

# The Women at the first Czech Technical Academy – Masaryk Academy of Labour

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**Abstract.** *Masaryk Academy of Labour was established in 1920 as the first academic institute associating technicians and engineers on the Czech (Czechoslovak) territory. It was a technical work centre which task was to organize that work for economic using of abilities of all people and natural wealth of the Czechoslovakia. In 1952 in connection with the change of political regime this institute was integrated into newly established Czechoslovak Academy of Science. Organization of work, rationalization, standardization and normalization and efforts to create the economic plan of the Republic were the main activities of this academy. Women perform important role in that time in Technical Academy. And not just any women! Woman's journey to education was much more difficult than men at that time. This study presents 8 educated women who played significant part in the activity in the first technical academy in the Czech lands. All of them, through their efforts, purposefulness and diligence, have succeeded in developing their disciplines and so they showed the world that not only men but even women are able to succeed in the field of science and technology. Masaryk Academy of Labour supported financially and administratively even work and scientific internships of The First Republic young Czech engineers in large American industrial plants. Through this activity the Masaryk Academy of Labour tried to develop technical elites in young Czechoslovak Republic. The only brave woman who got the chance to complete this American internship was the first university educated civil woman engineer in Czechoslovakia Ing. Marie Zubaniková. She succeeded in the United States of America, it's seen by the fact that she was working as a designer in building company Building Material Dep't Lears Roebuck in Chicago from 1925 to 1929.*

## Keywords

Masaryk Academy of Labour, Technical Institute, History of Science and Technology, Engineers, education, women in technique.

## 1. Woman part in Masaryk Academy of Labour

Masaryk Academy of Labour (MAP) was established in 1920 as the first academy institute connecting technique and engineers on Czech (Czechoslovak) area. It was centre of technique work which task was to organize this work to economical using the abilities of all people and natural wealth of the Czechoslovakia. Technical Academy consists of six developments focused on science and medicine, agriculture and forestry, civil engineering, mechanical engineering and electrical engineering, chemistry and the last department focused on economics and social issues. The main difference between technical Academy and other academical institutes in Czechoslovakia Republic was its emphasis on applied research. In 1952 in connection with the change of political regime this institute was the institution was incorporated into a newly formed Czechoslovak Academy of Science which was connected to Science Academy of the Czech Republic in 1993.

That time in Technical Academy women were an important role. Despite the fact that woman way to education was much more difficult in that time than men went that time. Education helped women to change life. By getting professions they made living space during 19th century that then made their next life including personal one. That's why women started to seek the equalities with men and getting their independence. Women could get secondary education with school leaving exam only after 1890 connecting with founding the first Czech girl grammar school (1890-1936) in Prague. Minerva had private basement without dotation from state or provincial institution at the beginning. Only this step allowed women to think about higher university studies. But Czech society reacted for Minerva negatively. Voices of many opponents which explained that woman hasn't got physiological abilities for higher education and it is a superfluous luxury. But it was still a strong speech by Czech women on their right to university education. In 1895 Czech Provincial School Board allowed women to take a school leaving exams. [10] But after pass school leaving exam it wasn't easy for women and girls in the Czech countries to continue in studies at university.

Already in 1878 Imperial Council supported the possibility of entry to university for women but only as listeners without the opportunity to pass the exams. [7] In 1897 women had allowed to study at the Faculty of Philosophy, since 1900 at Medicine Faculty, Pharmacy and Law. [10] At Imperial and Royal Czech Technical University in 1902 professorial staff recommended to Reich Ministry of Cult and Teaching that women could be enrolled as full listeners. [6] This possibility came into practice in 1912, women could attend lectures of Prague technology as extraordinary students and therefore they couldn't pass the final exams. In the second half of the First World War, 1916-1918, 15 extraordinary women students were admitted to the Prague technology who could graduate after 1920, that time women were given the right to study technology as full-time students. In 1908 Association of Academically Educated Women was established to support women's education in the country to which in 1922 Association of Academically Educated Women continued. [10]

By 1915, a total 51 women completed higher education at Prague Charles-Ferdinand University. [10]. The first graduated woman student of Charles-Ferdinand University was a botanist Marie Zdeňka Baborová (1877-1937) who was graduated as a Doctor of Philosophy 17th June 1901. The second woman who received her doctorate at Charles-Ferdinand University was mathematician Marie Fabiánová (1872-1943), who graduated in November. [7] Both graduated successfully completed the first Czech girl's grammar school Minerva.

