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Celebration of Inorganic Lives
Professor Bogusława Jeżowska-Trzebiatowska exceptional woman, scientist, teacher, and academic organiser

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We recently observed the ninetieth anniversary of the birth of Professor Bogusława Jeżowska-Trzebiatowska. She died suddenly on 16 December 1991, in an accident in her own home. Though she was 83 when she died, she worked intensely until the very end, chairing the Wrocław Division of the Polish Academy of Sciences. How does one write after all those years about someone of Professor Jeżowska-Trzebiatowska's calibre? As the folk saying goes, a real man should build a home, plant a tree, and sire a descendant. Does this formulation also apply to women? During the official 80th Birthday Celebration for Professor Jeżowska-Trzebiatowska I took the liberty of travestying the folk wisdom when I declared that Professor Jeżowska-Trzebiatowska was indeed a man, for she had built a home — the complex of buildings which currently houses Wrocław University's Faculty of Chemistry — she had planted the tree of coordination chemistry, transplanted to Wrocław from Lwów (today's Lviv), where she began her academic career under the supervision of Professor Wiktor Jakób — and finally, she had 'sired' many descendants, for that is surely an apt way to describe her countless students. Of the more than 70 whose doctoral dissertations she directed, over 30 are now professors working at various universities at home and abroad.

Who was Professor Bogusława Jeżowska-Trzebiatowska — the woman some fondly called 'Busia' while others simply knew her as 'the boss' — and what does she mean to us today?

It is a difficult task to present the life of a person who spent over 50 years building one of the most influential schools of coordination chemistry in Europe, who published over 600 articles and 20 monographs, advised 71 Ph.D. students and some 40 doctor habilitatus candidates.

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Bogusława Jeżowska-Trzebiatowska
1908–1991

In a publication issued in honour of 60 years of her academic work, it took over 100 pages just to summarise her major achievements. Back in 1988, when Professor Jeżowska-Trzebiatowska was still alive, it seemed appropriate to present her life in the form of a dry academic CV focused primarily on her scientific achievements. Today it is painful to write about Professor Jeżowska-Trzebiatowska in the past tense, while reducing her biography to a mere list of academic successes deprives her of that which, after all, is most significant in life: the rare personality and character traits that made her one of the greatest figures in Polish chemistry since World War II.

Bogusława Jeżowska, daughter of Seweryn Jeżowski and Stefania Wartamowicz, was born on the 19 November 1908 in Stanislawów (now Ivano-Frankivsk), a small Polish town in Eastern Galicia, then under Austrian rule. She attended primary school in Lwów, where she also graduated in 1926 from the Queen Jadwiga Gymnasium, which specialised in maths and sciences.

Bogusława Jeżowska's adventure with scientific research began when she joined the team of Professor Jakób, who in 1931 imported into Poland the first gram of metallic rhenium, an element discovered several years earlier by Ida and Walter Noddack. Still a beginner, Jeżowska embarked on a study of what would become her favourite chemical element.

Her first published article on rhenium, or more precisely, on the chemical and electrochemical reduction of potassium perrhenate, boded an unusual academic career for this determined and inquisitive woman. In the papers published in the

Professor Jacób, father of coordination chemistry in Poland with his best student Professor Jeżowska-Trzebiatowska

years 1931–1932 she demonstrated that the first oxidation state to appear in acid solutions of reduced perrhenate is pentavalent rhenium, in the form of a chloride complex. The discovery of such an unusual oxidation state of rhenium was rejected by the discoverers of that element, who decisively challenged Jeżowska's studies. After reading Noddack's critical rebuttal, the young scientist shed many tears, as women do, but stood her ground in the face of contemporary scientific authorities. She carried on with her studies, which confirmed her earlier hypothesis about pentavalent rhenium. The work of the renowned inorganic chemist Professor Bilc also provided evidence for the existence of rhenium(V). Nonetheless, as Jeżowska-Trzebiatowska later recalled, she would have to wait several years to experience full satisfaction. At the 1939 Congress on Pure and Applied Chemistry in Rome, she presented a paper on pentavalent rhenium. The session was held in an enormous hall seating 2000 and was attended by the Noddacks, who had challenged her rhenium(V) studies. In the words of Jeżowska-Trzebiatowska, "Both were seated in the centre of the hall and when I finished presenting, a tall blond man of about fifty stood up to speak. My heart stopped: this was Noddack. He said, "Ich will gratulieren der jungen Kollegin aus Polen…" (German was the official language of the Congress).

