

Letter from Professor Wacław Szybalski on the occasion of receiving the "Outstanding Pole" statuette on May 4, 2016

„Magdalena Gierszewska: I am honored that Professor Szybalski asked me to translate into English and to read the following letter that he wrote on the occasion of receiving his award:



Dear Friends of Poland, Guests, and Dear Members of Pangea Network,

This is a real honor for me to receive an Outstanding Pole in the USA Award from Pangea Network. Mainly as a native "Lwowiak" or Leopoldian of Polish city Lwów, I would like, in this way honor my royal, capital city of Lwów, Semper Fidelis, because this is my homeland. There, my family, and I were born, and there I finished all my studies from elementary school through High School number VIII to Lwów Polytechnic (my beloved Politechnika Lwowska).



This was a wonderful memorable Lwów until September 1939. Then came ghastly World War II and the Soviet occupation, then the Germans and again the Soviets in June 1944. And I at that time, legally or underground studied chemistry. I reached to the 'wartime engineer chemist' position in May 1944, when, during exams, bombs rained down on Lwów, and most people of Lwów were by the terror of this time displaced from the City. And in the end, just after World War II in 1945, I received my degree at the Silesian University of Technology in Gliwice, and in 1949, I received my doctorate at the Technical University of Gdańsk.

As I was a child and then a teenager, I tried to follow the example our family friend, Jan Czekanowski, father of Polish anthropology, who was a Professor at Jan Kazimierz University in Lwów. I remember how he was granted membership in the Polska Akademia Umiejętności in Kraków, and I was very impressed. Another family friend to follow was Rudolf Weigl, professor of Jan Kazimierz University in Lwów, a creator of the first effective vaccine against typhus.

It was in his institute in Lwów where my father, my younger brother and I were saved from Soviet and German persecution and death. There, as a manager of lice breeding facility I 'took care of' the most outstanding Polish mathematician of the twentieth century, who was born in Kraków, prof. Stefan Banach. Banach like other 'Weiglowcy', was feeding lice with his blood in Lwów. After the war, Banach was invited to lead the Department of Mathematics at the Jagiellonian University, but never made it, as he fell ill with bronchial carcinoma and died in August 1945 in Lwów. He was buried on Lyczakowski cemetery in a tomb of Riedel Family next to Konopnicka and close to my Trzywdar family grave. Professor Weigl, in turn, died in Zakopane and rests on the Rakowicki Cemetery in Kraków.

Already during my studies in Lwów, under the influence of the lectures of Leopoldian professors, Jozef Sucharda, I decided that my specialty will be chemistry and genetics of bacteria and yeast, as well as biotechnology. Fate wanted it this way, with my help, that in 1946-1950 I organized the lectures on bacterial engineering in Gdansk and simultaneously in Copenhagen, where I worked on the genetics of yeast in the Carlsberg Laboratory, and then from 1950 I permanently moved to the United States. First, I worked in the antibiotics industry (Wyeth Inc.) and soon thereafter went to Cold Spring Harbor Laboratory (CSHL), which became the World-renowned center of molecular genetics.

Ever since junior high in Lwów my main goal was to determine the chemical basis of life. Work of Avery-MacLeod and McCarty (1944) showed that the polymer of DNA is a chemical carrier of genetic information and my colleague Al Hershey at CSHL showed it more convincingly in bacteriophages. In addition, my friend from CSHL, Jim Watson, 7 years my junior, along with Francis Crick, discovered the chemical structure of DNA in 1953. This structure was to me like a miraculous revelation. And then, in 1953 it became clear to me why DNA is the basis of life:

- (1) First of all, because it may indeed copy itself in a complementary way
- (2) Secondly, it may encode other polymers, such as RNA and protein.

As a chemist, I immediately got tempted to try to chemically modify DNA and determine if such modified DNA could still retain its functions of life. We managed to show it was indeed possible. I did it with Poles Zofia Opara-Kubinska and Stefan Zamenhof, whose uncle Ludwik was the creator of Esperanto, and has a beautiful tomb in the Jewish Cemetery in Warsaw.

Since the bacterial transformation worked with modified DNA, we decided to synthesize a completely new synthetic DNA and check whether it was active. I called this type of experiments "synthetic biology" and this name had slowly caught on and is now the new, huge department of modern biology.

I, as a chemist, proposed about 40 years ago, the new field of Synthetic Biology to retain an analogy to Synthetic Organic Chemistry, which was founded in 1828, when the first organic compound, urea, was synthesized in the laboratory.

Because this note was supposed to be short, the information about the further work of my team in these areas can be found elsewhere.

I remember when in 2008 I visited Poland with Nobel Prize winner Jim Watson, author of the international bestseller "The Double Helix," and his wife Liz. At the end of the visit, Watson insisted that he missed out so much by not having visited Poland earlier and Liz wrote that this was Her Trip of Lifetime. I was so glad to show Poland to my American friends.

Since my departure from Poland at the end of the 1940's, I have always stayed in close contact with the Homeland, Polish science and scientists, starting with Warsaw's scientists (Tomasz Dobrzanski, Andrzej Koziński, Zosia Opara Kubińska, Tabaczyński, Małgosia Lobočka) and then with Gdańsk's (Edward Borowski, Karol Taylor, Jagoda Podhajska, Tadeusz Kaczorowski, Sławek Sektas), Lublin's (Zbyszek Lorkiewicz, Hania Skorupska) and also Krakow's (Michal Bereta, Józek Dulak, Aleksander Koj, Joanna Bereta) and many mores.

Once again, thank you, from my Leopoldian heart

Dr. Waclaw Szybalski,
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