At Prague Technology the first women graduated in 1921. The first graduate woman was Helena Fischerová (1897-?) who graduated her studies with distinction on 24th February 1921 in fields of chemistry and then she became the first woman-assistant at Institute of Chemical Technology. On 18th June 1921 Milada Pavlíková (1895-1985) received engineering degree with distinction in architecture. On 23rd December 1921 Marie Tumlířová (1889-1973) was added to them she graduated II. state exam in Agriculture engineering with distinction as the first agriculture engineer in the Czech countries and later Doctor of technical science in Czechoslovakia and in central Europe. Even Anna Horynová (1898-1976) graduated that field of study with distinction too. The first Czech graduated commercial engineer Ludmila Zlesáková (1900-1969) finished studies at Czech Technical University 24th December 1921. [5] On 30th June 1923 the first woman of building engineering became Marie Zubaníková (1900-1966). [11] On 28<sup>th</sup> February 1925 the first graduated student of mechanical engineering became Albína Aloyová (1897-?) and the first graduated student of electrical engineering became Zina Avdonina (1902-?) on the 17th December 1927. The first graduated student of College of Special Sciences of Czech Technical University in Prague in the field of surveying was Taťána Horáčková (1897-?) who graduated on the 6th February 1932 and finally the first graduated student of forest engineering with honours

became Markéta Bezpalcová (1913-?) who graduated on the 13th February 1937. [4]

For getting an overview about female participation at the first Czech Technical Academy its members should be mentioned. Female members of the first Technical Academy in the Czech countries weren't many ones but all of them excelled the more in their courage, determination and readiness to succeed in their chosen fields. They mostly worked with the social area and that's why they mostly became members of VI. National Economic and Social Department of Masaryk Academy of Labour.



Fig. 1. Portrait of PhDr. Alice Masaryková (3. 5. 1879 Viena, Austria – Hungary 29. 11. 1966 Chicago, USA).

Daughter of the first Czechoslovak president, **PhDr. Alice Masaryková (1879-1966)** belonged to their members, she was elected to VI. National Economic and Social Department of Masaryk Academy of Labour, there she operated from 10th April 1920 to 14th March 1923 (fig. 1.). Experts of Masaryk Academy of Labour were elected for 6 years after that they could be re-elected. Their duty was, inter alia, to pass the prescribed promise of this Technical Academy into the hands of its president and actively participate in meetings and activities of academy. Masaryková belonged into generation of the first academically educated Czech women. After secondary school studies obtained at the first Czech girl grammar school Minerva, she studied medicine at Faculty of Medicine Charles-Ferdinand University and then she graduated as a doctor of Philosophy at Philosophy Faculty Charles-Ferdinand University where she worked with philosophy, sociology and history. Among her most significant activities can be included co-founding of Czechoslovak Red Cross where she was its chairwoman for 20 years. All her life she professionally worked in medical, charity and social activities. Shortly after the communist coup in 1948 and after her brother's death (brother Jan

Masaryk (1886-1948)), she emigrated to her Mother's birthplace (Mother Charlotta Garrigue Masaryková (1850-1923)), to the United States of America where in 1966 she died in Chicago. In questionnaire of Masaryk Academy of Labour, she stated that she is interested in organization of work in the field of social and sociological which was the key to the academy. Organization of work, rationalization, standardization and normalization and effort to create economic plan of republic which were the main activities. In academy she wanted to use her practical experience and expertise in the field of social hygiene. Already in application she admitted that she can't work in technical academy so actively because she must work most of the time as a chairwoman in the Czechoslovak Red Cross. She left the academy in 1923 on the basis of an application justified by her request. [16]