That event, coming so early in her academic career, was a good indication of the scientific breakthroughs to follow, but also of the rich and courageous life of the

Professor Bogusława Jeżowska-Trzebiatowska and Professor Włodzimierz Trzebiatowski

first woman scientist to receive a doctorate in chemistry from Lwów Technical University, conferred on her in 1935.

Jeżowska-Trzebiatowska came to identify closely with rhenium in the days of the German occupation. Working for the underground Home Army, she had to take the oath under a pseudonym. 'When taking the oath,' she later recalled, 'I was asked to pick a pseudonym and I was caught unprepared. As until the war, I had been intensely engaged in rhenium studies, I said ''REN' [Polish for rhenium] off the top of my head''. REN is the name under which she is listed in the Home Army files and which is inscribed on her Cross of Merit with Swords.

Her 1935 marriage to Włodzimierz Trzebiatowski, a distinguished specialist in solid-state physical chemistry, radically affected her approach to chemistry. Although married life slowed down the momentum of her research (for as she put it, 'building a new nest has always been the woman's lot, in this case mine'), yet the young couple's long talks on chemistry and research plans led Jeżowska-Trzebiatowska to adopt a strict physico-chemical perspective from the start. This accounts for the high level of her research and its reliability.

The outbreak of war brought the occupation of Lwów by the Russians and bloody massacres carried out on the city's population by the Soviet Army, followed by German occupation and the mass murders of the city's academics — events that profoundly altered the young scientist's psyche. To avoid deportation and forced labour in Germany, Jeżowska-Trzebiatowska accepted a managerial position in a factory that produced higher alcohols, replacing Dr Emil Taszner. As a Jew,

Taszner had been fired and forced into hiding. Jeopardising her own and her family's life, Jeżowska-Trzebiatowska sheltered Taszner (future father of Polish peptide chemistry) throughout the duration of the war, for which she was later awarded the title of 'Righteous Among the Nations'.

After the war, the once vibrant Lwów academic community became the core of Polish academia in Wrocław. In 1945, Professor Trzebiatowski, joined in 1946 by Dr Jeżowska-Trzebiatowska, began to organise the Wrocław schools of inorganic physical chemistry and coordination chemistry. Collaborating with such scholars as Professors E. Sucharda, B Płażek, K. Gumiński, B. Bobrański, and H. Kuczyński, they laid a strong foundation for the study of chemistry in Wrocław.

Jeżowska-Trzebiatowska established the Department of Inorganic and Analytical Chemistry at what was then Wrocław's sole academic institution: the University and Polytechnic. For her research on rhenium she received the degree of doctor habilitatus in 1949. In the following year, lecturing on her favourite element at the Sorbonne in Paris, she was recognised as 'la mère de rhénium'. She came to be known as the mother of rhenium not just in Paris but everywhere she lectured on the chemistry of that element. Interestingly, certain hypotheses the young Dr. Jeżowska-Trzebiatowska had put forward about rhenium(V) in the 1930s were only confirmed unequivocally in the 1980s by her students.

Starting in 1951, she began to lay the groundwork for a school of chemistry at the University's Faculty of Mathematics, Physics, and Chemistry and was appointed Head of the new Department of Inorganic Chemistry. In 1954 she became an extraordinary professor.

