

IN MEMORIAM

LEV M. BERKOVICH (1935–2007)

Peter Leach

Lev M. Berkovich died on the 14th of March, 2007.

Lev was a constant and prolific contributor to *Publikacije Elektrotehničkog Fakulteta - serija Matematika (PEF)* with papers dating as far back as 1968 when he was still a young man. His last paper appears in the first issue of *Applicable Analysis and Discrete Mathematics (AADM)* and the extent of his contributions can be gauged from the length of its extensive bibliography. From 1992 Lev was a member of the Editorial Board of the *Publications* and seemed intended to continue as a member of the Editorial Board of *AADM* indefinitely. The journal will miss his services.

The name LM Berkovich is well known in the area of nonlinear ordinary differential equations and his contributions to the resolution of these equations in closed form are significant. He is particularly known for his development and use of the factorisation method. At the meeting in Belgrade we agreed to commence a collaboration to explore his factorisation method from the viewpoint of symmetry under the general philosophy of Lie that symmetry is the underlay of any method for the resolution of a differential equation just as soon as some other projects were completed. Such are the vagaries of life.

Lev and I first met at the Lake Pavlovsky Tourist Camp, somewhere in the backlands of Ufa, Russian Federation, in 1991 at one of the MOGRAN meetings organised by NH Ibragimov. The location by road never became obvious as I arrived by helicopter and we all departed by boat. Lev was quite familiar with my work and wished to discuss matters with me. The problem was that Lev did not speak English and my attempts to learn Russian had been marked by singular unsuccess. A student was dragooned to serve as a translator and we sat at a bench by the lake and the trialogue – actually more of a diadialogue – struggled for some time until the gong sounded for lunch and the student, faithful to his class, departed.

What to do?

Hesitantly I suggested, ‘Parlez-vous français?’ with the hesitance being due to

my inability to understand anything more than the simplest spoken French. Lev was quite enthusiastic with the idea and so we proceeded to make considerable progress with our discussions on differential equations. One of the equations discussed was the system of Ermakov which became known in the West some hundred years after the publication of the result in the *Reports of the University of Kiev* and has been the subject and origin of much research over the last thirty years. As a student at the University of Kiev, Lev learned of the system with his mother's milk as it were. This is just a simple illustration of the depth of his tradition in the field of nonlinear ordinary differential equations. Lake Pavlovsky introduced me to some cultural practices lost in an urban environment such as going to the lake with soap and towel to take a bath. Generally we swam there. Three of us, a selection of the older ones, were persistent at the earlier hours of the day while the younger ones were still coming home from the evening's parties. Memories tend to queue as earlier ones are processed. Another picture I have of Lev is during an excursion by boat up the River Dnieper, the traditional excursion of the symmetry meeting in Kiev. We stopped at the usual island. Lev was one of the first to be ready to swim and for his years looked most robust.

From stories I heard Lev's relations with the authorities were not always comfortable in the past, but things seemed to be easier in his later years. I had the opportunity to meet also his family in 1993 on my last visit to Russia. From time to time we met at other conferences as travel had become easier for him. For example he came to South Africa for one of the MOGRAN meetings in Johannesburg. The tradition established at Lake Pavlovsky continued. The last occasion was in Belgrade when we gathered for the *MAGT* meeting in September. My Greek colleague, the about-to-be-distinguished mathematician Andriopoulos Konstantinos, who joined us for some 'conversations' observed that the French was 'not quite perfect'! This reminds me of another impressive feature of Lev. At *MAGT* he delivered his plenary lecture in English. In terms of its mathematics and its recognition of the contributions made by Serbian mathematicians to his field the lecture was brilliant. It could not have been more conferentially correct. Of the quality of the English any comment should wait until after I have given my first plenary lecture in Russian!

About two years ago, Lev celebrated his seventieth birthday and the occasion was marked by a *festschrift* at his University in Samara, Russian Federation. He was very proud to show me a copy. He did not mention it, but I notice that he has some work with his son published. This is something of which many fathers/scientists must desire, but seems not to be common. I do not envy Lev's good fortune in his son, Feodor, only rue that such was not mine.

One of Lev's last projects was the writing of a book on differential equations of which there was to be an edition in English. One can only hope that his scientific executors are able to realise his ambition.

For myself all I can say is that 'Lev, I shall miss our discussions, both mathematical and other!' and regret that we had not been able to meet earlier in our lives and not to have had the honour to have written a paper or two together.