of relevant changes or greater precision.

Professor Jan Oderfeld, doctor of mathematical sciences as well as an outstanding scholar, theoretician, and academic professor. At the same time he was a great engineer with enormous experience and practical achievements (if only the development of Poland's first jet engine prior to World War II, as described in another part of this publication). This symbiosis of science and technology also found its reflection in his Olympic undertakings. He knew well what in the problems given young people had practical sense and application, and was not just some arithmetic puzzle. He took care that the problems had strong links with life and that is what he demanded of the "layers."

During Olympic Sessions…

The enormous knowledge held by the Professor was not only related to technology. He had broad humanistic interests, where a huge role was played by his love of the arts, mainly, in my opinion, music. Paradoxically, I became convinced of this thanks to the Technical Knowledge Olympics. I mentioned my visits to the Professor's apartment. Usually, after the door was opened, there was silence. Once, however, the Professor did not manage to turn off a record and the magnificent sounds of Mozart's music reached me. It turned out that he was his admirer, but he also liked to listen to other composers. I do not know if he worked listening, but that is probably true. Perhaps this was the source of his gentleness and calm. Music is very close to mathematics. Many have noted this a long time ago. The Professor's style of thinking and acting fully confirms this observation. Order and beauty must go together, like mathematics and music in the case of Professor Jan Oderfeld.

I spent quite a bit of time wondering if I should include one specific memory in this text. It involves something very subtle, very personal, with a tragic dimension for the Professor, but tied with the Olympics. I came to the conclusion that this event about which I am going to write characterizes him as a man as well as his remarkable sense of duty very well. That is why I decided to do it. Once, many years ago, I telephoned the Professor at home in a matter concerning the Olympics. As usual, the conversation was very concrete and calm. He decided upon several necessary actions. At the end, the Professor informed me that his wife died that day. When I started to apologize for my phone call, the Professor said: "You didn't know." He then said goodbye warmheartedly. Thanks to those words, absolutely true, I felt absolved. That was Professor Jan Oderfeld.

As long as his health and strength allowed him, he travelled with the entire Olympic group to the finals, organized in various cities, often very far from Warsaw. I think that the desire to participate in these trips was the result of a sense of duty as well as from the fact that he simply liked to be with us, have contact with talented youth, and absorb the Olympic atmosphere that, to a great extent, he himself created through his own personality.

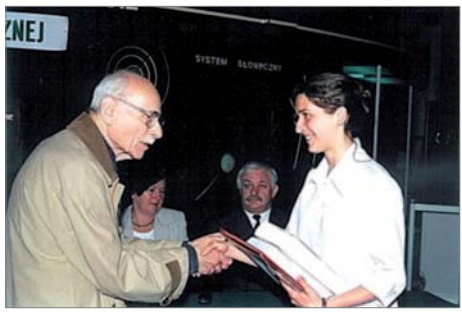
We did more than admire him. We also loved him for everything that he did for the Technical Knowledge Olympics.

As the years passed, the Professor no longer travelled with us. Ultimately, he even excluded himself from active participation in the Olympics. However, we always called him to report on the course of the finals and later invited him to Warsaw's Museum of Technology for the official conclusion and presentation of awards to the laureates. He was glad to come. He always prepared a short speech that he presented to the young people and their teachers. His words were always full of wisdom and worthy of in-depth reflection on the part of the listeners.

Something else that bears witness to the very personal and emotional attitude of Professor Jan Oderfeld to the Technical Knowledge Olympics is also a seemingly simple matter, but it was characteristic of the Professor.

It was usual to think, and with quite a bit of validity, that technology is the domain of men. This is borne out by the Technical Knowledge Olympics. Among its participants, especially in the finals, the absolute bulk was and is made up of boys.

However, there were situations that were an exception and girls did reach the finals. There were few, but they were girls. The Professor caught on immediately and decided to honor the best female finalist with his own award… That tradition has been continued for successive, recent years, mainly thanks to the Professor's daughter—Professor Barbara Oderfeld-Nowak of the Nencki Institute of Experimental Biology in Warsaw. I am convinced that Professor Jan Oderfeld is smiling at his daughter and to us from someplace up above. After all, it is obvious that he continues to be interested in the Olympics and is keeping an eye on it.



Congratulations for the Olympics female finalist

Wojciech Radomski was born in Lublin. After graduating from high school there he studied at the Warsaw University of Technology. In 1965 he was awarded a Master of Civil Engineering degree and subsequently he became a Doctor of Technical Sciences at the Faculty of Civil Engineering. It was at that same Faculty that the Faculty Council awarded him his habilitation doctorate in 1982. Starting with 1995, he is a professor of both the Warsaw University of Technology and the Łódź University of Technology. Over the years 1991–1992 he was professor at Kanazawa University in Japan. He lectured at universities in Italy, Norway, and the United States. He specializes in questions of the design, construction, and operation of bridges, their aesthetics, and the application of new and unconventional structural materials in bridge building. He is fully licensed to design and build bridge facilities.

He was Chairman of the Civil Committee of the PAN Polish Academy of Sciences for two terms. Previously, among other things, he was a member of the Central Committee for Degrees and Scientific Titles, Chairman of the Polish Society of Bridge Engineers, and Vice–Chairman of the National Council of the Polish Chamber of Civil Engineers.

For over twenty-five years he was the Director of the Institute of Roads and Bridges of the Warsaw University of Technology. He is Vice–Chairman of the Scientific Council of the ITB Building Research Institute and a member of the Scientific Council of the IBDiM Road and Bridge Research Institute.

He has been taking active part as chairman and member of the scientific committees for many conferences at home and abroad and has been a member of the editorial staff of several national and international journals. He is a member of several national and international scientific–technical associations. Among these, he is the Chairman of the Polish Group of the extremely prestigious International Association for Bridge and Structural Engineering. He is the author or coauthor of over three hundred works, including eighteen books as well as two individual books, published in Japan and Great Britain.

He promoted seven Doctors of Technical Sciences and is overseeing five more open dissertation procedures. He has reviewed numerous doctoral and habilitation dissertations as well as applications for the title of professor. In 2014, the Kielce University of Technology awarded him the degree of Doctor honoris causa. As of 1975 he has continuously been tied to the Technical Knowledge Olympics and has been Chairman of the Main Committee for about two decade.

The Professor Considered Me His Friend…

Ryszard Witkowski

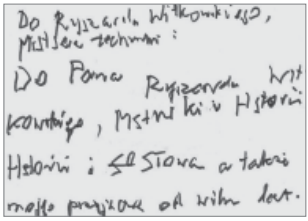
To hear and especially to receive confirmation on paper that one is considered a friend of such a distinguished person as Professor Jan Oderfeld is a great honor. Just such an honor met me shortly before the Professor's death.

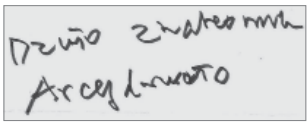
The opportunity for this declaration, so very valuable to me, was created when he was presented with by book *Dzieje śmigłowca* [History of the helicopter], which was published in 2005. The Professor knew I had been working on this expansive topic for many years. We had had multiple opportunities to discus it during my earlier visits with him. Their instigator and organizer was one of the Professor's most talented students, Andrzej Moldenhawer.

When the book finally came out and a copy with an appropriate dedication found its way into the hands of the Professor, he promised that, in spite of the fact that it was over 300 large format pages long and he already had difficulties reading, he would study it carefully. He did it! When he completed his reading he decided to express his opinion. One day, Andrzej and I received an invitation to the Professor for tea. That is when I heard a particularly sympathetic review of my work from him.

It was then that I received those touching words written on two cards in a trembling hand. They also included the probably undeserved opinion that I am a "Master of Technology, History, and Words."

Presentation of the book *Dzieje śmigłowca* [History of the helicopter]





A brief review by the Professor

This stirred up memories from long ago when I, as a young student of the Faculty of Aviation of the Wawelberg and Rotwand School of Engineering, met Jan Oderfeld for the first time. He lectured aviation mechanics and mechanisms. He was one of those aviation specialists, a rarity in postwar Warsaw, who made up the staff of aviation as a direction of study, established in the first school of higher learning that opened its doors in the destroyed capital in 1945. It was a direction that attracted throngs of youths, hungering for this newest branch of technology. In addition to Jan Oderfeld, the mechanic, pioneer in Polish work on jet propulsion, and Czesław Bieniek, the primary instigator for giving the school "wings," the staff of this school that up to the war taught traditionally, but for many years had already been providing an education exclusively in technology and electrical engineering, included the well-known designers Franciszek Misztal and Ryszard Bartel, the strength of materials expert Zbigniew Brzoska, engine experts Włodzimierz Strzeszewski and Jan Kunstetter, the chemical engineer Kornel Wesołowski, and others. The student body was made up of young people with extremely diverse wartime stories. Most were former soldiers of the AK Home Army and participants in the Warsaw Uprising, but there were also people who were completely mature, veterans whose studies had been interrupted by the war and had a "hard time" on all fronts. Relations between students and lecturer were very warmhearted at the School because the wartime stories of both groups were, in many cases, the same.

A meeting of the WKSL Warsaw Senior Aviator Club: the Professor and General Stanisław Skalski, the famous Polish fighter pilot and veteran of the Battle of Britain

It was students of "The Wawelberg" who supplied the various fields of expertise of the reviving war-torn country. A large group of graduates of aviation studies created the core of the CSS Central Airplane Research Center, today a forgotten design bureau where the CSS-10 and CSS-11 trainer airplanes were made. Many found their way to the IL Institute of Aviation, aviation industry departments, and to the military. Some became captains of PLL LOT Polish Airlines. Some had successful

careers abroad. Fate had it that for a long time the Professor's and my paths did not cross. That ultimately happened at the WKSL Warsaw Senior Aviator Club. We both became members at the end of the 20th century.

It was at this association of aviation veterans, in existence for seventy-five years and presently headed by Jerzy Madiera (tied with the Warsaw University of Technology for many years) that the Professor not only met me, but also many of his former students from the memorable "Wawelberg"—Andrzej Moldenhawer, Marian Ślusarczyk, Jerzy Wesołowski, Jacek Szpotański, and others. It was a great joy for all of us when it turned out that the Professor, in spite of the passage of the years, still remembered us, still felt sentiment for us, and had nothing against being visited at home in his apartment on the grounds of the Warsaw University of Technology. I readily took advantage of this encouragement and did so at every possible opportunity. I shall never forget those visits, especially the one in 2008 when the Professor celebrated his 100th birthday and in February of 2010 when he was 102. The photographs taken then of the Professor blowing out two candles on his birthday cake, prepared for this event by his daughter Barbara, are now valuable historical documents. The Professor passed away two months later.

A very special monument was unveiled on July 13, 2012 amidst the trees, near the fountain on the main grounds of the Warsaw University of Technology—Oderfeld's Bench. I could not deprive myself of the honor as well as the stirring pleasure of taking a souvenir photograph, bringing back memories about just how friendly towards his close ones, his students, and his protégées was this Man of Aviation.