In the 1950s she also began experiments on antiferromagnetism; she was the first to present a report on this subject at a 1956 conference in Leipzig and subsequently at several foreign universities. Such cutting-edge scientific interests coupled with high research standards and Jeżowska-Trzebiatowska's boundless energy enabled her to build up a strong position for Wrocław's — and Poland's — chemistry in world science. The molecular magnetism studies carried out during the foundational period set one of the dominant directions of research developed by Jeżowska-Trzebiatowska and her colleagues in Wrocław.

On account of the poor working conditions (limited space for chemistry facilities at the University), lack of modern equipment, and the pressures of organisational work, Jeżowska-Trzebiatowska would work at the laboratory late into the night. For her, academic work was a vocation, and she demanded a similar level of engagement from her team. It was not unusual to see her taking the roll at 8 am and then again at 8 pm. Work during the night hours was the norm, especially measurements on what primitive equipment was available.

During her first trip to the United States, at the 1961 Gordon Conference in Detroit, Jeżowska-Trzebiatowska presented her great new research topic that would henceforth be known as the oxygen bond and oxygen bridge problem. The theory of the oxygen bond and bridge, developed on the basis of an enormous body of experimental studies and the theory of molecular orbitals, led to the explanation of such phenomena as the magnetic properties of d-block metal complexes containing the metal-oxygen-metal core. These included rhenium complexes that Jeżowska-

Trzebiatowska had studied back in the 1930s. By means of the bridge theory, it was possible to construct a precise definition of the notion of molecular antiferromagnetism, her youngest brainchild. For many of her colleagues, the oxygen bridge project was a tough school of life. Collating the hundreds of experimental data with quantum mechanics calculations and presenting the results to the Professor was a momentous experience and a challenge for every one of her co-workers and Ph.D. students.

The 1960s marked the beginning of research on the magnetism and spectroscopy of f-block elements, actinides, and lanthanides. These studies involved uranium compound spectroscopy and magnetism at various oxidation states, as well as lanthanide spectroscopy. They helped to explain such problems as the mechanisms of radiative transitions, nonradiative luminescence quenching processes, and energy transfer. The great interest generated by these studies stemmed from the ongoing search for laser materials and the urgent need to understand the little-known spectroscopy of f-block elements. Such intensive interdisciplinary research involving chemists and physicists gave rise to several internationally recognised research teams. Jeżowska-Trzebiatowska's gift for building interdisciplinary teams and locating her studies at the borderline of many disciplines, including chemistry, physics, biology, medicine, and even metallurgy, remained the hallmark of her approach until the end of her life.

The late 1960s brought many changes in Wrocław's chemistry. The University was restructured, and the Institute became the basic research and teaching unit. A new Institute of Chemistry was established in 1969, finally with its own building located at no. 14 F. Joliot-Curie Street in Wrocław.

A new building of the Institute (now Faculty) of Chemistry established in 1969

As Head of the Institute, Jeżowska-Trzebiatowska oversaw the move to the new building, for whose construction she had battled for 15 years. Everyone rejoiced at the improvement in working conditions and the new equipment, which included an EPR, NMR, and spectrophotometers, but Jeżowska-Trzebiatowska faced the change with mixed feelings. She disliked partings, particularly where close colleagues were concerned. Furthermore, by moving into the new University building, she had to give up the Department of Rare-Earth Element Chemistry, which she had directed until 1967, and leave some of her students behind at the Polytechnic. As a teacher who took great pride in the work of her students and respected their right to independent development and promotion, she suffered intensely when it came to parting.

In recognition of Professor Jeżowska-Trzebiatowska's achievements in developing coordination chemistry, in 1970 the international community of chemists invited her to organise the 13th International Conference on Coordination Chemistry (13th

Professor Jeżowska-Trzebiatowska and Professor John Bailar Jr. at the banquet during the 13th ICCC in Kraków-Zakopane in September 1970

ICCC), the first in Eastern Europe. Since Wrocław lacked adequate accommodation for the 1000 or so participants, the conference took place in Kraków (plenary lectures) and Zakopane (section lectures). The event turned out to be a scientific milestone and a major success for Polish chemistry in an era when our scientists' access to the international arena was still severely curtailed. In 1973, Jeżowska-Trzebiatowska was honoured with the request to organise the First International Congress on Progress in Chemistry Education, held in Wrocław under the auspices of UNESCO.

