

A.M. Zhabotinsky – the scientific advisor of Volodya Deshcherevsky and the first years of their life in Pushchino

In the Publications section of the our web-site, the abstract of the dissertation of Vladimir Ivanovich Deshcherevsky is posted. As you can see, there are three thesis supervisors in the abstract. But the main one of them, who was both the first initiator of the very topic of mathematical modeling of muscle contraction in the life of Volodya Deshcherevsky, and – in the future – the most competent participant in the discussion of the first developments of Volodya Deshcherevsky on his Kinetic model (and then the theory) of muscle contraction, was precisely Anatoly Zhabotinsky.

Both Anatoly and Volodya were graduates of the recently created, young Department of Biophysics at the Physics Faculty of Lomonosov Moscow State University. Tolya was two years older; he is a graduate of February 1961, and Volodya – February 1963.

The graduation work of Volodya Deshcherevsky, student on the Faculty of Physics of Moscow State University, concentrated on the study of the thermal stability of the frog skeletal muscles in the heavy water; the advisor of the work was Igor Andreevich Kornienko. Volodya dissected frogs himself, and, as the girls from the department told me about him, he, before putting them to sleep with anesthesia, kissed every frog – that's why the frogs at the Biophysics department were then called "the bride of Deshcherevsky". As far as I know, this work was highly praised, and Volodya – together with I.A.Kornienko – then prepared the scientific article, which later (in 1964) was published in the Journal «Biofizika».

In the early 1960s, in the village of Pushchino, located on the banks of the Oka River, in the very south of the Moscow region, the construction of a new biological research center of the USSR Academy of Sciences began; and it was already laid the first foundation stone of the first scientific institute, the Institute of Biophysics. It was to this institute, in the so-called laboratory of Physical biochemistry, that Postgraduate student Anatoly Zhabotinsky and student- alumnus Volodya Descherevsky were assigned to work. Therefore, in the winter of 1963, they both, among other scientific youth, came to Pushchino.

To be more exact, at first Volodya, received a red diploma with honours, received the university graduates distribution to a very prestigious place at that time – to the State Research and Testing Institute of Aviation and Space Medicine in the Star City near Moscow. But he was afraid that he would not be able to do “real science” in Star City. In addition, at that time one of the teachers of the Biophysics Department, Ph.D. S.E. Shnol, was assembling for himself a laboratory at the newly creating Institute of Biophysics in Pushchino, for which he efforted to select the most talented guys. Both his PhD student, Anatoly Zhabotinsky, and student- alumnus Volodya Deshcherevsky were on his list, and the new boss managed to change the distribution for Volodya.

Pushchino in those years was just a big construction site. Homes were built in parallel with the building of the institute, but only some of them were ready. And so, in one of them old-fashioned folding beds were placed and a dormitory was set up for young scientists.

But we need to tell you a little bit about the circumstances of their life at that time.

The windows were not insulated, and it was bitter cold. Guys tried to add heat with the help of the improvised heaters, made from bricks: building bricks with holes were wrapped with a wire, and a current was put through the wire. The smell was, of course, specific, therefore the second name of heater was – “kozyol” (the goat). There was even a case that because of such a heater one night a bed caught fire under one of the guys, and with difficulty managed to avoid a fire.

Hot water, gas, etc. – were out of the question. For the weekend Muscovites used to go home to Moscow (take a bathe and change their clothes). Youth from other cities – enthusiasts who came to the almost empty place, to start their way into science taking part in creating from scratch of a new scientific center – usually used a Russian bathhouse together with builders of the town.

And everywhere on the streets was a nightmarish mud, – as it was usually the case in the USSR during a large constructions. Even in houses already built and entered into service, it was impossible to go from one entrance to another without high rubber boots...

But in the dormitory, of course, conversations about science did not stop. Tolya Zhabotinsky stood out very much among the guys with his knowledge and ability to understand almost any, the most complicated issue. He, even earlier, in Moscow, was a very unusual student. Once, for example, during an examination session, he, during the exam, managed to impress the examiner with his conversations in such a way that the one was not allowed to entrance in the subway afterwards, suspected to be drunk. We know about this case from the words of this examiner – it turned out to be namely I.A. Kornienko, Volodya's supervisor in his Diploma.

Tolya always loved to share his knowledge with others. Therefore, in the very first years in Pushchino, he organized a small seminar from the guys, at which they discussed various scientific problems. They were gathering first in the dormitory, and after, when some more houses were built and entered into service, – in the apartment of one of the participants.

The guys from various laboratories participated in the seminar, so each of them worked on some of his own topics at work, and at the seminars it was very interesting for them to share with each other how the work was going and discuss the challenges encountered. For example, one of the members of the circle was Vitaly Kryukov. He then worked just as an engineer, but he really wanted to move into science, he was interested in the topic of neural networks. Now, as far as I know, he also became a well-known researcher in his area of science¹.

In addition, Tolya Zhabotinsky regularly traveled to Moscow and in the scientific library of the institute where his father worked (professional physicist, Doctor of Technical Sciences), he was looking through the so-called exhibition of new acquisitions. Tolya, unlike the vast majority of guys, knew English well and could read scientific literature in English fluently. And then, in Pushchino, he was telling them everything he learned from the novelties received by the library.

Tolya himself was quite satisfied with the topic of his postgraduate scientific work, but Volodya's things were different. His supervisor for the beginning offered him to continue investigations related to light and heavy water – but no specific scientific task was identified. Volodya received only two English articles by Scheraga, so that he could translate them from English and then to find himself a scientific task. Volodya could not do this in any way, and therefore his mood was poor.

But one day at the next "Zhabotinsky seminar" Tolya spoke about a new article by Andrew Huxley in one of the English journals received by the library. Tolya knew this name, he was aware of the first theory of muscle contraction put forward by this English scientist, so his account was very detailed and very interesting; and Volodya turned out to be the most interested listener.

And since then, Tolya brought summaries of A.Huxley's articles from Moscow and Volodya discussed with him at beginning the first glimpses of ideas, which then turned to be the kinetic model he was developing and then it became his theory of muscle contraction.

Therefore, when the work was ready for the defense of the dissertation, Volodya put A.M.Zhabotinsky as the head. But, it was explained him that according to the rules existed, he was obliged to include two more surnames – the director of the Institute, as well as the head of the laboratory in which both Tolya and Volodya worked. That's how it turned out that three Scientific advisors are listed in his Abstract of Thesis together. But Volodya himself has always considered Tolya, Anatoly Markovich Zhabotinsky, to be his main advisor and initiator of his work.

¹ And that's despite the fact that he later joined the church: he is now the well-known abbot Feofan in St. Danilov Monastery. His son and his granddaughter tell very interesting about him <https://www.pravmir.ru/nauka-molitva-i-son-na-zhurnalnom-stolike-kak-moj-uchenyj-otets-ushel-v-monastyr/>; <http://armih.cerkov.ru/xram/istoriya-xrama/lyudi/igumen-feofan-kryukov/>