Ryszard Witkowski and Oderfeld's Bench

Ryszard Witkowski was born in 1926 in Milanówek near Warsaw. He discovered aviation for the first time through Boy Scout Troop 197, as a part of courses in airplane model building. During the war he was a soldier of the NOW National Military Organization, aka "Romuald," and in the AK Home Army, aka "Orliński." After the war he finished high school and started his studies at the Faculty of Aviation of the Wawelberg and Rotwand School of Engineering. There, under the supervision of Professor Franciszek Misztal he defended his thesis. He underwent glider and airplane flying training within the framework of the Student Aviation Club, of which he was a founder. His piloting career was interrupted in 1949 when he was arrested together with other former AK Home Army soldiers. He also lost his job at the Institute of Aviation. He returned to aviation and his job at the Institute after the "Thaw" in 1956. He devoted his career to helicopters. He was one of the first in Poland to receive a helicopter pilot's license. Among other things, he participated in the various phases of work on the SP "Gil" and BŻ-4 "Żuk" helicopters.

After a stay in Indonesia where he trained helicopter pilots, he was awarded his Master of Engineering degree in Aviation at the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology. Gradually, he became more intensely involved in teaching, journalistic commentary as well as expert journalism. He was invited to aviation accident investigations and also became an expert witness in this field. He published almost thirty books and over 500 articles in various periodicals as well as papers presented at conferences at home and abroad. He is an active participant in the social activities of the Polish Aero Club, the KRL National Aviation Council, the KPD Test Pilot Club, and the PSW Polish Rotocraft Association, of which he is a founding member.

Five Years with Professor Jan Oderfeld (1950–1955)

Jan Wyganowski

At the end of the nineteen-forties, with the approval of the Warsaw University of Technology authorities and as authorized by Professor Czesław Witoszyński, Professor Jerzy Bukowski commenced work on rebuilding the Institute of Aerodynamics in Warsaw. This was actually a very ambitious assignment. Apart from the rebuilding or the war–devastated building itself, there was the question of laying the foundations for the Faculty of Aviation of the University of Technology. This is because prior to the World War II, the position of aviation studies were merely that of a section at the Faculty of Mechanics.

In implementing the above plan, it was decided that the Chair of Aircraft Engines will be opened at the Warsaw University of Technology in 1949. Engineer Jan Oderfeld was made head. He had significant experience in building and testing aircraft engines that he acquired during work at the PZL State Aviation Works – Engine Manufacturing Plant in Warsaw where he was employed as an engineer–designer as early as 1935. In 1937 he was entrusted with the position of design group manager. He also gained experience and acclaim as an academic teacher at the Wawelberg and Rotwand School of Engineering where he was employed as a contractual lecturer in the area of aircraft engines, among other things.

In putting together the staff of the chairs of the Faculty of Aviation, Professor Bukowski also reached out to students, because as yet there were no postwar graduates. In 1949 the most advanced class was just in its junior year.

This being the situation, I received a proposal of work with the Institute of Aerodynamics of the Warsaw University of Technology, specifically the Chair of Aircraft Engines, from Professor Bukowski. Thus, in

Institute of Aerodynamics Building

January of 1959 I met Professor Jan Oderfeld. I had as of then not had the opportunity.

At that time, the make up of the Chair of Aircraft Engines was as follows: Professor Jan Oderfeld – Chair Head, Associate Professor Wiktor Narkiewicz – Adjunct, and Władysław Matzke, Eng. – Senior Assistant. My own position was that of designer at the Institute of Aerodynamics of the Warsaw University of Technology, with the Chair of Aircraft Engines. The Chair was located in a small room in the passage between the Institute building at No. 24 Nowowiejska Street and a new building on Niepodległości Avenue, which was earmarked for the future Faculty of Aviation. The Chair's problem with space was to improve significantly when that new building, known as the Aviation Building, would open for occupancy.

The allotment of new rooms in the basement of the Aviation Building on Niepodległości Avenue made possible the building of a laboratory and workshop base. Among other things, it was to consist of engine test stands to meet teaching needs—single-cylinder water engine test stands and a "mill" small rotary engine test stand. A mechanical shop was also created for making educational aids. In the future it was to provide services for the Chair's research work as well as the tasks of a large carpentry shop in connection with plans to build a wind tunnel for the Institute. I was assigned jobs linked with equipping the laboratory and the shop. I worked under the personal supervision of Professor Jan Oderfeld.

I recall an incident that happened during the building of the water engine test stand. During the start-up test, the universal shaft linking the test stand with the engine snapped off. Misalignment was suspected. Thankfully, no one was hurt as the shaft had a shield.

The Professor was notified of the failure immediately. Those were times when sabotage was suspected everywhere, but it seemed to make no major impression on him. He simply issued instructions for the future and that was the end of the matter. The engine test stands turned out to be exceptionally noisy, especially the "mill," which was equipped in a small diameter, wooden, four-blade propeller while the tunnel outlet was simply placed in a window aimed at the Warsaw University of Technology grounds.

The staff of the Chair grew over this time, transitional design work was carried out, and the workshop made educational aids, including aircraft engine cutaways.

The Faculty of Aviation was created as a result of the merger in 1951 of the Warsaw University of Technology and the Wawelberg and Rotwand School of Engineering. The Chair of Aircraft Engines was assigned a room on Narbutta Street. The entire stock of the Chair from Niepodległości Avenue was moved, with the exception of the engine test stands. Exercises on the "mill" engine test stand were replaced by engine tests on a Cessna plane with its wings cut off, so it could not fly off and was available at that site. Tests of the pulsejet engine conducted within the framework of the Chair's research could prove to be burdensome for its environs.

Professor Oderfeld combined his undisputed teaching talent with his own brand of humor, which made its appearance during examinations. Below are two examples:

The Professor asked a student: "What material is used to make the shaft of an airplane engine?" The answer received was: "Steel." "Yes," said the Professor, "but what kind of steal?" "Good steel, Sir." The Professor failed to coax the student to list the alloy, which was the essence of the question. However, the answer was treated with leniency as stemming from the student's "specific sense of humor."

Another time, a student was eavesdropping at the door, looking into the Professor's office through the keyhole during the examination. The Professor opened the door rather suddenly and the student jumped away holding his head. The Professor reacted by apologizing: "I am so sorry. I really didn't known you were there."

The Professor was also an excellent educator. When one came to him with a tale of failure, he always said: "That's really not worth worrying about. One can always think of a situation that is even worse."

The merging of the Warsaw University of Technology and the Wawelberg and Rotwand School of Engineering, which I mentioned above, marked the start of the persecution of Professor Oderfeld. A "group of people" decided to eliminate him from the Chair. The external locomotive behind these actions seemed to be Leon Niemand, who took over the Chair after the recalling of the Professor. I was a witness to those events only in their first phase as I was expelled from the Warsaw University of Technology in 1955. I think that my fate should be considered "collateral damage" in the case of Professor Oderfeld. I was expelled against the wishes of the Professor from both

my job with the Chair of Aircraft Engines and from the School as such. These restrictions were combined with expulsion from flight school. With the Professor's help I completed my studies at the Faculty of Mechanics, specializing in internal combustion engines. After the "Thaw," I worked in aviation right up to retiring in 1998.

Neither the professional community nor the School nor anyone on the outside reacted effectively to this obvious wrong done Professor Oderfeld. What was the Professor's reaction? With amazing dignity and restraint he kept all these very difficult, internal ordeals to himself. He soon set out upon pioneering work on a new field of science, new not only in Poland, with the passion of a seasoned scientist—theory of machines and mechanisms.

I have the satisfaction that after several dozen years of acquaintance, I told the Professor that he taught me to think. I got the impression that this gave him pleasure. I maintained friendly relations with Professor Jan Oderfeld right up to his passing.

Jan Wyganowski was born in Warsaw in 1928. Upon finishing the Stefan Batory High School in 1946 he undertook studies at the Faculty of Mechanics of the Warsaw University of Technology, where starting with his junior year he chose the aviation section. Still a student, he worked in the Chair of Aircraft Engines over the years 1950–1955 under Professor Oderfeld.

Following his restrictive expulsion from the Chair and a ban on completing flight school, he completed his studies at the Faculty of Mechanics and Design, specializing in internal combustion engines. Over the years 1956–1957 he worked at the BKPM Motor Industry Design Bureau as an engineer in charge of engine test stands.

In 1957 he transferred to the Institute of Aviation, where he conducted tests in the Inflight Testing Section over the years 1957–1962, specializing in the testing of feederliners, including the CSS-12, MD-12P, and MD-12F.

He also took part in investigations of aviation accidents and, upon the reversal on his passport ban, he took part in the receipt of Ił–18 airplanes for PLL LOT Polish Airlines.

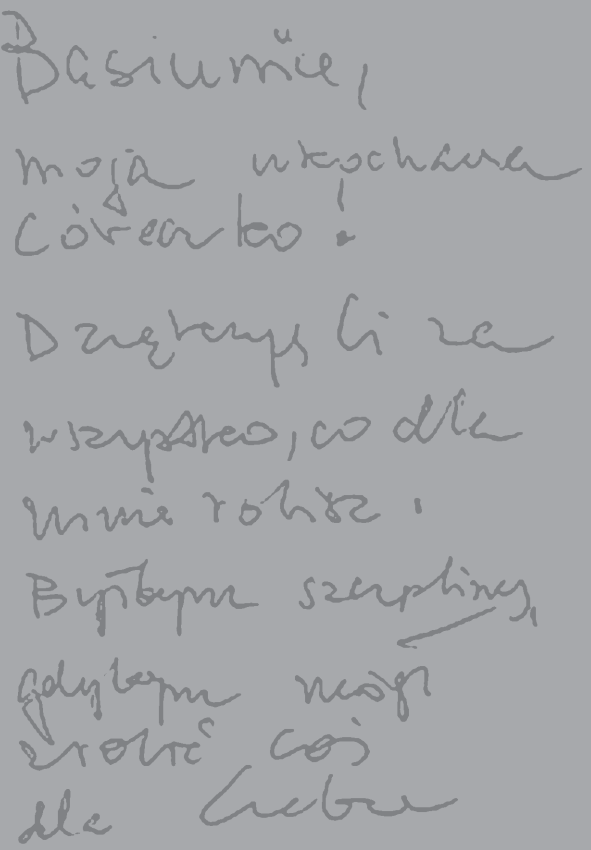
It was within the framework of the Aero Club that he completed courses in piloting gliders and airplanes and in parachute jumping (from towers). Over the years 1962–1966 he was the manager of the test section and later of the export section at WSK-Okęcie. He was also delegated for eleven months to Indonesia to prepare the licensed production of the PZL-104 airplane.

After starting work at PLL LOT Polish Airlines, he developed the concepts and documentation for various technical operations for airplane crews and ground staff over the years 1966–1998, which were implemented successfully. He participated in IATA technical conferences and provided support in Poland for IATA and ICAO officials as well as various training programs at home and abroad. He was a member of the team providing type-approval for the JAK-40 airplane in the Soviet Union and was on the team coordinating preparations for opening up transatlantic flights using Il-62 airplanes. Over the years 1972–1976 he managed PLL LOT Polish Airlines units abroad.

When after the announcing of Martial Law he was recalled to Poland in December of 1981, he returned to his post as deputy manager of the charter section. He coordinated air travel for the second visit of Pope John Paul II to Poland.