These are just two of the many scientific conferences Jeżowska-Trzebiatowska organised, knowing how much both the younger scholars and the leaders of Poland's coordination chemistry stood to benefit from international contacts. As she would tell her students, 'Presenting one's research to an audience of distinguished scientists is the only objective method for its evaluation'. She organised her first large international conference in Wrocław in 1962, drawing renowned scientists from across the world.

Professor Jeżowska-Trzebiatowska and Professor Chernyaev, an outstanding Russian coordination chemist during the conference in Wrocław (1962)

Since then there have been regular international events of this kind, such as the so-called coordination chemistry 'summer school' in Karpacz, and most recently in Polanica, which has been held 14 times to date. Altogether Jeżowska-Trzebiatowska organized over 20 international conferences focused on coordination chemistry, molecular spectroscopy, f-block element spectroscopy, and solution chemistry. Thanks to her strong position in the scientific world, Jeżowska-Trzebiatowska was able to call upon the best minds and facilitate her students' contacts with top specialists in various fields. Her networking skills resulted in excellent research projects, trips to foreign universities, and lasting friendships.

Professor Jeżowska-Trzebiatowska with Professor Henry Taube, Wrocław (1972)

Given such close contacts with international scientific centres, the Wrocław school was able to keep pace with the latest research trends. Jeżowska-Trzebiatowska's determination, strong will, and ability to lead her team into the 'deep waters' of science were largely responsible for the fact that in the 1970s the newly established Institute of Chemistry acquired much new equipment, some of it unique, and opened up many new fields of study within coordination chemistry, such as homogenous catalysis, the binding of small gas molecules by complexes, bioinorganic chemistry, and the development of existing spectroscopic methods and structural roentgenography. In each of these fields Jeżowska-Trzebiatowska and her co-workers formed research teams capable of high-level performance.

Yet, conducting such a wide range of projects did have its problems, particularly on a personal level. Many criticised her approach, arguing that one person could not control such a sprawling field or effectively coordinate a team of over fifty. In response, Jeżowska-Trzebiatowska often cited a saying she remembered from Lwów: 'My Lord, what great bounties you have given me: give liberally now to him who envies me'. She trusted her colleagues and was never known to speak critically of them outside the walls of the Institute. She had 'class' and never compromised her sense of fairness for the sake of ambition.

A woman of uncommon resilience, she bore all adversity with good humour, seeming almost carefree. Several years before her death she suffered severe burns, the doctors advised a skin graft. Though she agreed, no date was set for the surgery. Instead, she flew to a conference in Greece, and then on to Tbilisi. After some days she returned in perfect health, full of new ideas. Despite her petite stature, she possessed impressive physical strength. She travelled to Warsaw a great deal, often embarrassing her colleagues who were less advanced in years yet shirked frequent journeys and volunteer work for the Institute or the Wrocław scientific community. An influential person, she exercised her power for the benefit of the entire Wrocław milieu by working on various committees in Warsaw and in the Polish Academy of Sciences. She made good use of her scholarly position and did not hesitate to play on the fact that she was a woman. Few ministers and other officials were able to turn down a request made by Professor Jeżowska-Trzebiatowska. We witnessed her physical and mental stamina daily: when absorbed by a research problem, she could spend hours discussing its significance, scientific relevance, or potential solutions. She disliked fragmentary contributions, scientifically insignificant research, and the rehearsing of familiar problems. Thus, even when a particular problem lay outside her field of expertise, she was able to push her co-workers to produce their very best, which sometimes turned out to be more than anyone had expected. As a supervisor, Jeżowska-Trzebiatowska had a rare sensitivity for the significance of a problem.