**Fig. 2.** Portrait of Lillian Moller Gilbreth (24. 5. 1878 Oakland, USA – 2. 1. 1972 Phoenix, USA).

Important foreign woman member of Masaryk Academy of Labour became **Lillian Moller Gilbreth (1878-1972)**, widow of one of the leading American pioneers of scientific work of management, Frank Bunker Gilbreth (1868-1924), (fig. 2.). *Frank Bunker Gilbreth was elected already sooner as a member of the III. Civil Engineering Department on the meeting of the Central Committee of Masaryk Academy of Labour on the 8th November 1923.* [19] Industrial Engineer Lillian Moller Gilbreth, she studied at University of California and at Brown University and woman who gave birth to 13 children and she was interested in organization of work and psychology like her husband, foreign member of VI. National Economy and Social Department she was elected on the 14th July 1924. Her election is necessary to connect with forthcoming holding of the first International Congress for Scientific work management in Prague where she was invited. She should have come to Congress with her husband Frank, but he died 14th June 1924, therefore a few days before this Congress. This first Congress of that

kind which took place in days from 21st to 24th July 1924 in Prague, in National Museum building on Wenceslas Square, ensured Institute for Industrial Economics at Masaryk Academy of Labour. Moller Gilbreth was a member of American Psychological Association, Taylor Society, American Management Association and club Women's City in New York. *Last preserved contact of Masaryk Academy of Labour with Moller Gilbreth is letter from 4th April 1950 which was sent by the president Masaryk Academy of Labour, Ing. Artuš Šýkora (1879-1960). Together with letter there was sent a parcel contained Anthology of Masaryk Academy of Labour No. 131, on page 392 there is published a short article of Academy member, by Ing. Dr. Stanislav Špaček, about book: YOST, Edna. Frank and Lillian Gilbreth: partners for life. New Brunswick: Rutgers University press, 1949.* [12]



**Fig. 3.** Portrait of MUDr. Anna Honzáková (16. 11. 1875 Kopidlno – 13. 10. 1940 Prague).

Among other female members of Technical Academy was even **MUDr. Anna Honzáková (1875-1940)**, who was elected on 8th May 1920 to VI. National Economy and Social Department (fig. 3.). Mrs. Honzáková was educated student of the first grammar girl school Minerva and in March 1902 she was the first graduated medicine doctor at Czech Charles-Ferdinand University. After graduation she spent three years working in Prague clinic, and from 1905 she operated at the first Prague private gynaecology doctor's office. She left the Technical Academy on the basis of an application justified by her request on 16th March 1922. [13] *But the first „Czech doctor” was MUDr. Bohuslava Kecková (1854-1911), who graduated at Swiss University in Curych already in 1880.*

Anna Honzáková's sister was PhDr. Albína Honzáková (1877-1973), high school professor and leading female rights fighter.

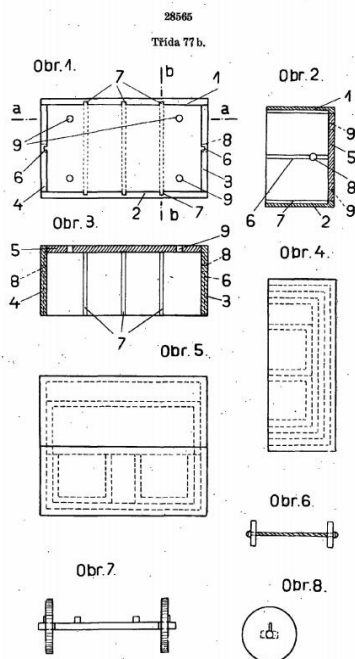


Fig. 4. Patent drawing „Game stimulus material“, by Milada Kellerová (? , Jaroměř – 22. 3. 1946).

