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# Igor Rotislavovich Shafarevich (1923–2017)

## Not Just a Great Mathematician

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While the other article in this issue will give a glimpse of Shafarevich as a mathematician, and as a teacher at the elementary level, this article-in-a-box goes over his eventful and controversial life. Igor Shafarevich was born to very well educated parents in 1923 in the town of Zhytomyr in what is now Ukraine. As in many Indian families, it was at his mother's parents' place. His father studied mechanics at the Moscow State University and taught at the Engineering Physics Institute among others. The young Igor was brought up in Moscow. He was initially fascinated by history and music when young – his mother was a pianist. One of his childhood friends, Sviatoslav Richter, was later regarded as one of the finest pianists of his generation. History and music remained with Igor all his life, but at some stage, his mathematical talent burst forth in a manner which he said later could not himself explain.

While still at school, he was introduced to eminent mathematicians of Moscow; so he pursued higher mathematics parallel to his school education. As a result, he had a head start in his research which began around his 17th birthday, in 1940. Delone and Kurosh were major influences whom he recalls as diametrically opposite – one classical, urging him to read Gauss and Hilbert, and the other more modern, dismissing all formulae of earlier centuries as mere accountancy. His candidate's degree (like a first doctorate) coincided with the German invasion of Russia in World War II, which meant moving away from a besieged Moscow into the Asia republics – Uzbekistan and Turkmenistan. By 1944, with Germany in retreat, he was back in Moscow, teaching at the famed Institute of Mathematics and Mechanics of the Moscow State University. By 1946, he had his Doctor of Science degree and an Associateship with the Steklov Institute of Mathematics of the Soviet Academy of Sciences. It is necessary to appreciate that in Russia of that time and perhaps even today, the Academy is the highest body and very exclusive. So this was a clear recognition of his achievements and talent. He went on to fully justify the faith the system had placed in him. His teaching was regarded as charismatic and outstanding by the most critical audience possible – people who later became professional mathematicians. His book on Algebraic Geometry is read worldwide even today.

In the Russian system of that time, the measure of influence and impact was not in funding, or papers, or even invitations to conferences. The true measure was the 'seminar.' This was a regular meeting where visitors, students, postdocs, and colleagues, came together to speak and discussed the latest results, ideas, and plans for future work. The seminar would go on for hours on end, with interventions and the final words of wisdom coming from the presiding



professor. At their best, the seminars acted as catalysts for the development of a whole area of mathematics and other sciences, and its practitioners – the nucleus of a school. Shafarevich's seminar was one such. We have referred to another Russian mathematician, Vladimir Arnold, in an earlier issue of *Resonance* (Vol.19, No. 9, 2014) – he too ran an influential seminar.

In 1949, Shafarevich was dismissed from the Steklov Institute along with others as part of a political upheaval in the Stalin era. He was reinstated in 1953. He was dismissed from the Moscow State University in 1975. To understand these and later events in his life, it is necessary to bring out Shafarevich's social and political views. While open criticism would have been fatal in the early nineteen fifties, he was always privately critical of the entire communist system in Russia and indeed anywhere. He wrote an elaborate study entitled *The Socialist Phenomenon* drawing on a wide range of historical events. He argued that socialism was a deep-seated historical trend running counter to family, religion, individuality, and even national identity. A web version of this book is available at: <https://archive.org/details/SocialistPhenomenon>

His scholarship is shown by the extensive list of references. There is even one to S Radhakrishnan's book on Indian philosophy, to make the point that Buddhism was also socialist in its sense of annihilating the individual in favor of the collective! His opposition to the regime was not purely academic. He was associated with two Nobel Prize winners – the writer Alexander Solzhenitsyn and the physicist Andrei Sakharov who were courageous critics of the regime – both labeled as 'dissidents'. All this won him attention and approval in the Western circles. On his part, he valued his early contacts with the wider world community of mathematicians, all the more, since travel outside the Soviet Union was very difficult for anyone, let alone someone with his political views. He records that his first experience at a conference in Edinburgh felt "...like reuniting with a long-lost family whose work I know in detail and who knows my work in detail..."

However, Western circles were in for a shock when he went on to expound his views on Russian history, most famously in an essay entitled 'Russophobia'. This was widely labeled as anti-Semitic, i.e., against the Jewish people. This was an ultra-sensitive issue given that millions of Jews were killed during World War II in Hitler's Germany. There was a widespread outcry in the US asking him to resign from their National Academy of Sciences. He took the viewpoint that since the Academy elected him, it was up to them to remove him – it did not finally happen. Most obituaries take this anti-Semitism as a given. However, he and others pointed out that he had helped individual Jewish or half Jewish students, so the labeling was at least oversimplified. His position was that he was not anti-Jewish but pro-Russian people and their traditions. He felt that the communist regime and equally the intelligentsia – the educated upper classes of his time with a modern, international outlook, were insensitive to, if not downright against what he felt was the soul of his nation. It just so happened that many of this intelligentsia were of



Jewish origin! Shafarevich himself was hardly a peasant; he would himself satisfy any normal definition of the word ‘intelligentsia’, but championed his own view of national character and destiny.

A balanced account of his politics and the way it linked with his life and philosophy is given by the eminent mathematician David Mumford in his post:

[dam.brown.edu/people/mumford/blog.html](http://dam.brown.edu/people/mumford/blog.html)

Mumford corresponded with Shafarevich and did not agree with him. But he does make the point that the deep rift and ultimate confrontation between a rootless, liberal, internationalist elite, and a majority rooted in their local, regional, or national character is a widespread phenomenon today. He cites the recent US election, but surely there are examples everywhere. His post is well worth reading, and through it, one sees Shafarevich not as a fanatic, but as a product of his own beliefs and his times, arguing carefully in a manner that cannot be easily dismissed, for positions which he knew to be unpopular. Politics apart, his legacy as a mathematician and as a teacher will endure.

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