The 1970s and 1980s were perhaps the most productive years of Jeżowska-Trzebiatowska's life, both in terms of research and in organising Polish science. As a long-time coordinator of a programme sponsored by several ministries, 'The Structure, Properties, and Dynamics of Molecular and Condensed Systems', Jeżowska-Trzebiatowska was able to draw together many excellent research teams of chemists, physicists, and scholars working in related fields throughout Poland, to create one of the best and most effective national programmes of its kind. Collaboration among teams of various ranks stimulated the less advanced to catch up with the best — a rare phenomenon in the world of science. Jeżowska-Trzebiatowska and her colleagues invested a great deal of time in improving the programme's logistics and evaluating it. The reporting meetings served as an excellent opportunity for teams working on the same projects to meet, exchange views, and confront the level of their research with that represented by other teams.

Organising academic meetings was one of Jeżowska-Trzebiatowska's passions. Aside from the international conferences she had masterminded since 1962, in the last years of her life she also made a concerted effort to integrate the Polish inorganic chemistry circles by means of conventions that usually took place before Christmas. Teams from research centres across the country were invited to present their achievements of recent years. When in 1992 we held the fourth event in this series, Jeżowska-Trzebiatowska was, alas, no longer with us. At this meeting conceived as a commemoration of Professor Jeżowska-Trzebiatowska, all of us who had been her students and friends felt the presence not only of the ideas she had professed but also of her exceptional personality. Jeżowska-Trzebiatowska is no longer with us, yet her school representing various branches of chemistry, as well as

the periodic meetings she initiated — including the Karpacz 'summer school' and the conventions of inorganic chemists — live on and will keep alive the memory of this exceptional woman and scientist for many years to come.

Jeżowska-Trzebiatowska's research was held in high esteem by professionals in the world of science. She received numerous prestigious awards for excellence in research, teaching, and organising, including ministers' awards, national awards of the 1st and 2nd degree, the Polish Science Award, as well as many high decorations, including the Heyrovsky Gold Medal in Czechoslovakia, the Commander Cross of the Order of Poland Restored, and the National Education Commission Medal. The Wrocław University and Polytechnic, the Bratislava Technical University, and the Lomonosov University of Moscow conferred upon her honorary doctorates. As a full member of the Polish Academy of Sciences, in the years 1978–1991 she chaired the Wrocław Division. From 1965 to 1981, she was also Head of the Polish Academy of Sciences Spectroscopy Commission.

A recognized scientific authority, Jeżowska-Trzebiatowska sat on the editorial boards of such international scholarly journals as Chemical Physics Letters and Inorganica Chimica Acta (f-block elements). During the celebration marking 60 years of her scientific work, the organisers received a package from Japan, mailed by Professor Kobayashi, containing an edition of Jeżowska-Trzebiatowska's collected works, confirming the old saying that it is difficult to be a prophet in one's own country.

Professor Jeżowska-Trzebiatowska with one of her students and co-workers (Wrocław, 1984, 14th anniversary of the Institute of Chemistry)

Have we managed to maintain that high level of chemistry in Wrocław? Have we made the most of the work of Jeżowska-Trzebiatowska's lifetime? She herself often posed those questions towards the end of her life. Recently a Wrocław journalist

who had been close friends with Jeżowska-Trzebiatowska recalled an exchange he had had with her in a taxi, passing the building of the Wrocław University Institute (now Faculty) of Chemistry. She asked, "When you look at the Chemistry building, do you see any changes?" Hearing no reply, she suggested: "Why don't you count the windows where the lights are out." At the end of her life, she continued to make plans for the future and insisted that only painstaking labour and long hours in the laboratory guaranteed academic success. She seemed oblivious to the fact that — partly through her agency — over the years the Faculty of Chemistry had acquired superb laboratory equipment and the number of publications in leading foreign journals had risen significantly.