Another member of the VI. National Economy and Social Department **Milada Kellerová (?-1946)**. She was elected on the 5th March 1920 and her membership lasted up to 12th December 1929. Mrs. Kellerová graduated Teaching Institute in Brno and then she taught in primary school in Jaroměř, Ústí nad Orlicí and in Česká Třebová. 1915-1918 she worked as a Central Children's Room manager in Prague and she led individual care of Children's Establishment and Social Department of Police Directorate. In 1919 she was commissioned by Institute of Pedology (*pedology = the older name of complex child care*) of the City Prague to organize preparator work for creation of a career counselling centre at Czechoslovak adolescent corps. Later she was appointed as an inspector extracurricular childcare of the capital city of Prague. Then she was interested in studies of social situation of the poor people of the city and she helped threatened strata of society which is possible to show at her membership in institute of Protection of women's interests where she focused especially on problems of illegitimate children. [3] The interesting thing is Milada's Kellerová protected patent from 15th October 1928 which worked with stimulus material for development of children's thinking (fig. 4.). [2] During her life she supported establishment sanitary facilities which could be fulfilled basic human and civil duties to threatened strata of society. [14]



Fig. 5. Publication „Technology and household“, by her co-author Božena Krchová (31. 10. 1901 České Budějovice – †1993).

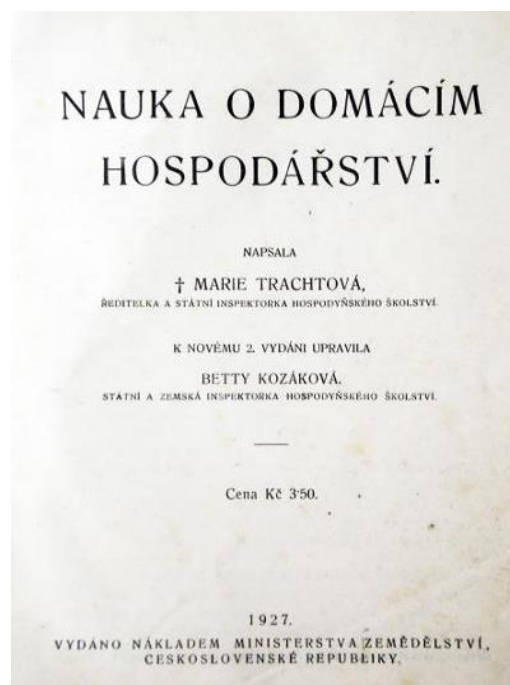
Even another woman **Božena Krchová (1901-1993)** was elected as a member of VI. National Economy and Social Department on the 20th December 1950 (fig. 5.). She already sooner cooperated with that department as an external member of Commission for the Organization of the Household. She was born on the 31st October 1901 in České Budějovice as the third child from eight children of famous architect Ing. Josef Záruba-Pfeffermann (1869-1938) who was a member of Masaryk Academy of Labour. In 1918 she graduated with honours at Prague lyceum, she studied half of year Housekeeper's school in Nový Bydžov, the half of year Business course in Prague and then she studied French language as an extraordinary student at Charles University and course organized by the University in Lausanne. She was interested in rationalisation of households and from 1929 she was a member of Commission for the Organization of the Household at Unity of friends of Masaryk Academy of Labour and later external member of Commission for the Organization of Household of VI. National Economy and Social Department. Then she was a Vice-President at Headquarters of Czechoslovak Housekeepers in Prague and she co-founded Testing and Research Institute Housekeeping. She was an editor in magazine Housewife. She was interested in organization of work at household and common women problems which she showed in many professional articles and lectures, at courses in women organizations, on the exhibitions and in radio. Her work in Research Institute for Catering and work in Standardization Commissions of Czechoslovak Society of Standardization had significant meaning. [15] From 1923 her husband was Dr. Ing. arch. Vojtěch Krch (1892-1966). He was former student of architecture at Prague Technology. He is an author of the railway station in Poděbrady, the first railway station in Bohemia built in functionalist style and he is an author of pavilion for panoramic paintings Battle of Lipany painted by a Czech painter Luděk Marold (1865-1898) built Prague Exhibition Center in Holešovice. [9]