He took part in the work of the team readying the purchase of B-767 airplanes and in 1989 he oversaw the building of the first airplanes for PLL LOT Polish Airlines as well as personnel training in Seattle. As of 1991 he was director of the PLL LOT Polish Airlines unit in Singapore for four years. Upon concluding his mission and returning to Poland he organized and subsequently managed the Fleet Development Office until he retired in 1998.

Family Memories



„Wyznania wiary":

— Nie wierzę w nic na ślepo.

— Nie iść na kompromisy dla świętego spokoju ale

— kochać partnera i zachować słuszność dla kochania.

— Dbać o to w pracy o wykonanie i strategię. Wielkie idee rodzą się z codzienności

Dearest Uncle

Mariola Hochstim-Łysak

Professor Jan Oderfeld—scholar, inventor, erudite, but at the same time modest, warm, and witty. In a word: A noble man. My opinion of him is not subjective merely because he was my "Dearest Uncle." Everyone who had an opportunity as well as the good fortune to meet him, regardless of age, was impressed by his wisdom, quips spiced with irony, directness, and goodness.

My memories reach back into the very distant Rabka highlander past when Uncle Jan and his beloved women—his wife Marysia and daughter Basia (now a professor herself)—would come to our Rabka home. Uncle was a valiant hiker, strolls along the Raba River, trips to Luboń with significant stocks of food prepared by my mother, but primarily there were the talks and talks.

In later years there were my visits to Warsaw and then successive jubilees, birthdays that were organized with such gusto by his daughter. These parties were celebrated with larger or small groups of friends and family. All reveled in our wonderful and still intellectually impeccable Professor. Although he suffered many ailments he never complained. But we all knew that, at times, he suffered greatly. He was a buff and connoisseur of good classical music and literature. Most of all, he was witty. He composed limericks and funny poems.

Mariola Hochstim-Łysak and the Professor

I am writing these recollections on a computer. For this reason it might be a good idea to quote Uncle's words: "There is no tomorrow without computers." Although quite a few years have gone by since I heard this light-hearted sentence, it is difficult not

to admit that it was prophetic. I consider the moments I spent with him among the most pleasant in my life. He was a wonderful husband, father … and my Uncle.

As to any scientific evaluation, there are experts for that. I simply want to paint a picture of this good and modest, but very great Man. I will never forget him. I will always long for the times when I could visit him and benefit from his wisdom, goodness, and strength in everyday life.

Mariola Hochstim-Łysak was born in 1939 in Warsaw. She lived in Warsaw until the outbreak of the Warsaw Uprising. During the German occupation her family's apartment at No. 18 Radomska Street housed the first covert headquarters of Colonel Antoni Chruściel, aka "Monter," organized by Zofia Żółtowska, Monter's communications officer. Józef Kazimierz Wroniszewski, AK Home Army soldier, whose nom de guerre was "Okoń" and later "Konrad," recalled this in his monograph *Ochota 1939–1945*. After the fall of the Uprising, she lived in Łódź. For family reasons she, together with her mother, moved to Rabka in 1949. That is where she spent her childhood and youth. She studied philology at the Jagiellonian University in Cracow. Upon completing her studies she was employed at the Academy of Agriculture Research Library in Cracow (today the University of Agriculture) where she worked until retirement as custodian. Currently in retirement, with her husband (a retired professor of ichthyology and an avid gardener) she divides her free time between Cracow—her permanent home—and Myślenice – a small, charming town in the foothills along the Raba River.

Pride in Grandpa … and Great Grandpa

Marta Kozłowska

I was always very proud of my Grandpa.

As a small girl I used to drop in on him on my way to the swimming pool on Tuesday and Friday afternoons. I would listen to his wonderful stories about the book he had just read. I listened to the adventures of heroes he recounted. I loved to listen to his tales. Sometimes we spoke of the physics lessons I had at school and we analyzed the problems I had assigned as homework. There were times when he would get irritated that the parameters were not precise or that the teacher failed to provide all the data that should have been provided in order to properly solve the problem puzzle.

Later, when I started my studies, I would also come to him two or three times a week. Sometimes we met at the Hortex ice-cream parlor. He always came over for dinner on Saturday or Sunday. Then we spent the entire afternoon together.

Marta Kozłowska and the Professor

I remember when we spent our summer vacation together. He always got up very early and did his exercises. He always did his push–ups. He did not like it when we were late for breakfast. He was of the view that one should "have a watch in hand," even on vacation.

He lived on the grounds of the Warsaw University of Technology. As time passed my mother worried that Grandpa had to climb up to the fourth floor as the building had no elevator. He insisted that it was good exercise. He

was so very independent right into his later years. I remember that he always had French curves, pencils, and clean sheets of paper on his desk. He was always ready to jot down a thought or idea for problems for students.

Marta Kozłowska, her family, and the Professor

He often took me to the finals of the Technical Knowledge Olympics. He always marveled at the teacher from Bielsko–Biała who prepared her students so well that one of them almost always got into the finals. He was happiest when a girl who had presented very elegant solutions to the problems was among the finalists and laureates.

Upon completing my studies I always visited him when in Warsaw. Like old times, we ate dinner together, went for walks around the Warsaw University of Technology grounds, and sat on a bench near the fountain. The stories he told of his childhood, studies, officers' training school, his first job, and how he worked with colleagues on the design of an airplane jet engine were very interesting. He always awaited me as well as my children with open arms.

After each visit we would await the day when we might see him again.

Marta Kozłowska was born in Warsaw, which is where she graduated from Tadeusz Reytan High School. She is a graduate of the Faculty of English Philology of the University of Warsaw. Currently, she is the Director of the Department of Development of the Energy Institute in London. Her responsibilities include collaboration with member companies and scientific conference programs covering a broad range of energy-related questions.

She is Secretary of the United Kingdom Member Committee of the World Energy Council, an independent organization coordinating the operations of English industry and scientific institutes interested in participating on the world forum in discussions relating to directions for the development of the oil industry.

She is an active participant in the work of scientific and research organizations involved in matters of exploration and exploitation of oil reserves as well as questions of renewable energy. She is a member of the Chartered Institute of Marketing, established in 1911, which propagates professionalism in the sphere of marketing. As of 2011 she is a board member of the St. Luke's Hospice for the incurably ill in Harrow.

She lives in Great Britain with her husband and two sons. Her oldest son is studying in the United States.

Great Gramps

Maciej Kozłowski

Each time I came to Poland I was always very happy about being able to see my Great Grandfather, who I always called "Great Gramps." Great Gramps always told the most interesting and amazing stories. He was also the oldest person I had ever known. I had great respect for him. It seemed improbable that he was my great grandfather…

As a stripling I always impatiently anticipated those After Eight mint chocolates and delicious cookies he always had ready for my visit. As I got older, I better understood just how exceptional my great grandfather was, how much he experienced, how much he achieved, and what an enormous store of knowledge he had accumulated…

My earliest memories are from the time when I visited him in his apartment when he still lived on the fourth floor on Nowowiejska Street on the grounds of the Warsaw University of Technology. That apartment had its own passage leading directly into a student drafting room. Thanks to this, Great Gramps walked me around the University, something I always considered a great adventure. I always liked the idea of a "secret passage" to the Warsaw University of Technology, especially when there was no one else about and we could walk around while Great Gramps explained everything.

I clearly remember the time when we drew an airplane together on an enormous blackboard that took up an entire wall. I remember how with infinite patients and utmost care he taught me what the various parts of an airplane looked like and why they have to be designed that way so the plane could fly.

As time passed and Great Gramps got older, we walked through that special door less and less. Then, Great Gramps moved to another apartment, also on the grounds of the Warsaw University of Technol-

ogy, but on the ground floor, on Koszykowa Street. We could no longer "walk around the university" together, but I felt that we became even closer. This was because I was older, understood more, and could talk with him about interesting and very "adult" topics. At every turn I understood more and more about just how great his achievements were and how much I can learn from him. In truth, he advised me a great deal and taught me much—about history, about engineering and even… a little about how to really talk to girls! I am very lucky that I had the opportunity to learn so much from him and I am certain that I would not be the person I am today if it had not been for my beloved Great Gramps.

Maciej Kozłowski and his Great Grandfather

When Great Gramps was one hundred, I was very proud and happy to take part in the ceremony at which he was awarded the degree of Doctor *honoris causa* of the Warsaw University of Technology. I saw just how many people expressed their respect for my Great Gramps and how warmheartedly he responded to everyone.

I will also always remember the unveiling in July of 2012 of a bench-monument commemorating Professor Jan Oderfeld, my Great Gramps, on the grounds of the Warsaw University of Technology, near the fountain. At the request of the Rector of the Warsaw University of Technology, Professor Włodzimierz Kurnik, I cut the ribbon wrapped around that commemorative bench.

The unveiling of Professor Jan Oderfeld's Bench: The cutting of the ribbon

Maciej (Matt) Kozłowski was born in London in 1994. Upon completing Cardinal Vaughan Memorial School in London he was accepted to Harvard University (Cambridge, Massachusetts) in the United States, a school with a rich and very long tradition, recognized around the world for its achievements and its very high level of teaching and scientific research. He studied applied mathematics and economics. While studying, he worked as a research assistant for Lucy White, Associate Professor of Business Administration at the Harvard Business School.

Within the framework of his own interests, he follows international and current events and is also interested in international finance and company strategies. He studies foreign languages.

He is an avid oarsman representing Harvard University on the lightweight rowing team. He has achieved many sporting successes, including the winning of the team gold medal at the US–EARC championships and a bronze medal at the British Rowing Championships in 2011.

Great Gramps: First Symptoms of a Researcher-Discoverer

Aleksander Kozłowski

I hold very many colorful memories of my Great Grandfather. I always called him "Great Gramps." I remember the time I got my first "real" watch and how we would sit together and admire it.

I remember that magnificent Ceremony at the Warsaw University of Technology celebrating Great Gramps' 100th birthday. I remember the throngs of people. All of them wanted to talk to Great Gramps, at least for a moment. I took a lot of pictures and made a movie on which Great Gramps is making a speech. It turned out that that is the only film of the Ceremony in existence. I remember how I strolled with Great Gramps through the gardens of the Warsaw University of Technology and the many beautiful moments we spent together.

I would now like to recall something that has remained in my memory. It was the day I spent with him and my older brother, Maciek, at his home on the grounds of the Warsaw University of Technology. That is when he told us an unbelievable story that, in my opinion, predicted that he would be a great researcher and inventor in the future.

This is what I remember of what he told us. However, I must add that since I was nine at the time, maybe it is not exactly as he related it: "I remember when I was five and sat in the living room of our apartment in Częstochowa playing with Play-Doh. There was a socket on the wall next to me. Suddenly, the idea came into my head that I should see what happens if I fill in the holes in that sock-

Aleksander Kozłowski during the ceremony for the presentation of the degree of Doctor *honoris causa* of the Warsaw University of technology

Aleksander Kozłowski and his Great Grandfather strolling along Koszykowa Street

et. Slowly, I started to push little bits of my Play-Doh into the holes. Suddenly, huge sparks started to fly. That was my first experiment," concluded Great Gramps.