Surely we have not wasted the opportunities Professor Bogusława Jeżowska-Trzebiatowska opened up for us. Among the tangible evidence of this is the presence of her former students, now working at Wrocław University's Faculty of Chemistry, in the world citation index. Of all Polish chemists working permanently in Poland who are listed in the Philadelphia-based Institute for Scientific Information's citation index, among the 52 whose papers were cited over 500 times in the years 1981–1997, ten are employees of the Wrocław University Faculty of Chemistry.

Dates and facts in Professor Bogusława Jeżowska -Trzebiatowska life

1926–32	Studies at Faculty of Chemistry of Technical University in Lwów
1929	First scientific experience under supervision of Professor Wiktor Jakób, precursor of polish coordination chemistry. First job till 1939 as assistant
1931	First publication, together with Professor Jakób. The paper entitled 'Sur les composes du molybdene hexavalent avec in hydroxylamine' published in French in polish journal Roczniki Chemii 11 (1931) 229
1935	As the first woman at the Technical University in Lwów, Bogusława Jeżowska received the title of 'doctor of technical sciences' after presenting dissertation entitled: 'Studies on reduction of perrhenate acid'
1939	First participation to the international congress of chemistry in Rome and first presentation of own results on rhenium(V) chemistry
1945	Departure of Lwów and arrival (via Kraków) to Wrocław
1946	Organisation of Department of Inorganic and Analytical Chemistry at first polish university in Wrocław (former Breslau)-University and Polytechnic
1948	Chairman of Department of General Chemistry at the Faculty of Mathematics, Physics and Chemistry

1949	Habilitation (D.Sc.) received after publication of monograph entitled 'Chemia Renu' (Rhenium Chemistry, WNT, Serie B, Wrocław 1951). Position of Docent (assistant professor)
1951	Chairman of Department of Inorganic Chemistry at Polytechnic. Organisation of Chemistry Section at the University of Wrocław. Chairman of Department of Inorganic Chemistry at the Faculty of Mathematics-Physic and Chemistry
1954	Position of Professor (extraordinary) at the University of Wrocław
1953–54 and 1958–60	Chairman of Polish Chemical Society (Wrocław Division)
1956	First presentation of results on antiferromagnetic properties of coordination compounds (Selten Elementen) Lectures at Humboldt University in Berlin, in Dresden, Halle and Leipzig. Participation to the Congress on Pure and Applied Chemistry in Paris. Beginning of nuclear chemistry (radiochemistry and radiation chemistry) in Wrocław
1957–58	Visits to different places in USSR. Lectures at Technical Institute in Ivanovo, Institutes of Academy of Sciences in Moscow and at Leningrad University. Personal contacts and friendship to many outstanding Russian chemists like Cherniayev, Grindberg, Spitsyn, Diatkina, Yatsimirski and many others
1958–62	Dean of the Faculty of Mathematics, Physics and Chemistry of Wrocław University
1959	Participation and lecture at the International Conference on Use of radioisotopes (Peaceful use of nuclear energy) in Geneva.
1961	First visit to the USA. Lecture at Gordon Conference in Detroit (first presentation of theory of oxygen bridge bonding). Lectures at several universities (Urbana, Argonne National Laboratory, Ann Arbor, Berkeley and Los Angeles)
1962	Organisation of International Conference 'Theory and Structure of Complex Compounds' in Wrocław (first in Poland)
1962-88	Active participation to the number of ICCCs meetings and oral presentation of results her works in plenary, section or short lectures in London, Stokholm, Vienna, Zurich-St. Moritz, Tokyo-Nikko, Melbourne, Kraków-Zakopane (1970, Chairman of the 13th ICCC), Toronto, Moscow, Prague, Toulouse, Budapest, Athens, Nanjing and Porto. She was

