

guest comment

A view from the Volga

Timothy E. Toohig

From September 1978 till June 1979 I was resident in Dubna, a small city about 70 miles north of Moscow, doing research at the 10-GeV Synchrophasotron. Dubna exists for the Joint Institute for Nuclear Research, a cooperative effort of the Eastern bloc countries including now Vietnam and North Korea. Before the schism it included also the People's Republic of China. The population of the city, while dominantly Soviet, is a microcosm of the Socialist world—Poles, Slovaks, Hungarians, East Germans, Cubans, as well as the Vietnamese and Koreans. The Soviet community reflects the ethnic diversity of the Soviet Union—Russians, Uzbeks, Ukrainians, Armenians, Georgians, Tajiks... I was the only American physicist in residence at this time with the exception of a programmer from the State University of New York at Albany, John Phelps, who came for two months.

"Why did I go?" and "What was it like?" might be useful questions to address in the present climate of US-USSR relations in the physics community.

A word about background: I am a senior physicist at the Fermi National Accelerator Laboratory, usually involved in some administrative role with respect to the experimental program. At the time I went to the Soviet Union I had just completed a term as head of the Meson Area Department. I am also a Jesuit priest—which is well-known in Soviet high-energy physics circles although not officially noted. In 1971 I joined the collaboration formed by the late Darrell Drickey of UCLA to measure the pion form factor at Fermilab energies. This continued the pioneering work of Drickey and Soviet colleagues at Serpukhov, the first US-USSR collaboration.

From the beginning, Fermilab has maintained a vigorous program of collaboration with the high-energy physics community in the Soviet Union. This effort was due to Robert Wilson, the first director, and Edward Goldwasser, the first deputy director. Both men believed strongly in the value of collaborative re-



Experimental group at the 10-GeV Synchrophasotron, Joint Institute for Nuclear Research in Dubna, USSR, including visiting Fermilab author, Timothy E. Toohig, seated in front row with glasses.

search. For this reason Fermilab has played host over the years to a large number of Soviet physicists with their families, particularly those from Dubna.

It was natural for the JINR group headed by Edouard Tsyganov with whom Drickey worked at Serpukhov to join the Fermilab experiment. Three members of the group, including Tsyganov, came to Fermilab to take part. They remained for the measurement of the pion factor at 100 GeV/c, and the kaon and pion form factors at 250 GeV/c using precision drift chambers built at JINR. A group from SUNY took advantage of the precision of the Soviet drift chambers to take a preliminary look at the phenomenon of channeling by single crystals at very high energies. When the Soviet group returned to Dubna with their drift chambers it seemed to be of interest to continue the channeling studies using the Soviet accelerators at Dubna (10 GeV) and Serpukhov (76 GeV). I went to the Soviet Union as a collaborator in this effort.

In anticipation of a long, cold winter I arrived with a great deal of luggage. No search was made at customs other than to examine a crucifix that I had declared as an art object to preclude difficulties on the way home. I was met at Sheremetyovo by Tsyganov with an institute car and driver. At Dubna I settled into a spacious, well-furnished apartment complete with a view of the Volga and a color TV. (Later a shortwave radio appeared when it was learned several days after the event that I was unaware of the

death of Pope John Paul I.) I also had a Volga station wagon with an unlimited supply of gas coupons (ah, for the good old days!). By exception I had free access by car to the various laboratories of the institute. (Soviet personnel were required to leave their cars outside the gate and walk.) Also by exception, the vehicle was not subject to search on entering and leaving. Finally, to compensate dollar conversion problems, I was given 300 rubles a month in lieu of Fermilab *per diem*. So, my Soviet colleagues were at pains to reciprocate the hospitality extended by Fermilab, even when it conflicted with their local regulations.

I traveled relatively freely during my stay. During the first month a visa was required each time I drove to Moscow. After that a monthly pass was routinely issued and I came and went at will. For other cities outside some radius a visa was required, but this was issued routinely. Besides Moscow I was able to drive to Zagorsk, Vladimir, Suzdal Novgorod and Leningrad without Soviet escort. I visited Tashkent, Bukhara, and Samarkand in Middle Asia, Yerevan in Soviet Armenia, and Novosibirsk in Siberia.

Why did I go? First, to do physics. For all the years at Fermilab and before that at Brookhaven there was no time for research because of the pressures of putting other people's experiments "on the floor." The continuation of the channeling experiment at a distance of ten thousand miles from administrative responsibilities was a strong temptation. This motive

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was reinforced by curiosity about a culture that is so different from ours yet impacts it strongly. Finally, there was the belief, in the face of the pressures not to go, that progress in human relations is not made in the absence of communications. In Winston Churchill's phrase: "Better jaw, jaw, than war, war." I have many friends among Soviet physicists—my own collaborators and many others who had worked at Fermilab over the years. It was a chance to "walk in their moccasins."

What was it like? First, as a Jesuit going to live and work in an officially atheistic country I must admit to some initial trepidation. This was not helped by the image of the Soviet Union as projected on the American consciousness. In practice, I was not conscious of any surveillance or restrictions except as noted above. The day-by-day concerns of my colleagues and of the many citizens of Dubna whom I met were the same as those in the US—how their children were doing in school, whether they would get into the university, how to get support for their next experiment, and so on. The frustrations of bureaucracy were more evident there than here—although we seem determined to overtake them.

With respect to the dissidents, the attitude seemed to be one of incomprehension. The Soviets I met were not unaware of problems in their country. But the often-described, almost mystical, love of Russians for their country is still alive also in the intellectual community. The strong patriotic feelings I experienced in Dubna on 7 November evoked vivid memories of boyhood Fourth of July in a small town in Massachusetts, before Korea and Vietnam made patriotism unfashionable. In this framework people seemed not to understand, and not to sympathize with the dissidents—any more, I suspect, than we sympathized with a Pontecorvo or Kapitsa in the "Thirties."

Was it worthwhile? Unequivocally, yes. As I am happy with my work and people at Fermilab, so I was happy at Dubna. We did some physics that, though not world shattering, was interesting. I deepened my friendships and made many new friends. It was also a unique opportunity to experience a system that, unlike Western Europe, is totally separate from our own. I learned to love the goodness of the Russian people, their patience, their hospitality. In turn I was able to impart to them some understanding of our country, to respond to the perplexed question, "Why do the American people want war?"

I think that was far more useful in the cause of peace and human rights than either threatening with nuclear annihilation or refusing to communicate with colleagues and fellow human beings. □

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