Naturally, he told us how his parents reacted to this "experiment." Later, we talked about what a dangerous idea it was to experiment with electricity.

Aleksander Kozłowski was born in London in 1998. He is presently attending Cardinal Vaughan Memorial School in London. He is interested in computer science. He has written several of his own computer programs. Aleksander likes to learn foreign languages. He is a keen sailor and swimmer. He reads a great deal, is deeply interested in the history of various discoveries, and is especially entranced by the history of discovery in the field of aviation.

Uncle Jan

Ewa Rembiałkowska

Mother told me that when I was small, she, her brother, and her cousins, the daughters of her father's brother Henry, spent entire summer days in a large orchard located near a factory. Apples, pears, plums, and wild cherries grew there, as did gooseberries and raspberries. The children spent almost all of their time in the trees. It was a happy childhood.

Uncle left to study in Warsaw much sooner than my mother. He was seven years older. When she was seventeen, my mother also left for Warsaw to study. She earned a living by tutoring, but she was short on money anyway. Her older brother already earned relatively good money so he helped her out with a monthly stipend totaling sixty zlotys. This covered the costs of lunch (which cost one zloty) with some money left over for other minor expenses. They met regularly and were very close until the very end of my mother's life (she died eighteen years before he did).

Perhaps a few words about my Uncle's visits to our home would be in order. Such visits consisted of a delightful ritual that spanned the years. My Uncle visited us regularly once every two weeks, always on Sunday. He came to dinner at 3:00 PM. He was so punctual that when he arrived too early he would walk around the building, waiting for the assigned hour. He always came by tram or bus, never taxi.

During those visits he and my mother reminisced about old times and their parents. Professor Jan Oderfeld's mother, my grandmother, Maria Oderfeld, was an exceptionally beautiful and elegant lady from a wealthy and well-educated Warsaw family. Maria's mother originally though that her daughter was guilty of marrying beneath her in marrying Stanisław Oderfeld who was not only from a less wealthy family, but to make matter worse, from Częstochowa. However, she gradually got to like her son-in-law, though they sparred for many years. Grandfather

had a great sense of humor. For example, at times he would purposefully address his mother-in-law using a patois: "Madda, Mi deh yah." Uncle Jan also had a great sense of humor, obviously inherited from his father. Grandfather Stanisław was a very ambitious man. He passed on that quality to his children. Uncle recounted an anecdote from that time:

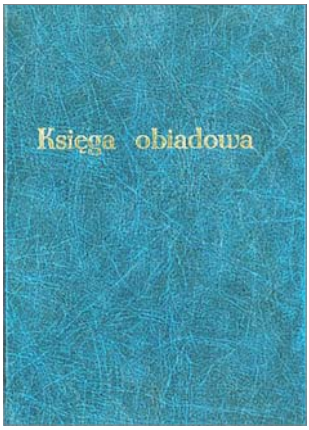
Grandfather, during his stay in Zürich, bought himself some cherries to eat. He spit out the pits on the street. Suddenly, he heard a police whistle: "What do you think you're doing? There is a fine for that. Please pick up all those pits off the street immediately!" With no recourse, Grandfather did what he had to do, but he remembered that lesson in orderliness forever and implemented it in his entire family. Uncle, too!

Uncle told us once that his grandmother—Dorothy—was from a big family. She had twenty-one siblings! Grandmother Dorothy regularly invited all the family children to afternoon snacks. Attendance was absolutely obligatory. Only illness could justify the absence of any child.

Uncle loved my children very much—Filip, Karol, and Ola, whom he called Agnieszka. As a Christmas gift, they always received a certain sum of money (I do not remember what it was), the same amount for everyone.

In 1991, at my home, we established what was known as a "Dinner Book." There, we recorded the menu of each and every dinner and everyone would officially sign his or her name to this "document." It is an interesting part of the history of our family. Uncle often told jokes and recited poems, which we would paste into the Book.

For example, this poem found its way there. It was composed for a contest for an advertisement for the *Kurier Warszawski* [Warsaw Currier] newspaper. Aunt Maria (Uncle's wife) received a prize of 200 zlotys for it in 1939.



The "Dinner Book" and Uncle's entry

Kurier Warszawski
[Warsaw Currier] Advertisement

A million bricks – A big home,
A million letters – A fat tome,
A million drops – A full container,
That's a million – It's worth the wager.

The above text was handwritten by Uncle and placed in the "Dinner Book." The date is the Second Day of Christmas, December 26, 2006. His hand was already a little shaky, but he wrote it from memory.

Our Book was bound by a bookbinder and is a valuable memento of Uncle and my mother. It is also a document of family events.

When my mother died, Uncle continued to visit us. At first it was once every three weeks, but as the years passed, every four weeks. The last time he flew in to see us was for the Second Day of Christmas, December 26, 2007. He was almost one hundred.

I miss my Uncle very, very much. I think of him often. We often speak about him and his great jokes. He was a wonderful man and it is a real pity that he is no longer with us. I believe that he is looking over us from above and that someday we will again meet with him.

Ewa Rembiałkowska was born in Warsaw in 1950. She completed her studies at the University of Warsaw in 1974. She was awarded her doctoral degree in 1979 for her dissertation *Rola* Geotrupes stercorosus (Scriba, Scarabaeidae, Coleoptera) *w przepływie energii i materii przez ekosystem leśny* [The role of the *Geotrupes stercorosus* (*Scriba*, *Scarabaeidae*, and *Coleoptera*) in the flow of energy and matter through the forest ecosystem] and habilitation doctoral degree in 2001 on the basis of her dissertation *Zdrowotna i sensoryczna jakość ziemniaków oraz wybranych warzyw z gospodarstw ekologicznych* [The health and sensory quality of the potato and selected vegetables from organic farms]. She was awarded the academic title of Professor of Agricultural Sciences in 2012 and is presently the head of the Chair of Functional and Organic Food and Commodities of the Faculty of Human Nutrition and Consumer Sciences of the SGGW Warsaw University of Life Sciences.

She has been professionally involved in organic farming and organic food for many years, teaching students as well as farmers, teachers, and consumers this subject. She also conducts lectures and provides training in genetically modified food, analyzing the possibility of the coexistence of organic and traditional farming with genetically modified cultivation.

She has been head of the Mieczysław Górny Forum for Organic Farming since 2009. The Forum has over seventy members from throughout Poland—scientists and practitioners involved in organic farming. The activities of Professor Ewa Rembiałkowska in fostering organic farming are universally known throughout Poland.

She has conducted several Polish and international projects aimed at studying and implementing organic farming and continues to do so. She is skeptical with respect to Genetically Modified Organisms (GMO). Being active, she does not shy away from expressing her critical view of genetically modified plants and animals. She speaks out on this topic before various scientific and decision-making bodies on both the national and international arena.

Letter to D

Barbara Oderfeld-Nowak

Daddy,

Your beloved "Aviators" always remember you and are now publishing this book about you. In it, many people who were close to you wrote about you and I was also asked to pen my memories. How am I to write what I remember about you? For me, although it has already been four years, you are still here with me.

In my mind's eye I choose your phone number and hear, "I'm here." I say, "Daddy? How did you know it was me?" "I know it's you." Or I call and say, "It's me." You answer: "This is me again, what a meeting. What can I do for you today, my precious?"

I say in my thoughts," Daddy, I am so tired." Then I hear your voice, "Barbara, rest, daughter dearest…" When I complain how hard it is, you say, "Keep your head up. You'll manage."

Jan Oderfeld and his wife, Rome, 1938

So I will write you a letter.

I keep thinking: What would I like to write you about the most? I run through our entire life together. So first: Mother. To you she was Marysieńka, Misia, or Dziabka. Among forgotten things I found a picture of the two of you together, in Rome, in 1938. It's so beautiful.

I would like to tell you that it is so nice on Młynarska Street. I am taking care of it just like you did. A fern is there, just like you wanted. There are also those symbolic plaques for all four of your beloved parents, my beloved grandparents. Now, they have their place on earth. I remember how throughout all those years that separated you from mother, almost thirty, how every

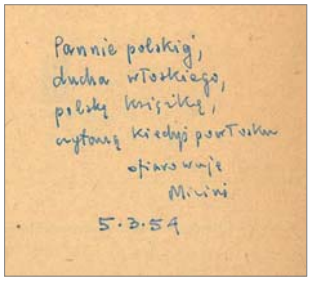
year, on the anniversary, in our church of the Holy Trinity, there was a remembrance of mother. Now, there is one each year for you…

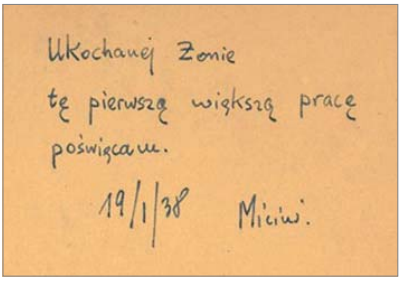
I put all the letters the two of you kept—you from mother and mother from you. They're so beautiful. I wanted to cry… There are letters from the war and from all the years you spent together… You loved each other so very much and you were each the support of the other.

I also found many of your lovely mutual dedications in the books you gave each other. I selected the dedication in the copy of *Colonel Wolodyjowski* you gave mother. You also dedicated your first major work to mother. That was 1938. It was on engines from the PZL State Aviation Works. You wrote so many beautiful dedications to mother on all your works.

There is also your moving dedication for mother from 1979. She passed away soon afterwards. And her last, beautiful picture.

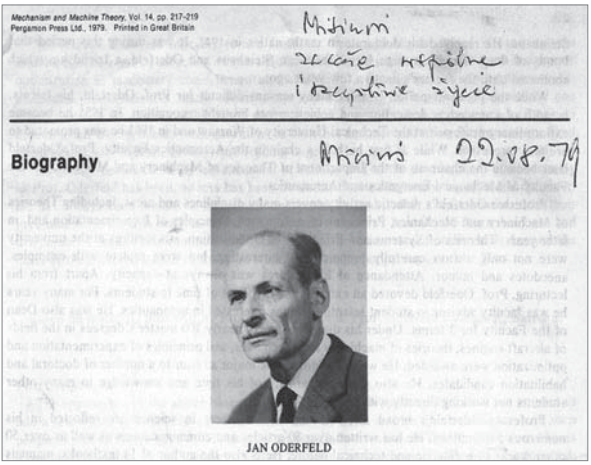
I once wondered why, when writing to mother, you signed yourself "Miciuś," which is also what mother called you. But that is so simple. It is the Polonized Italian *micio*. When you first met, mother had just returned from Italy, where she was raised.





Dedication for his wife: *Colonel Wolodyjowski* and *Silniki lotnicze* [Aircraft engines]

Maria Oderfeld, her last picture



Dedication for his wife from 1979

Barbara Oderfeld, Skierniewice, 1945

You mutually supported each other throughout the whole of your lives. I found mother's letter to you from 1940. This is how she wrote to you when you were outside Warsaw looking for work: "…You're so valiant. You can overcome everything and it is thanks to that that I and our child will survive the bad times."