**Fig. 6.** Portrait of Ing. Dr. Marie Tumlířová (9. 6. 1889 Hradec Králové – 8. 8. 1973 Lugano, Switzerland).

Famous woman member of VI. National Economy and Social Department became **Ing. Dr. Marie Tumlířová, nee Kuklová (1889-1973)** on the 28th May, (fig. 6.). She was already active in Technical Academy sooner as a chairwoman of Testing and Research Institute for Home Management at Unity of friends of Masaryk Academy of Labour with headquarters in Exhibition Palace. Mrs. Tumlířová belongs among the first female graduated students of Prague Technology. On the 23rd December 1921 she passed the second state exam for branch of Agricultural Engineering at Czech Technical University in Prague with honour as the first agricultural engineer in Bohemia countries and later the first doctor of technical science in Czechoslovakia and in Central Europe based on defended dissertation from poultry farming. Many years she was a private teacher, governess and teacher at girls' teacher institute. She had excellent language skills and in 1911 she passed state and university exam from French language. Later she became an assistant at College of Agricultural and Forest engineering of Czech Technical University in Prague and an inspector Research Agricultural Institute. Interesting is an activity in Kuratorium of aviation courses at Czech Technical University in Prague. From 1927 she worked as the Chief Minister of State at the Ministry of Education and Public Awareness at the same time. She published many her work from the field of poultry farming or from the field of rural sociology. Mrs. Tumlířová happened member of the National Assembly of the Czechoslovak Republic for Republican Party of the Agricultural and Smallholders as the first woman engineer. She was a member and chairman of Association of University educated woman engineer, Headquarters of Czechoslovak housekeepers, Headquarters

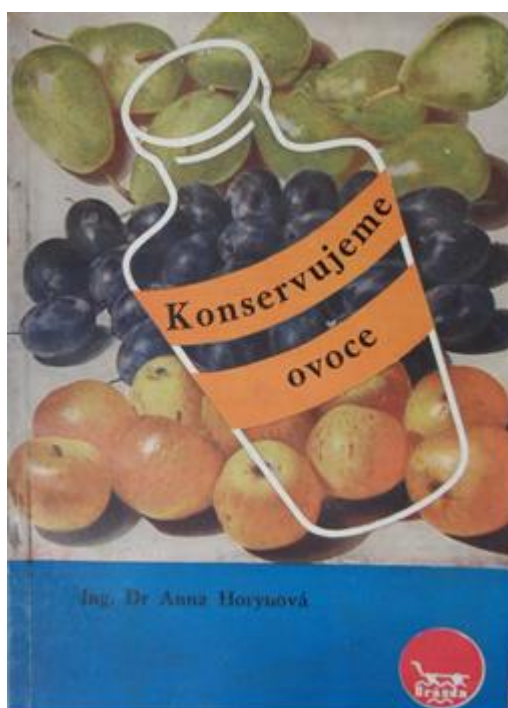
of the Czechoslovak Rural women's union and so on. To ease their work in agriculture and in household she propagated electricity which helped to control the threshing machines, cutters, mowers, churn machines, centrifuges, waste disposers, dough kneaders or electric washing machine. She propagated this in her publication with the title „Economical Management of a Rural household“ or in articles „Housework“ and „Woman and Home“, „Position and Tasks of Woman in Agriculture“, „Woman in Czechoslovak Agriculture“. She cancelled her membership in Technical Academy 3rd December 1935. [17] Her sister *MUDr. Božena Štúrová-Kuklová* happened the first university professor in Czechoslovakia at Faculty of Medicine of Comenius University in Bratislava.



**Fig. 7.** Publication „Science about Domestic Economy“, by Marie Trachtová (9. 11. 1865 Poděbavy u Havlíčkova Brodu – 12. 7. 1924 Chrudim).