	permanent member of International Organising Committee of the ICCC
1963–66	Member of IUPAC
1964	Polish State Award for Scientific achievements in the area of structural research and formulation of theory of metal-oxygen bonding
1964	Organisation of the 1st Summer School on Coordination Chemistry — the series of meetings which stimulated development of coordination chemistry in Poland. In 1999 the 14th Summer School has been organised in Polanica
1967	Elected as a member (corespondent) of Polish Academy of Sciences. Chairman of the Department of Structural Chemistry at Institute of Low Temperature and Structural Research of Polish Academy of Sciences in Wrocław
1969–79	Organiser and first Director of the Institute of Chemistry
1970	Chairman of 13th ICCC in Kraków/Zakopane, first ICCC in eastern-block countries
1970–79	Coordinator of the national research project 'Catalysis'
1971	Doctor Honoris Causa of Technical University in Bratislava (Czechoslovakia) and prestigious award 'Workmanship of Wrocław'
1972	Full member of Polish Academy of Sciences
1972–73	Several awards of Polish Academy of Sciences, City of Wrocław and Ministry of High Education
1976	Organisation and coordination of several programmes entitled 'Theory, structure, dynamic and properties of molecular systems and condensed phases'
1976	Polish State Award for achievements and discoveries in a scope of molecular structure
1978	Elected as a member for presidium of Academy of Sciences
1979	Doctor Honoris Causa degree given by the Lomonosov University in Moscow Emeritus Professor of Wrocław University
1980	Doctor Honoris Causa degree obtained from Technical University of Wrocław (Polytechnic)
1981	Doctor Honoris Causa degree given by the University of Wrocław
1981–91	Chairman of the Wrocław Division of Polish Academy of Sciences

Remarkable achievements of Professor Bogusława Jeżowska-Trzebiatowska in teaching and staff formation should be not omitted. From the over 70 Ph.D. students she successfully promoted ca. 40 got habilitation degrees and 33 took professorship positions (see attached list).

She was always interested in teaching curriculum and its development and modernisation. It was her idea to take a patronage over the several high schools from the region of Lower Silesia.

Her many years of versatile scientific, teaching and organising activity, the broad horizons in her research interests, her talent and organising ability, persistence in achieving her goals and the great enthusiasm that she transmitted to her co-workers reveal the importance of Professor Bogusława Jeżowska-Trzebiatowska's world class achievements.

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Appendix A

Chronological list of Professor B. Jeżowska-Trzebiatowska Ph.D. students who received the professorship title or position (year of Ph.D. promotion in brackets)

1 Maria Wrońska (1958) kinetics
2 Lech Pajdowski (1959) coordination chemistry
3 Adam Bartecki (1960) spectroscopy
4 Jan Biernat (1960) electrochemistry
5 Helena Przywarska (1960) bioinorganic chemistry
6 Stanisław Wajda (1960) radiochemistry
7 Jerzy Kaleciński (1963) radiation chemistry
8 Bogusaw Kędzia (1963) uranium chemistry
9 Walter Wojciechowski (1963) theoretical chemistry
10 Krystyna Bukietyńska-Słopecka (1964) spectroscopy
11 Władyslaw Kąkołowicz (1964) thermochemistry
12 Jòzef J. Ziółkowski (1964) catalysis
13 Janusz Drożdżyński (1967) spectroscopy of uranium
14 Jan Dzięgielewski (1967) radiation chemistry
15 Stefan Ernst (1967) sonochemistry
16 Tadeusz Głowiak (1967) X-ray
17 Stanisław Kopacz (1967) extraction
18 Jerzy Mroziński (1970) magnetochemistry
19 Mikołaj Rudolf (1970) coordination chemistry

20 Janina Legendziewicz (1971) spectroscopy
21 Elżbieta Nagler-Kalecińska (1971) radiation chemistry
22 Jerzy Hanuza (1972) spectroscopy
23 Antoni Keller (1973) catalysis
24 Henryk Kozłowski (1973) bioinorganic chemistry
25 Tadeusz Lis (1973) X-ray
26 Piotr Sobota (1973) organometallic chemistry
27 Julia Jezierska (1977) ESR
28 Adam Jezierski (1978) ESR and soil chemistry
29 Lechosław Latos-Grażyński (1978) coordination chemistry, NMR
30 Witold Ryba-Romanowski (1978) spectroscopy
31 Witold Stręk (1979) spectroscopy
32 Stanisław Wołowiec (1982) coordination chemistry
33 Jacek Gliński (1983) sonochemistry