I have this one, single memory of the war: cold, rainy, dark, probably around 5:00 or 6:00 AM. All three of us were walking from Słupecka Street, where we lived when we were in Warsaw, to the Western Railroad Station to a train to Skierniewice, where you worked. In Żyrardów: panic. The Germans. Mother says to you, "Jan, *Tedeschi* [Germans]…" You reply, "*Calma* [Be calm]." You always spoke to each other in Italian at times like that … and indeed, they moved on…

Daddy, forever, throughout my entire life, you always helped me in everything. I knew that there was nothing in which you would not help me…

Still in Skierniewice—I was really very small then—I remember how you defended me when the "big boys" I played with in the yard teased me. Do you know that our house, the one we lived in in Skierniewice during the war, is no longer there? I was there not too long ago. I delivered all the Skierniewice keepsakes to the Historical Chamber of Skierniewice. All the things you painstakingly kept. They were very happy and deeply moved thanks to those mementoes.

I just could not believe that the house was simply not there. It has only survived on photographs.

I looked at the empty spot and did not know where I was. Suddenly, on the other side of the street I saw a small building with the sign, "Shoemaker" and I seemed to remember something. That was the former Maciejewski store where seventy years ago I would go for kvass and Lobster Tail candy. I went in and asked. The shoemaker was very friendly. He knew the former owners. I will always remember how on Victory Day we stood together in front of the old store and the red and white flag over the store suddenly fluttered and I asked, "Daddy, why are you crying?"

The house in Skierniewice

Once, long ago, you wrote me a poem in my diary. It was called "signing the diary." It must have been when I was at school in Włochy. I think it was 1946 and I very much regret that that diary no longer exists. It must have been misplaced during some successive house moving. But I, you probably didn't know, learned it by heart and still remember it today. Here it is.

Daddy's poem for Barbara's Diary, 1946 (as remembered by Barbara).

Little Babs, big Daddy
Walking different steps
Babs flies, Babs soars
Daddy … watches from the side.

But later, when Barbara
Has grown up from being Babs
When Daddy … is old
Barbara is in her spring.

They shall find a new common word
Daddy and shy Babs
And Babs shall again know
That Daddy loves her.

When we lived in Włochy after the war, I remember how you rode a bicycle in the winter. There was no other way of getting around. There was no electric commuter train. Sometimes there was a truck to Warsaw, to lecture on aviation at Wawelberg's. Once, I remember, I was alone at home in the evening. Just the cat was with me because mother went to visit auntie in Łódź. You knocked and knocked for so very long. But I was afraid to let you in because your voice was so hoarse after cycling from Warsaw. You couldn't even blurt out, "It's me…" It took a long time before I understood that it was you.

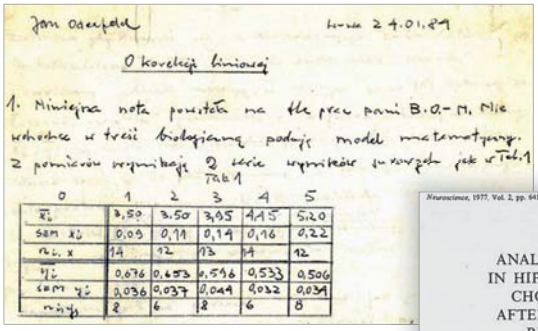
I remember when, at school in Włochy as well as later when we lived in Warsaw, at the grammar school on Hoża Street where you had to cross a yard full of ruble, and later at the Hoffmanowa Junior High School on Polna Street when we already lived on Nowowiejska Street in the Warsaw University of Technology building, you helped me with everything. You had so much work, you had to prepare your lectures, and in the nineteen-fifties you had so many problems, they took your beloved Chair of Aircraft Engines. I remember when in the evening I came to you because I didn't know how to solve a math or

physics problem—I have to be honest and admit that I did not inherit your skills in those fields—you would come early in the morning on the next day before school with the solution. But you would not let me copy it. Instead, you explained it and I did it myself.

During my studies as well as later when I was working at the Institute and was "so very grown up," you were always interested in what I was doing and gave advice on how best to treat test results in order to show their essence. No way can I count all your studies of our laboratory results. A few of my graduate students would come to you…. You taught both them and me. They were much brighter, of course! To this very day I have in my files at the Institute piles and piles of your papers, written in pencil or ink.

Some of those papers were written jointly and in many I thank you for your help.

You wrote me so many beautiful dedications on the copies of your works that you gave me.



Jan Oderfeld — Warsza 24.01.89

O korelacji liniowej

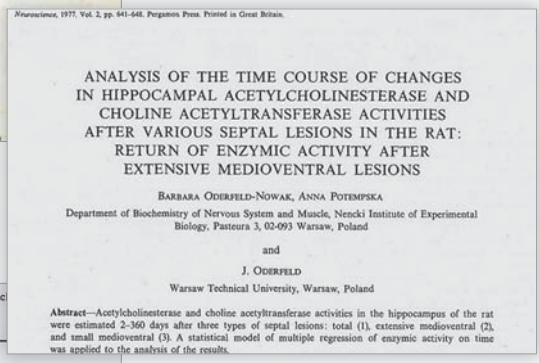
1. Miniejsza nota powstała na tle prac pani B.O.-N. Nie wchodząc w treści biologiczną podaję model matematyczny. Z pomiarów wynikają 2 serie wyników [illegible] jak w Tab.1

Tab 1

	0	1	2	3	4	5
$\bar{x}_i$		3,50	3.50	3,05	4,15	5,20
sem $\bar{x}_i$		0,09	0,11	0,14	0,16	0,22
n_i, x		14	12	13	14	12
$\bar{y}_i$		0,676	0,653	0,596	0,533	0,506
sem $\bar{y}_i$		0,036	0,037	0,044	0,032	0,031
n_i, y		8	6	8	6	8

A test result study by Professor Jan Oderfeld

Title section of a scientific paper written jointly by Barbara Oderfeld-Nowak and Jan Oderfeld

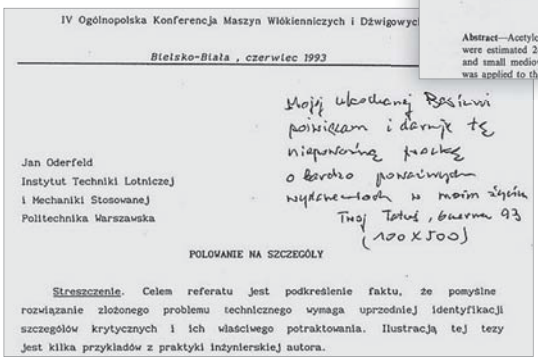


Neuroscience, 1977. Vol. 2, pp. 641–648. Pergamon Press. Printed in Great Britain.

ANALYSIS OF THE TIME COURSE OF CHANGES IN HIPPOCAMPAL ACETYLCHOLINESTERASE AND CHOLINE ACETYLTRANSFERASE ACTIVITIES AFTER VARIOUS SEPTAL LESIONS IN THE RAT: RETURN OF ENZYMIC ACTIVITY AFTER EXTENSIVE MEDIOVENTRAL LESIONS

BARBARA ODERFELD-NOWAK, ANNA POTEMPSKA
Department of Biochemistry of Nervous System and Muscle, Nencki Institute of Experimental Biology, Pasteura 3, 02-093 Warsaw, Poland
and
J. ODERFELD
Warsaw Technical University, Warsaw, Poland

Abstract—Acetylcholinesterase and choline acetyltransferase activities in the hippocampus of the rat were estimated 2–360 days after three types of septal lesions: total (1), extensive mediventral (2), and small mediventral (3). A statistical model of multiple regression of enzymic activity on time was applied to the analysis of the results.



IV Ogólnopolska Konferencja Maszyn Wiókienniczych i Dźwigowych

Bielsko-Biała, czerwiec 1993

Mojej Ukochanej Basieńki
posyłam i darzę tę
niepozorną pracę
o bardzo pozytywnym
wykonawcy w moim życiu
Twój Tatuś, czerwiec 93
(100 x 500)

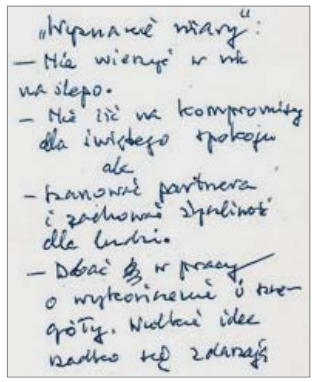
Jan Oderfeld
Instytut Techniki Lotniczej
i Mechaniki Stosowanej
Politechnika Warszawska

POLOWANIE NA SZCZEGÓŁY

Streszczenie. Celem referatu jest podkreślenie faktu, że pomyślne rozwiązanie złożonego problemu technicznego wymaga uprzedniej identyfikacji szczegółów krytycznych i ich właściwego potraktowania. Ilustracją tej tezy jest kilka przykładów z praktyki inżynierskiej autora.

Title section of a scientific paper by Jan Oderfeld with a dedication for his daughter

Among the papers on your desk I also found a handwritten note—"Wyznanie wiary" [Confession of Faith]—in which you state how to proceed in life and what is important in work… and it is here that I cannot but tell you how often I look into your best-loved poem by Kipling, "If," which you left me and that is now "your Credo." Especially a few of the stanzas:



A handwritten note by Jan Oderfeld entitled "Wyznanie wiary" [Confession of Faith]

If you can meet with Triumph and Disaster
And treat those two imposters just the same

and

If you can make one heap, of all your winnings
And risk it on one turn of pitch-and-toss,
And loose, and start again at your beginnings.

I remember all of our vacation trips to Kazimierz and how very much you enjoyed going there to the Architects' Center, the strolls along the Vistula River, and much, much more. The meetings with friends at your home on Nowowiejska Street…

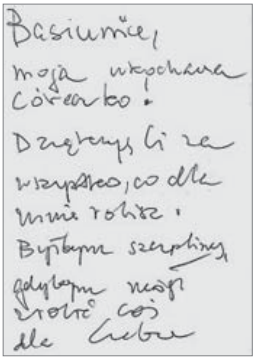
Daddy, did I ever pay you back for everything? At least in part? I still see our last summer spent together.

What you wrote on that card that you put next to my bed was so beautiful, but did I really do everything I could for you? I remember at night, tap, tap—your cane. You walked along the corridor and I would get up saying, "Daddy, go to bed." But now… I would very much like

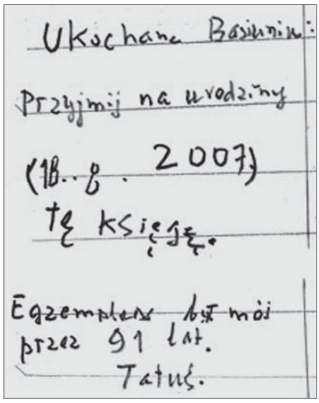
A visit of the "Aviators" at the Professor's home on Nowowiejska Street, 1999

Jan Oderfeld and his daughter, Kazimierz Dolny, 2001

At the home of the Professor, No. 75 Koszykowa Street, 2009



A card for his daughter



Dedication for his daughter in the book entitled *Księga wiadomości pożytecznych* [Book of useful information]

to hear that tapping again. I took your cane home and it stands by my desk all the time.

