

My Guide Professor G.V. Samsonov: Memoir

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It was September, 1966, when I was informed by the Ministry of Education, Government of India, that I have been selected under Indo-USSR Exchange Program for higher studies and research in USSR. I was in darkness as to where I shall be placed after reaching Moscow. After arriving at Moscow in October 1966 and staying for two days, I was told to proceed to Kiev, the capital of Ukraine, to join Kiev Polytechnic Institute (now National Technical University of Ukraine). I had no knowledge of Russian language and the Secretary of the Dean of Foreign Students of the Institute welcomed me at the Railway Station. It is accidental that while employed at the University of Roorkee, India on its Metallurgical Engineering Faculty, I used to receive the information about the English translated Russian scientific books published by Plenum Press, New York. There I first noticed the name of Professor G.V. Samsonov and his vast literature on refractory compounds. I was struck and correctly thought that he is an eminent Soviet materials scientist. My enquiry with the Dean Office confirmed that he is part-time associated with the Department «Powder Metallurgy and Rare Metals» as its Head. My request to meet Professor Samsonov was readily accepted by the Institute and an appointment was fixed. Few days back in the Institute book shop, I noticed in the paperback Proceedings of the Faculty of Mechanical Technology, a paper by Professor Samsonov on refractory carbides. I could understand the gist from the English abstract of the paper. I bought the book and showed the article to Professor Samsonov suggesting that my research interest lies on similar type of material. Professor Samsonov accepted me in his department and next day sent a bunch of papers on refractory carbides in English and Russian for my study. After three months of rigorous training in Russian language, I had to deliver a seminar about my research carried out at the University of Birmingham on early transition metal hydrides. In Kiev I selected to research on the properties of Nb—Ti, Nb—Zr alloy mono-carbides in their homogeneity range. Samsonov was a hard task master and inculcated the habit of deep thinking on the results of the investigations. From the properties, he was not limited to only one property,

but a series of properties: mechanical, electrical, magnetic, and thermal etc. He was strong proponent that the core of all properties are the same the electronic structure and bonding in the concerned material.

Samsonov encouraged his research students to write papers based on their investigations. This practice naturally helped us in polishing our research directions. In those days all research students used to submit their papers to the guide in hand written form and in return it was impressive to see the corrections/suggestions in red ink. He never reprimanded, but insisted that the mistakes done once must not be repeated. This kept all of us on our toes. Gradually the situation improved and he was satisfied by my first version of manuscript with minor corrections. His memory was sharp and he was a keen watcher.

In the Summer of 1968, I travelled to Austria to present our research paper on refractory carbides in the famous 6th International Plansee Seminar. Professor Samsonov was to receive the prestigious Plansee Plakat in the inaugural session. He could not attend the Seminar due to unavoidable circumstances and on his behalf the award was received by Dr. Ribalchenko of Baikov Institute of Metals, USSR Academy of Sciences, Moscow. The citation was read by Professor H.H. Hausner of USA. I defended my Ph.D. thesis in June, 1969. It was nice to hear the praise from my supervisor Professor Samsonov in public. The external examiner was Dr. K.I. Portnoi of Institute of Civil Aviation Materials, Moscow, who along with Samsonov had published a book entitled «Alloys based on refractory compounds» (Publisher: Oborongiz, Moscow, 1961). The Internal Examiner was Dr. G.N. Makarenko of IPMS, Kiev.

Soon after my getting the Ph.D. degree, Professor Samsonov proposed me to write a book on Materials Science of Refractory Carbides. I promptly accepted it with a condition that he has to be a co-author, which he accepted gladly. Later, he suggested to include Dr. V.S. Neshpor (Saint-Petersburg State Institute of Technology), his past student at Kiev, as an additional co-author. I accepted his suggestion. It was the Summer of 1968, when Professor Samsonov invited me to visit his

Dacha at Irpen, a suburb of Kiev in the country side. After the lunch, he gave me a bundle of reprints on refractory carbides, which he had in his personal library. I was aware of some of those, particularly the English ones. My job was relatively easier as I had done extensive literature survey for my thesis. I whole time devoted myself in book writing and the first typed version was submitted to him after few months just before my departure from Kiev to India in December 1969, where I had to join the University of Roorkee as an Associate Professor. Dr. Shluko of KPI was a good facilitator in getting my hand written manuscript typed in the Institute. From my working place in India, we were in constant postal communication. Ultimately, our collective effort came in form of book in Russian «Physical Materials Science of Carbides» published by «Naukova Dumka», Kiev in the year 1974. At the back of the book it was mentioned that 1250 copies were printed. Later I came to know that Professor Samsonov specially purchased few copies of the same and sent to me in India. The book had excellent reviews in the prominent scientific journals of the world. Our letters used to have scientific discussions. He regularly sent me relevant scientific books in Russian spending his own money. I later came to know that the packets were delivered to post office by his wife. It is pity Professor Samsonov died prematurely in the very next year at the age of mere fifty eight years. The whole scientific community grieved.

Samsonov did contribute a lot in strengthening the International Institute for the Science of Sintering (IISS), which had its Head Quarters at Serbian Academy of Art and Science in Belgrade. The General Secretary of the institute was Academician M.M. Ristic. Professor Dragon Uskokovic in his memoir published in the current issue has thrown sufficient light. I am proud to be the recipient of the Samsonov Prize instituted by IISS in the year 1993 for the best paper published in the Journal Science of Sintering.

I joined the famous Indian Institute of Technology as full professor in the area Powder Metallurgy in the beginning of 1976. It is pity Samsonov could not know about my new position. After his death, I attended the

International Powder Metallurgy Conference organised by Professor Fedorchanko of IPMS at Kiev in the year 1977. It was the occasion I met Samsonov's wife Nadezhda Aleksandrovna at her residence to convey my personal condolences. I also paid homage to the Baikove Cemetery, Kiev where he was buried. This was my last visit to Kiev.

The Institute of Materials Science Problems of the National Academy of Sciences of Ukraine at Kiev did organise International Conferences in memory of Professor Samsonov, primarily being in the years 2008 and 2018. The Proceedings of the conferences speak a lot on the continuation of research, in which past colleagues and students of Professor Samsonov contributed so significantly. I am in particular proud to be the recipient of Samsonov Award instituted by the Ukrainian Materials Research Society, Kiev for the year 2013. So, I am lucky to be a part of two awards in the name of G.V. Samsonov.

In the year 2001 I retired from the services at IIT, Kanpur and got engaged as consultant. In the year 2012, I established an Endowment International Lecture Series in the area of Inorganic Materials in memory of my teacher Professor Samsonov at the Indian Institute of Technology, Kanpur. The lecture is an annual event, where eminent speakers from abroad and India participate alternately. The inaugural lecture was delivered by Professor E.J. Mittemeijer, Former Director of Max Planck Institute for Materials Science, Stuttgart, Germany in the year 2012. Another lecture was by the good friend of Professor Samsonov, late Dr. Rostislav A. Andrievskii (2014) of Institute of Chemical Physics, Chernogolovka, Moscow.

On the Centenary of this great scientist Samsonov, we all remember him with gratitude and reverence. About his scientific contributions, I have briefly penned down separately (refer *Poroshkovaya Metallurgiya*, 2018, No. 1/2, P. 12–16; English translation in «Powder Metallurgy and Metal Ceramics», <http://link.springer.com/article/10.1007/s11106-018-9950-8>).

Another account is published in the current issue in the paper authored by V.Yu. Dorofeev et al.