Appendix B

Names of Professor B. Jeżowska-Trzebiatowska Ph.D. students and Thesis titles

1 Maria Wrońska (1958). Hydroxyl anions as reductance of oxyanions of transition metals
2 Lech Pajdowski (1959). Structure and stability of vanadium(III) polynuclear complexes
3 Adam Bartecki (1960). Absorption spectra of uranyl nitrate and its structure in organic solvents
4 Jan Biernat (1960). Studies on polarographic reduction of oxyanions of transition metals
5 Jadwiga Danowska (1960). Low oxidation states of rhenium
6 Jadwiga Nawojska (1960). Kinetic and dismutation mechanism of manganese(V)
7 Helena Przywarska (1960). Dioxygen revesible bounded by rhenium complexes
8 Stanisław Wajda (1960). Diamagnetic complexes of rhenium
9 Jerzy Kaleciński (1963). Reduction of solution of rhenium oxyanions under influence of ^{60}Co gamma rays
10 Boguslaw Kędzia (1963). Properties of anhydrous uranyl salts studied by means of electronic and infrared spectroscopy
11 Walter Wojciechowski. Structure and properties of M-O-M core in transition metal complexes
12 Krystyna Bukietyńska-Slopecka (1964). Electronic structure of U(IV) in chemical compounds
13 Stanisław Hasiński (1964). Polarographic determination of microelements in the grain seeds

14 Władysław Kąkołowicz (1964). Stability and structure of uranyl beta-diketonate complexes
15 Józef J. Ziółkowski (1964). Electronic structure of pentacyanonitrosyl complexes of transition metals
16 Janusz Drożdżyński (1967). Structure and spectroscopy of U(III) in chemical compounds
17 Jan O. Dzięgielewski (1967). Radiation reduction of uranyl compounds in n-trialkylphosphate in n-butyl alcohol
18 Stefan Ernst (1967). An associato-dissociato equilibrium and structure of uranyl compounds in organic solvents
19 Tadeusz Głowiak (1967). Crystal structures of Re(V) and Mo(V) oxo-compounds
20 Leszek Natkaniec (1967). Spectroscopic properties of Re(V) and Tc(V) oxyanions and thiocyanate complexes of Pt(II) and Pt(IV) studied on the basis of crystal field and molecular orbital theories
21 Jan Starosta (1967). Structure and stability of Cr(III) complexes with amino acids
22 Stanisław Kopacz (1969). Extraction of some d-electron metal ions with oxygen coordinating solvents
23 Romuald Grobelny (1970). Structure and properties of Fe(III) and Ru(III) diketonates
24 Teofil Mikulski (1970). Application of chlorination and sorption method for separation of molybdenum-rhenium containing concentrate from industrial wastes
25 Jerzy Mroziński (1970). Electronic structure and bonding in peroxo- and superoxo metal complexes
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Further Reading

J. Kaleciński, T. Mikulski, M. Rudolf, J.J. Ziółkowski (Eds.), Problem i metody chemii koordynacyjnej (Problems and methods of coordination chemistry), PWN-Warszawa, Wrocław, Poland, 1981.
J.J. Ziółkowski (Ed.), Bogusława Jeżowska-Trzebiatowska, Uczona, Nauczyciel, Organizator (Scientist, Teacher, Organizer), Wrocław University Press, Wrocław, Poland, 1988.
J. Legendziewicz, H. Kozłowski (Eds.), Bogusława Jeżowska-Trzebiatowska 1908–1991, Nauka Polska, 2–3 (1993).
J.J. Ziółkowski, Bogusława Jeżowska-Trzebiatowska 19 listopada 1908–16 grudzien 1991, in: K. Pigoń, Roczniki Wrocławskiego Towarzystwa Naukowego ('Science in Wrocław'), WTN-Wrocław 1999.