You gave me your most valued book about useful information. It had a beautiful dedication. It was a keepsake from Mrs. Wrede, your first teacher when you were eight and you were going to your so very much loved Sienkiewicz Junior High School in Częstochowa. There, now, thanks to your "Aviators" and the Warsaw University of Technology and the school itself, there is a plaque with your portrait on the wall of the school, on the Blessed Virgin Mary Street side. That was the way you always went to school.

I am so glad that you liked living in your apartment on Koszykowa Street, on the ground floor with a garden. This was in spite of the fact that you were frightened of the move.

In the spring the lilacs would blossom and send their scent straight through your window. We would stroll around the gardens of the Warsaw University of Technology. You liked that very much. I can still see you with your beloved cane. We would sit on the bench by the fountain with a view towards the Mechanics Building where everything started for you. Now you have a beautiful bench there, with your name on it, from the Warsaw University of Technology, as a remembrance.

There were so many people who came to you or phoned you. It is impossible to list them all. There was Marta and Maciuś and Aluś and Robcio. Whenever they were in Warsaw they always ran to see you. Your treasured colleagues from the Chair always came with Professor Kędzior and so many of your friends and former coworkers. Your much-loved Andrzej Moldenhawer, friend Jurek Madler, Mr. Ryszard Witkowski, Ela, a loyal friend to the end, the cherished Mrs. Maria Chmiel from the parish, Mrs. Hania, Mrs. Ola, Mrs. Janina, and Mila. There was the extraordinary Mrs. Kotlarska from the Administration Division of the Warsaw University of Technology who always kept a "protective" umbrella over you. And there was Agusia… your beloved "second" granddaughter. It was years ago that she started coming, then still a student, to help you at home. She stayed till the end of your life and … forever. Agusia and I were also very close.

Professor Jan Oderfeld in front of his home at No. 75 Koszykowa Street

I regularly exchange holiday wishes with your friend Dr. Schramm. He always mentions you. Professor Kacprzyński from Canada, so very dedicated to you, also writes me. I often speak with Professor Morecka over the phone and recall old times.

I would also like to tell you that I sorted all your materials, documents, papers, and everything you left so nicely ordered in your cabinet. I did it with the help of your coworkers and handed them over for archiving to the Aviation Museum in Cracow, to the Warsaw University of Technology, and I forwarded your entire painstakingly kept correspondence from Professor Hugo Steinhaus as well as his works with dedications to you to the Steinhaus Center in Wrocław. I gave all the Częstochowa souvenirs to the school museum of your school. I've already mentioned that the Skierniewice mementoes are in the city's History Chamber. Everything has been recorded and every location knows what may be found at the other ones. The many exceptional mementoes were designated for Marta, Maciuś, Aluś, and Robcio. I'm writing this so you know everything is as it should be.

This letter has gotten very long, but I still remember so much more. Those various moments…

I learned a great deal from your notes—your thoughts specially written down in the schedule books from the nineteen-nineties. They

A framed photograph of the "Print Shop"

were in Italian, especially for me, you said. But you were wrong in one thing. You wrote that most probably no one will remember, maybe just me. A year has passed, two, and see: Everyone remembers you!

Yesterday, I got a beautifully framed, artistic photograph of your old print shop from friends in Częstochowa.

Daddy, there are so many things I did not manage to ask. It is only now that I know that. When we meet again you will tell me about everything I want to ask about.

I know that where you are you are all right and at peace. It is as it is written in the magnificent Psalm 23 that Pastor Nast read you for your journey: "The Lord is my shepherd; I shall not want. He maketh me to lie down in green pastures: he leadeth me beside the still waters…"

I love you very much,
Barbara

Barbara Oderfeld-Nowak, upon graduating from the Klementyna Tańska Hoffmanowa Junior and Senior High School in Warsaw, studied at the Faculty of Biology and Earth Sciences of the University of Warsaw. She was awarded her Master of Biology degree in 1959. She started work at the Marcel Nencki Institute of Experimental Biology of the PAN Polish Academy of Sciences in Warsaw immediately after graduating. That is where she proceeded through successive stages of her scholarly and professional career—from assistant to professor *ordinarius* (nominated in 1989). She defended her doctoral dissertation in nature studies in 1967 at the Nencki Institute of Experimental Biology. It was also there that she defended her habilitation dissertation in 1978 in nature studies—neurochemistry.

Over the years 1977–2002, she was Manager of the Neurochemistry Department at the Nencki Institute. Over the years 2002–2007, after a change in the department name, she was Manager of the Neurodegeneration and Neuroprotection Mechanisms Department. Starting with January 1, 2008 she became a Professor *emeritus* of the Institute, taking active part in its scientific life.

She has published over one hundred scientific papers, mainly in English-language journals, including over seventy in high impact factor (IF) ones, several dozen chapters in English-language symposium tomes, and approximately 300 conference reports.

Often cited publications (over 1,100 individual citations) encompass many field of neurobiology: axoplasm flow in peripheral nerves, functions of the brain's cholinergic system, brain glial–neuronal interactions following traumatic, ischemical, neurotoxic, and immunological damage, the role of neurotrophic factors and gangliosides in damaged brain repair processes, and the neuroprotective role of inflammatory processes in the brain.

She has promoted ten doctors. For many years she also managed Polish–Italian scientific agreements (PAN–CNR), collaborating with universities in Florence and the Institute of Neurobiology in Rome.

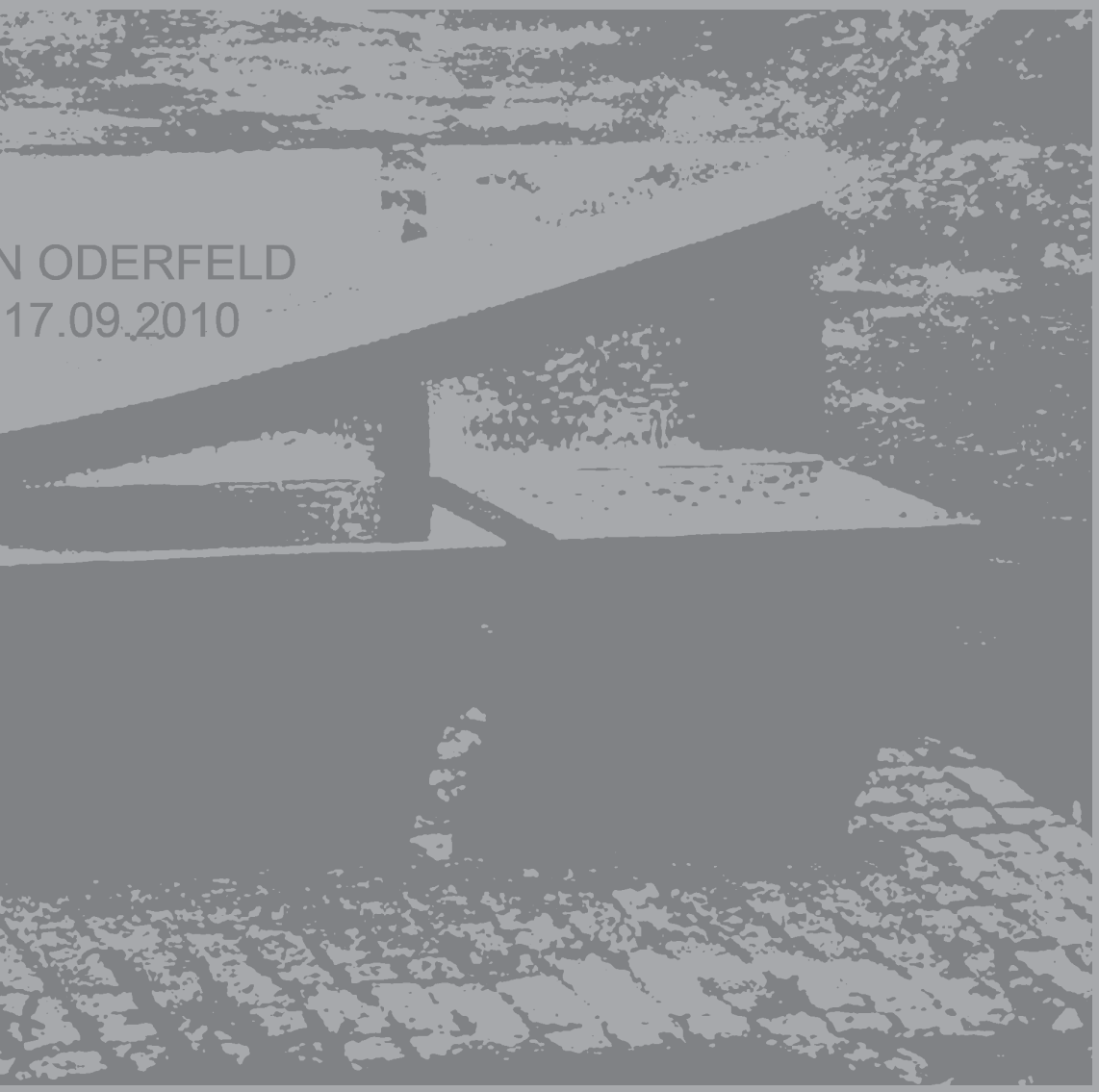
Multiple times she worked at various well-known foreign institutions, including the Albert Einstein Collage of Medicine (New York) as Visiting Professor, Iowa University, Indianapolis University, the CNR Institute of Neurobiology (Rome), the University of Florence, and others.

She headed several and was a participant in multiple other KBN State Committee for Scientific Research projects, in conjunction with the Institute of Neurology and Psychiatry and the Department of Pharmacology of the Medical Academy in Warsaw. She is continually a reviewer of many doctoral and habilitation dissertations as well as professorial procedures. She is a member of very many Polish and foreign scientific organizations, including the PTBUN Polish Neuroscience Society, the PTB Polish Biochemical Society, the International Society for Neurochemistry where she was a long time member of the Society Board, and others. She was the organizer of many international symposiums and conferences and member of many conference program and organizing committees. She is a member of the scientific council of both the Marcel Nencki Institute and the Mossakowski Institute of Experimental and Clinical Medicine.

She has been awarded many distinctions and prizes, including the Award of the PAN Secretary, fellowships from the British Council and Fogarty, a Silver Cross of Merit and the Order of Polonia Restituta.

Her hobbies include the Italian language and Italian literature and art.

Oderfeld's Bench


N ODERFELD
17.09.2010

Distinguished Częstochovian

Aleksander Cieślak

The WKSL Warsaw Senior Aviator Club, with the support of the Częstochowa Aero Club and the Częstochowa Senior Aviator Club operating within it, provided the inspiration. It forwarded a proposal to the Principal's Office of the Henryk Sienkiewicz No. 4 Preparatory High School to erect a plaque commemorating an alumnus of that school, Class of 1924, who died in 2010 at the age of 102—Jan Oderfeld. This initiative found support among the authorities of the Warsaw University of Technology where the Professor had been an academic teacher for many years and was honored with the awarding of the degree of Doctor *honoris causa*. The Warsaw Senior Aviator Club took it upon itself to organize the design of the plaque while its execution and fitting onto the wall of the school building was sponsored by the Faculty of Power and Aeronautical Engineering, the Professor's last *alma mater*.

