

My memories of Professor Zygmunt Zahorski

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Professor Zygmunt Zahorski moved to Gliwice in the early 1970s. He used to be in Katowice at least once a month to take part in so-called “4 o’clock Thursdays” meetings in Wieczorka Street and occasionally was a guest at the sessions that took place in Wisła both organized by Professor Mikusiński. It was probably in Wisła when I met Professor Zahorski and it must have been then and there that he gave me a copy of his work written in Tôhoku in 1941. That is how I got to know about a mysterious theorem by Luzin-Menchoff which in the work from Tôhoku had its own over 4-page long proof whose significance I had not understood yet. I will mention again this yellowed copy of Professor’s work later.

I used to meet Professor Zahorski earlier in Wrocław and met him at my doctoral thesis defence as he was the reviewer of Zbigniew Zieleźny’s doctorate at the same session of the Faculty Board. I was impressed by his straightforwardness which I was able to witness later as well. It could have been 1960 when I was invited to give a lecture at the session of the Łódź Branch of the Polish Mathematical Society. Professor Zahorski was a chairman and after my lecture he made some comments from which I got to know a lot about reparametrization of the domains of functions. It was a rather far analogy to what I had previously said however such remarks were valuable especially in a face-to-face conversation. There is one more thing I remember from this particular morning. There were four people in a small room, then Doctor Stanisław Lipiński whom I was having a conversation with excused himself and left, the two other men were still engrossed in what they were talking about. Suddenly I realised that only one of them was talking and that it was Professor Zahorski. I understood that he was giving a lecture so I left the room unobtrusively. I had heard before about how passionate and selfless Professor Zahorski was when it came to teaching mathematics and now I was able to confirm how true the rumours were.

Professor’s work from Tôhoku included a theorem which, as I could have only suspected back then, showed how to smooth out a given function by a reparametrisation of its domain. I made some of my students interested in the topic. We needed to go back to Hobson to realise how old the problem was. One of my students went through

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Koepcke's individual construction of nowhere monotone everywhere differentiable function and then the next necessary step turned out to be Zahorski's work together with a work by Kaplan and Slobodnik. I congratulated my student on his achievement and let him take the set of copies of the above mentioned works. However, he did not take them saying: "You will need them more." He was right as I returned to Zahorski's work many times if just for pleasure's sake. I noticed that famous Urysohn's lemma is one simple but very particular case of lemmas that Zahorski, Maximoff and mysterious Bogomołowa had to analyse before they reached their final theorems about derivatives. Nowadays reparametrization of Cantor-Lebesgue function's domain to make it everywhere differentiable may be found in more than one Springer magazines, however, the original key is in French 54-page long work by Zahorski published by the Transactions AMS in 1950.

Let us go back to Tôhoku. Zygmunt Zahorski, before he became a doctor, had sent two works from Soviet Lvov in June 1941. One of them was sent to Japan and the other one to *Matematicheskij Sbornik* in Moscow. They are known to have reached their recipients in mid-July 1941. One can read in *Sbornik*: Zygmunt Zahorski Lwów, and Lvov in Tôhoku.

When Professor Zahorski dedicated his work to somebody he did it in a very complex way making his dedication into a unique souvenir. His remarks often include valuable comments. Doctor Roman Witula has in his keeping a typed copy of Professor's Zahorski unpublished work written a few years after World War II. On the margin there is a note: "I have just got to know that Menachem Wojdysławski was murdered by hitlerian beasts in Częstochowa's ghetto." Zahorski got to know Wojdysławski when he himself was Banach's assistant. We know Wojdysławski's pre-war works in the field of topology, however in Lvov he and Zahorski worked together on problems in differential geometry and the above mentioned work deals with one of these particular problems. Lvov became a dangerous place to live in after June 1941 however, for Menachem Wojdysławski it was not possible to come back to Warsaw and that is why probably he chose Częstochowa's ghetto as the seemingly safest refuge.

Polish Mathematical Society gave Professor Zahorski its honorary membership. He died a few years later and was buried in Gliwice's cemetery in a place that resembles a park rather than a necropolis.