Female members in Technical Academy didn't deal only with social and economy problems but for example with agriculture. **Marie Trachtová (1865-1924)** worked in this field, she was elected 10th April 1920 to II. Agricultural and Forest Department (fig. 7.). She got married when she was 18 and she became a widow in two years. To ensure its existence she started to study at „Institute for education of teachers“ and in 1889 she became a literary teacher at primary schools. Later she passed proficiency tests for housekeeping schools and she became the first candidate examined before committee for teaching at housekeeping schools. In 1891 she was appointed a literary teacher and director of housekeeping school in Stěžery near Hradec Králové and in 1906 a director of similar school in Chrudim. In 1918 she was commissioned by Czechoslovak agriculture minister of state inspection at housekeeping schools with Czech and Slovak teaching language, and she became a member of Examination Board for teachers of housekeeping, even

director of pedagogical course which was established at housekeeping school in Chrudim. She didn't forget the rural girls and women who could study vocational schools that's why she organized lectures in Czech countryside and thus she supported her efforts about countryside education. Interesting are her professional internships which she got abroad. She got dairy internship at Mr. Ronenberg at steam dairy and dairy school in Wellingsdorf at Kiel in Germany and in editorial laboratory of magazine in Milchzeitung in German Eutin. In Gambais in France she learned about artificial hatching of poultry and its litters. In July in 1924 Mrs. Trachtová died after 33 years of deserving work in the field of housekeeping education which she was doing in tirelessly way for all her life and that her membership ended in Technical Academy where she was doing domestic economy and organization of housekeeper work. [17]



**Fig. 8.** Publication „We preserve fruit“ by Ing. Dr. Anna Horynová (12. 1. 1898 Blato u Uhlířských Janovic – 3. 12. 1976 Praha).

Another woman member of II. field of agriculture and forest was **Ing. Dr. Anna Horynová (1898-1976)**, (fig. 8.). She was elected 23rd June 195 to this fields. Mrs Horynová was also a former student of the first girl grammar school Minerva where in 1917 passed final exams with honours. She passed her university studies with honours in 1921 at University of Agricultural and Forest Engineering of Czech Technical University in Prague. In 1923 she was taken as an assistant to Girl Fruit Gardening School in Krč and from the 1st February 1928 she was a teacher of agricultural schools. In June 1931 she was a doctor of technical science based on doctor work about on vegetative multiplication of conifers. Before being accepted as a member she wrote 500 articles to various professional and general educational magazines and she published a few publications in Proceedings of the State

Research Institute for domestic economy. She organized lectures for various professional corporations, schools and radio. She participated in film direction about fruit processing for Avis film that unfortunately burnt in May war days in 1945. In 1949 she filmed for Czechoslovakia ministry of agriculture a film „Preservation of summer fruit and preservation of autumn fruit.“ Outside membership in Technical Academy she was a member of Council of Czechoslovak women where she worked in department „countryside woman and her garden“, a member of narrower committee of the mechanization commission of the Ministry of Agriculture and an extraordinary member of III. Department of Horticulture of Czechoslovak Academy of Agriculture. [13]

It was initially considered about membership of leading organizer of the Women's Equality, Františka Plamínková (1875-1942), as we can see registry office of members of Masaryk Academy of Labour for season 1920-1923. It was considered about her membership in VI. National Economy and Social Department. For selfless reasons she wasn't finally elected. [18]



**Fig. 9.** Portrait of Ing. Marie Zubaník - Schneider from her study years (14. 3. 1900 České Budějovice – 11. 9. 1966 Chevy Chase, USA).

Another brave woman was civil engineer **Ing. Marie Zubaníková (1900-1966)** who was sent to internship to the United States of America by Masaryk Academy of Labour after a year of her successful completion of university at Czech Technical University in Prague. (fig. 9.). Her university studies were passed with state exam on the 30th June 1923 with result very well at Civil Engineering University of Czech Technical University in Prague. Among subjects that student Marie Zubaníková studied were: Technical Physics and Chemistry, Geology, Meteorology and Climatology,

Technical Drawing, Hydraulics, General Machine Science, Maths, Fundamentals of Electrical Engineering, Introduction to Mechanical Engineering, Statics and Dynamics, Lower Geodesy, Building Construction, Road Construction and Earthwork, Railway Construction, Tunnel Construction, Water Construction and Bridge Construction, Public Law, National Economy and so on. She became the first university educated woman engineer in Czechoslovakia. In 1924 with the help of the first Czech Technical Academy, Masaryk Academy of Labour, it was conveyed by Ing. Dr. Stanislav Špaček (1876-1954) who Ing. Marie Zubaníková was in touch with throughout her stay, she started internship as the first Czech woman civil engineer in the USA, specifically in Chicago.