Twelve noon of Friday, June 15 marked the beginning of the first part of the ceremony. The color guards were led into the school's auditorium—Romuald Traugutt Preparatory High School No. 2, Henryk Sienkiewicz Preparatory High School No. 4, General Władysław Sikorski Research Center, the Częstochowa University of Technology, the Municipal Police, the Warsaw Senior Aviator Club, and the Częstochowa Senior Aviator Club. The ceremony commenced with a performance by the school choir as conducted by Kazimierz Nocunia, which sang the National Anthem. The welcome was delivered by the school principal, Jadwiga Sipa. This was followed by an interesting presentation—"Jan Oderfeld: Outstanding Scholar, Teacher, and Designer"—by the Deputy Dean of the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology, Professor Teresa Zielińska, Ph.D., Habil., Eng.

Unveiling of the commemorative plaque honoring Jan Oderfeld

During the second part of the ceremony, the color guards, invited guests, teaching staff, and school children proceeded to the location prepared for the unveiling of the Jan Oderfeld commemorative plaque.

Professor Barbara Oderfeld-Nowak, Professor Jan Oderfeld's daughter, unveiled the plaque to the tune of the "Airmen's March." Zdzisław Wolski, Chairman of the Częstochowa City Council, Jadwiga Sipa, Principal of the Henryk Sienkiewicz Preparatory High School No. 4, Colonel Arkadiusz Paluszyński and Lieutenant Colonel Andrzej Sikora, representatives of the Air Force, Włodzimierz Skalik, President of the Polish and Częstochowa Aero Clubs and Vice-President of the FAI World Air Sports Federation, Jerzy Madler, M.Eng., President of the Warsaw Senior Aviator Club, Janusz Jadczyk, Curator of the Museum of Częstochowa (and Master of Ceremonies), Henryk Kucharski, former Editor-in-Chief of Skrzydlata Polska [Winged Poland], Colonel Bolesław Gaczkowski, honorary member of the Częstochowa Senior

Aviator Club, Bohdan Jancelewicz, Ph.D., Eng., of the Warsaw Senior Aviator Club, Andrzej Tejchman, President of the Częstochowa Senior Aviator Club, Aleksander Cieślak, school chronicler, and the delegations of the Częstochowa Police Force and Fire Department all took part in the ceremony. The plaque was blessed by the Head of the Katowice Diocese of the Evangelical Church of the Augsburg Confession Bishop Tadeusz Szurman, with the participation of the Archbishop of Częstochowa Wacław Depa. They were accompanied by Pastor Adam Glajcar, Rector of the Częstochowa parish.

Next, the school choir sang "Gaude Mater Polonia" and invited guests laid wreaths and flowers at the foot of the plaque. Adrianna Pawłowska, a student of the high school, recited a special poem. Some of the invited guests made speeches, stressing the enormous service provided by Professor Jan Oderfeld to aviation as well as the great educational value provided by the school, where many prominent Poles completed their studies, including pilots, whose commemorative plaques are located on the school walls—Hieronim Dudwał and Jerzy Hipolit Palusiński. The whole of the ceremony was crowned by a performance of the Air Force Marching Band from Bytom, conducted by Paweł Joksa as well as the Honor Guard of the Polish Air Force from Dęblin. Concluding the event, the Professor's daughter, Barbara Oderfeld–Nowak, thanked everyone for all the work and effort put into organizing this solemn and moving ceremony. She stressed that her father spent his youth in Częstochowa and always looked back at those times in his memory. She thanked the authorities of the schools for the exceptional gravity and atmosphere of the ceremony.

An idea emerged during my talks with the Professor's daughter: the donation of selected mementoes of the Professor to the School Museum of the Henryk Sienkiewicz Preparatory High School No. 4 in Częstochowa. The first talks took place on February 19, 2008 at the ceremony during which the Professor was awarded the degree of Doctor *honoris causa* of the Warsaw University of Technology. The second, which involved concrete proposals, took place after the funeral of Jan Oderfeld on March 24, 2010. The color guard of the Henryk Sienkiewicz Preparatory High School No. 4 in Częstochowa took part in the Professor's last road.

In his statements that were later written down, the Professor often looked back to his family home and town. Those written memories are painstakingly nurtured by his daughter. Thus, at the start of

The opening of the school exhibit devoted to Jan Oderfeld

2012, there was a return to the details of the idea to donate mementoes to the school museum. Professor Barbara Oderfeld-Nowak came to Częstochowa in the initial days of April. Her two-day stay bore fruit in the transfer to the School Museum of many priceless props, items, awards, letters of congratulation, and badges.

A model jet engine that the Professor worked on has been placed in the room.

The school designated six large showcases for the exposition. They now display mementoes brought from Warsaw. The first showcase contains the certificate of the Committee for Machine Building of the PAN Polish Academy of Sciences (1995), certificate of the Warsaw Scientific Society (1983), certificate of the FUMOS Casting Equipment Factory (1979), certificate of the Warsaw Chapter of the SIMP Association of Polish Mechanical Engineers and Technicians (1983), a list of selected publications by Professor Jan Oderfeld, certificate awarding the Medal of the Warsaw University of Technology (1930), and a letter commemorating the Professor's one hundredth birthday from Prime Minister Donald Tusk (2008).

The next showcase contains drafting instruments, a plastic lettering template, wooden triangle, reading glasses (including their case), a document issued by the Patent Office of the Polish People's Republic registering an invention (1967), a photograph of badges and a Warsaw Senior Aviator Club membership card, a patent description for the magnetic drum memory (1965), two handbooks for the Technical Knowledge Olympics published to mark Professor Jan Odefeld's eighty-fifth birthday, the *Promotio Doctoris Honoris Causa* document, a photograph of the cover of *Teoria maszyn i mechanizmów* [Theory of

machines and mechanisms], a photograph of the cover of *Statystyczne podstawy prac doświadczalnych* [Statistical basis of experimental work], and a copy of the *Wstęp do mechanicznej teorii maszyn* [Introduction to the mechanical theory of machines].

The third showcase contains five family photographs of Jan Oderfeld. His high school diploma from the Henryk Sienkiewicz Public High School in Częstochowa (1924), Jan Oderfeld's pupil's journal for grade 1a (original) and a birthday card for his father dated August 3, 1918 (original). Successive showcases present large–format display boards with family pictures, photocopies of pictures with his parents, copies of diplomas and certificates for various awards and distinctions, congratulatory letters and letters of recognition, copies of dedications on publications for Professor Jan Oderfeld, a congratulatory letter from the president of the Henryk Sienkiewicz High School Alumni and Friend Society in Częstochowa for having been awarded the degree of Doctor *honoris causa* of the Warsaw University of Technology (2008), printouts of materials from the Internet as well as photocopies of articles about Jan Oderfeld or linked with his activities. There is also a text with personal memories, typewritten on the basis of handwritten notes by the Professor's daughter. The whole of the exhibit is impressive. The School Board decided that all classes and their homeroom teachers shall visit the Museum and deepen their knowledge regarding the scientific activities and achievements of the Professor.

Częstochowa's Orion television channel and the Radom television channel broadcast special programs about the exhibition. It returned to the school at the beginning of October of 2012. In March of 2013 the exhibits were loaned out to City Hall. Thanks to the initiative of Curator Janusz Jadczyk, the Częstochowa Museum has been presenting outstanding Częstochovians for several years now. It is within the framework of what is known as the Częstochowa Hall of Fame that the silhouette of Professor Jan Oderfeld was presented. The exhibition was entitled "Professor Jan Oderfeld on the 105th Anniversary of His Birthday … I Caught the Aviation VIrus…." The exhibition was developed by Katarzyna Ozimek, a staff member of the Museum. It was opened on March 20, 2013.

In addition to the displays from the Henryk Sienkiewicz Preparatory High School No. 4, materials from the Museum of Polish Aviation in Cracow, Museum of Technology in Warsaw, Museum of the Warsaw University of Technology, Archives of the Warsaw University of Technology, the History Chamber of Skierniewice, and the National Digital Archives

The exhibition at the Częstochowa Museum

were also presented. Professor Barbara Oderfeld–Nowak, the daughter of the Professor, took part in the opening of the exhibition, as did the President of the Polish Aero Club Włodzimierz Skalik, the Pro-Rector of the Częstochowa University of Technology Professor Zygmunt Nitkiewicz, Ph.D., Habil, Eng., the President of the Hieronim Dudwała Częstochowa Modeling Society Jerzy Świeboda, the President of the Częstochowa Senior Aviator Club Andrzej Tajchman, the Principal Jadwiga Sipa, and the color guard of the Henryk Sienkiewicz Preparatory High School No. 4 in Częstochowa. The exhibition was open up to October 31, 2013.

Jan Oderfeld remains in our memories as an outstanding Częstochovian.

Aleksander Cieślak was born in Częstochowa in 1952. Upon completing primary school he attended the Ore Mining Technical Scientific Center School, which he completed in 1972. He then commenced studies at the WSN Teaching College. Upon graduating in 1976 he took up studies at the Faculty of Education in Częstochowa. He was awarded his Master's degree in 1977. After a year of military service within the framework of the Reserve Officers Training Corps, he started work in 1978 as civil defense teacher at the Romuald Tragutt Preparatory High School No. 2 in Częstochowa. In 1992 he was employed by the Henryk Sienkiewicz Preparatory High School No. 4. In 1995 he completed postgraduate studies in history at the Silesian University in Katowice.

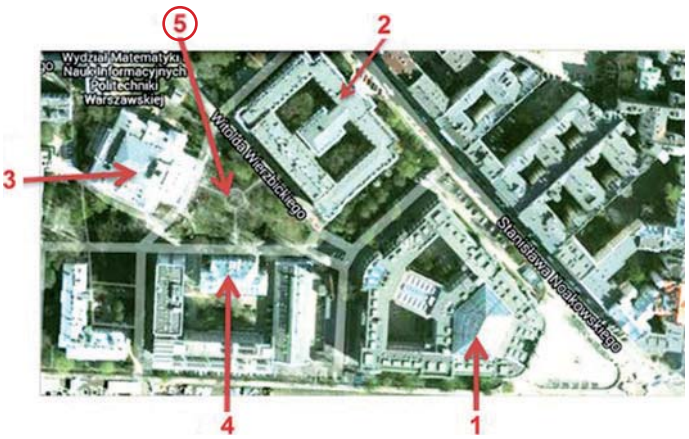
He is the coauthor of two monographs about the Henryk Sienkiewicz Preparatory Junior and Senior High School in Częstochowa as well as two monographs about the Romuald Tragutt Junior and Senior High School. He is also an organizer of youth trips around Europe and the world. He is the author of numerous papers on the history of school and the fortunes of prominent alumni of the Henryk Sienkiewicz Preparatory High School No. 4 that have been printed and are available on the Internet.