*Špaček was one of the first founding member of The Masaryk Academy of Labour. In 1926 he became a chairman of VI. National Economy and Social Class of Masaryk Academy of Labour and he was a member of its Institute of Economic Relations, Emigration and Colonization. In 1938-1941 he was a deputy of Masaryk University of Labour and in 1942-1945 he led Masaryk Academy of Labour as an Acting Vice-President. He worked in Economics Institute of the Czech Academy at Science and Arts. At the World Congress of Engineers in Tokio he presented a proposal to establish World Engineering Federation. Thanks to his good qualities he became an honorary member of American of The Society of Industrial Engineers and The Society of the Advancement of Management. He was awarded a bronze and gold medal for merit for the technical condition by American Society of Mechanical Engineers. [20]*

Zubaníková sailed to the USA on 24th June 1924 on the ship Leviathan from French port in Cherbourg, and she landed in New York on 30th June 1924. From 1925 to 1929 she worked as a designer in famous Chicago building company Building Material Dep't Lears Roebuck in Chicago. In this company she worked on a major project of new factories for harbour district Port-Newark-New York-New Jersey where she processed calculations for reinforced concrete structures. In the evenings she attended at Technical College where she listened lectures of advertisements, economy and accounting. [21] On 8th January 1928 she was elected as a Vice-President of American Association of Czechoslovak Engineers in Chicago where she met its chairman Ing. Dr. Josef Schneider, then visiting professor of Czech Technical University in Prague at University of Chicago. In 1929 she temporarily returned to the Czechoslovak Republic based on her appointment as a technical adviser by PhDr. Alice Masaryková (1879-1966), the President of the Czech Red Cross. She worked as a Head of Housing Hygiene Laboratory in Prague Institute of Public Health. In turbulent years 1938/39 she again returned with her husband to the USA where they got temporary residence in a neighbourhood of Bata Shoe Village near Bata Shoe Company, which was located in Belcamp, in American state Maryland. In this neighbourhood many people from Czechoslovakia lived there and they worked in near factory

for making shoes of Tomáš Baťa Jr. (1914-2008). This Baťa's factory in Belcamp was established in 1939. Josef Schneider became a teacher at Madison College v Harrisburg, in state Virginia, where they later lived together. Zubaníková was interested in housing hygiene and designs for efficient household adjustment. On 8th July 1930 she filed her patent for a mobile washing table at Patent Office of the Czechoslovak Republic for example. [1] Zubaníková was a member of Chicago Female Architect's Club, a member of American Association of university educated women, a member of National Geographic Society, a member of Fellow Countrywomen of Chicago „Bees“ and a member of Czechoslovakia Engineer Institute (SIA). She spent her last years of life in Chevy Chase, in state Maryland. She travelled a lot for example tour the USA, India and Europe. During her internship she published professional articles about women problems in the United States of America, (for example *Organization of women work in factories, Woman-engineer, Woman in American public life, Woman in policy and Woman work in American factories*). [21] Among her friends she was as an excellent pianist and violinist. She was very good at most of sports, especially in tennis and riding a horse. [8]

## 2. Final summary

We can see in the example of these women's lives how positive was the change of thinking way of the Czech society which granted women the right to education and provided equal opportunities for men and women. Educated women got the right to work in many fields which helped to be developer. Full equality was reached in connection with the establishment of the Czechoslovak Republic when they were granted the right to vote.

In this article there were introduced excellent results of women who participated in the activities at the first Technical Academy in the Czech countries. All of them contributed the development of their disciplines by their efforts, sense of purpose and hard work and they showed the world that not only men but even women are able to be successful in the field of science and technique.

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The author **Vit HOLEČEK** was born in 1987 in Hradec Kralove, where he studied at the local university Historical Sciences. His professional focus is Archival Science. He specializes in technical and economic history, particularly in the Czech history from the 2nd half of the 19th century to the 1st half of the 20th century, the history of science and technology and historical development of scientific and technical institutions. Currently he studies PhD studium History of Technology at the Czech Technical University in Prague.