Professor Jan Oderfeld's Bench

Bohdan Jancelewicz

The first buildings erected for the Warsaw University of Technology are located on Politechniki Square between Nowowiejska and Noakowskiego streets. They consist of the Main Building and the Chemistry, Physics, and Mechanics buildings. Between those building is a stand of trees surrounding a fountain. According to student legend, that fountain is controlled directly from the office of Professor Mieczysław Wolfke in the Physics Building. He used the fountain to signal his mood. Benches were placed around the fountain. For many years they served as a place for meetings, breaks between classes, passionate exchanges of experience, and discussions on impressions after exams or colloquiums.

Professor Jan Oderfeld enjoyed sitting on one of those benches to rest during his strolls, often in the company of his daughter, after he moved to an apartment on the ground floor of the building at



Main grounds of the Warsaw University of Technology

the entrance to the grounds of the Warsaw University of Technology from No. 75 Koszykowa Street. He always selected the same bench. From it, he had a good view of the Mechanics Building. That is when memories would come flooding back of the scientific and engineering path that started here for Jan Oderfeld in 1924, when he was a student of the Faculty of Mechanics, from which he graduated in 1930.

Mechanics Building, Warsaw University of Technology (photograph taken in 2014)

His sentiment to his *alma matter* did not end with graduation. He remained linked to the Warsaw University of Technology for most of his exceptionally active scientific and engineering life.

That selected bench continuously evoked warm memories for the Professor's daughter, Professor Barbara Oderfeld-Nowak, Ph.D., Habil., an only child. Those memories also had their source in the warm atmosphere reigning in the Oderfeld family. It was especially cultivated by the head of the household who undoubtedly was Professor Jan Oderfeld. That is the origin of the idea of Professor Barbara Oderfeld–Nowak to commemorate that specific bench in an original and yet modest way. It is with that idea that the Professor turned to the school authorities, even offering to cover expenses. Thanks to the affability and goodwill of Marek Sołtyski, M.Eng., who at that time was head of the Office of the Rector of the Warsaw University of Technology, a meeting was arranged at the start of the year 2012 with the then Rector of the Warsaw University of Technology Professor Włodzimierz Kurnik, Ph.D., Habil., Eng. His Magnificence the Rector supported the initiative of the Professor's daughter with sympathy, simultaneously guaranteeing that the money needed to go ahead with the project would be found in the coffers of the Warsaw University of Technology. From that moment on matters proceeded forward at a brisk pace. His Magnificence the Rector approached Professor Architect Lech Kłosiewicz, Ph.D., Habil., Eng., Professor *emeritus* of the Warsaw University of Technology, a well-known designer and co–designer of major architectural works in Poland and abroad, with a request to develop the design.

Professor ordinarius Architect **Lech Kłosiewicz**, Ph.D., Habil., Eng., was born on August 8, 1935 in Warsaw. He completed his studies at the Faculty of Architecture of the Warsaw University of Technology in 1960 and subsequently at the Faculty of Interior Design of Academy of Fine Arts in Warsaw in 1965. He received his doctoral degree in 1972 and his habilitation degree in 1982 at the Faculty of Architecture of the Warsaw University of Technology. He was appointed Professor in 1992.

He lectured on the theory and history of the architecture of the twentieth century as well as on questions related to architectural design, encompassing heritage protection. He published over fifty works in national and foreign scientific periodicals. The dominant theme revolved around questions of the theory of contemporary architecture. His work was mainly concerned with the various aspects of urban layouts. He participated in many scientific conferences of world reach that were organized in the countries of Europe, both Americas, and the Near East.

He conducted classes at the Warsaw University of Technology. At the Lublin University of Technology he worked at the Chair of Heritage Protection. He was active as a consultant and reviewer. He taught at well-known colleges in England, Germany, Italy as well as Canada and the United States. He was a member of the Architecture and Urban Planning Committee of the PAN Polish Academy of Sciences, which he chaired for several years. As an architect, he gained recognition thanks to his numerous interior designs, including the revitalization of historical buildings such as the auditorium of the Physics Building of the Warsaw University of Technology. He successfully painted using watercolor, his works were presented at domestic and foreign exhibitions. He died on March 2, 2016 in Warsaw.

The development of the design for this unique monument as well as reaching agreement among all interested parties went smoothly. A fragment of the grounds near the fountain—the site where the bench where the Professor used to sit had stood—was prepared. The making of the elements and their assembly at the selected, historically justified location was entrusted to the Miramar Company, owned by Andrzej Kulawik, M.Eng.

Andrzej Kulawik, M.Eng., was born in 1949 in Zabrze. He completed his studies at the Faculty of Automotive and Construction Machinery Engineering of the Warsaw University of Technology in 1975. Up to the year 1979 he worked at the Institute of Transportation, which had the same rights as the faculties of the Warsaw University of Technology at that time. After a brief period of work at an automobile service shop he established, in 1994 he started up Miramar, a metalworking and welding company. The company performs specialized work in the area of small-scale architec-

ture, including for buildings encompassed by heritage protection. The company collaborates in the renovation of historical buildings as well as in the construction of new building, especially theater facilities. It also works with sculptors, architects, and stenographers.

Work proceeded so as to make possible the unveiling on July 13, 2012. Several dozen people gathered around the fountain, opposite the new "Oderfeld Bench," which is the name that was chosen prior to the official unveiling. Many family members were there, including Professor Barbara Oderfeld-Nowak, her husband, and Maciek Kozłowski, the Professor's oldest great grandson, a student at Harvard University. Also present was the author and designer of the bench, Professor Lech Kłosiewicz, as well as Professor Krzysztof Kędzior, former Dean of the Faculty of Power and Aeronautical Engineering, one of the Professor's closest associates, and the author of the laudation about the Professor presented during the official session of the Senate of the Warsaw University of Technology when he was awarded the degree of Doctor *honoris causa* of the Warsaw University of Technology. Also among those present were the Professor's colleagues from various institutions and a group of his students and friends, representatives of the Lutheran Parish of the Holy Trinity in Warsaw and representatives of the Warsaw Senior Aviator Club, including its President Jerzy Madler, M.Eng.

The ceremony was presided over by His Magnificence the Rector of the Warsaw University of Technology Professor Włodzimierz Kurnik. Prepared for unveiling, the commemorative "Oderfeld Bench" aroused interest and appreciation as a beautiful idea and excellent implementation. The back of the "Oderfeld Bench" bears the inscription: Professor Jan Oderfeld, February 19, 1908 – August 17, 2010.

His Magnificence the Rector welcomed all participants in the ceremony and in warm words evoked the exceptional personality of Professor Jan Oderfeld. He turned to Professor Krzysztof Kędzior asking him to present some memories of the Professor. A characteristic fragment of those recollections revolved around the preparations for the planned celebrations for the one–hundredth anniversary of the Warsaw University of Technology in the year 2015. It was in connection with this that Professor Kędzior stressed that over the course of those one hundred years, Professor Jan Oderfeld was tied to this *alma matter* for eighty years as a student, member of the scientific staff, academic teacher in the area of aircraft engines, and as a co-designer and world-scale pioneer in a new field of science—the theory of machines and mechanisms.

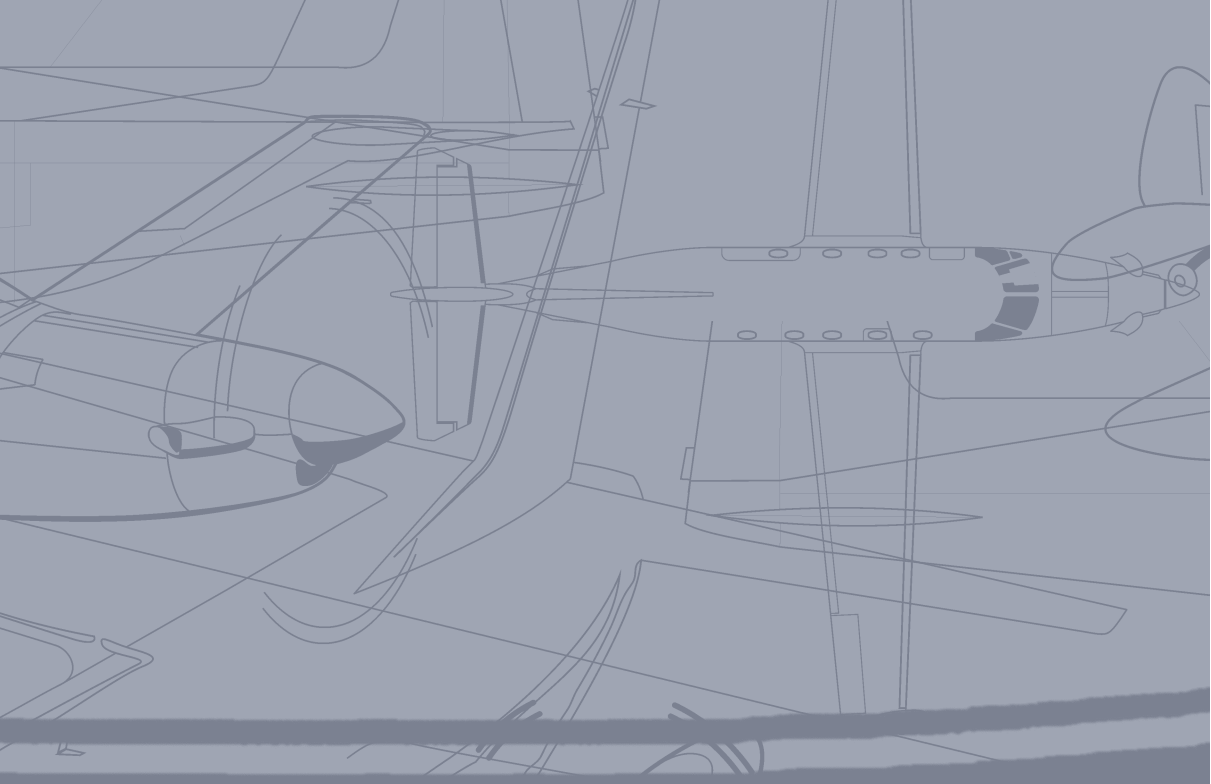
The "Bench" prior to its official unveiling

His Magnificence the Rector turned to the Professor's daughter with thanks for the initiative to erect such a monument and stressed the achievement of Professor Lech Kłosiewicz, the designer, visible in the accurate portrayal of emotions applied in the very simple and legible form of the "Oderfeld Bench."

His Magnificence the Rector invited the Professor's oldest great grandson, Maciej Kozłowski, to symbolically cut the ribbon embracing the "Bench." This distinction was a true honor that stirred visible emotion in the great grandson. Participants standing close to the "Bench" noted the anxious trembling of the scissors in the hands of the young man.

The entire ceremony took place in an emotion-filled, but relaxed atmosphere. The "Oderfeld Bench" was photographed many times and from many angles. Many of those present wished to have something for themselves, something for their own memories of the Professor.

The first photograph of the "Oderfeld Bench" after unveiling: on the left is His Magnificence the Rector of the Warsaw University of Technology Professor Włodzimierz Kurnik, Ph.D., Habil., Eng., on the right is Professor Architect Lech Kłosiewicz, Ph.D., Habil., Eng., the designer of the "Bench," and in the center is Professor Barbara Oderfeld-Nowak, Ph.D., Habil., the Professor's daughter, and Maciej Kozłowski, the Professor's oldest great grandchild



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