

## **Memories of visits to Russia and the Former Soviet Union (FSU)**

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At the suggestion of Dr. Hecker I have compiled some recollections of the many trips I have taken to Russia and the FSU, recognizing that several years have elapsed. I had written official trip reports for all of my foreign travel even after I retired from LANL. I don't repeat that information here, but instead focus on many other aspects of a more personal nature. I feel fortunate to have had the opportunity to travel widely to areas in which travel had been difficult for many years.

First, a little about me. I was born in the UK and obtained my Ph.D. from The University of London in chemistry (inorganic reaction mechanisms) and subsequently came to the US, as I was awarded a post-doctoral fellowship at The State University of New York in Buffalo, where I met my future husband, Rod Mason. He was working at Bell Labs but had been sent to Los Alamos to learn computer simulation. He loved the work at Los Alamos and decided, after returning to Bell Labs, that he wanted to work at the Los Alamos National Laboratory (LANL). Shortly after our marriage we left New Jersey and have been in Los Alamos approximately ever since. After a couple of years I was hired into the Chemistry Metallurgy Baker (CMB) division where I worked for Mel Bowman on thermochemical hydrogen cycles. This was followed by a stint in the intelligence division, and then the environmental group. I finally ended up (after a few trials) working for Stan Zygmunt in the Russian/US/French MOX Fuel Project. I enjoyed it. But, as happens with many programs, after about three years, it was cancelled overnight. I lost my job, my team leader position and my reason for working. I tried a different position (going to Vienna a couple of times) but it did not have the same draw for me and after about a year I retired, having worked for LANL for about 30 years. I enjoyed the freedom to bicycle every day but kept my contacts at LANL and continued working for the Institutional Animal Care and Use Committee (IACUC). Arvid Lundy who had been my group leader many years earlier arranged for me to work at the IAEA in Vienna twice for two-week stints, which I enjoyed.

So you can understand why, when I got two e-mails shortly before I left LANL, wanting volunteers to go to Russia and the Former Soviet Union (FSU), I leapt at the possibility. I had been learning the Russian language and still take lessons. I also took part in the Los Alamos-Sarov Sister Cities Program and worked with Russian partners for the International Science and Technology Center (ISTC).

### **Introduction**

Over the time frame 1999 to 2008 I often went to Russia for a variety of programs. I enjoyed all my many interactions with Russian (also Kazakh, Kyrgyz and Tajik) friends and colleagues and I am sad that the opportunities have passed.

I have divided my visits into categories listed below.

- 1. Visits while employed at Los Alamos National Laboratory (LANL)**
  - a. Environmental Conferences 1997, 1999
  - b. MOX Fuel Project. 1999 – 2003
- 2. Visits after retirement from LANL**
  - a. For the International Science and Technology Center (ISTC), 2005- 2008
  - b. For the U.S. Civilian Research and Development Foundation (CDRF), 2005-2008

## 1.a. Environmental Conferences

### Almaty and Kurchatov City, Kazakhstan April 1997

I was invited to visit the Kazakhstan National Nuclear Center (NNC) in Almaty under the auspices of UNESCO in order to put in place a collaborative agreement for the establishment of a virtual laboratory to study radio ecological problems in Kazakhstan by sharing data through the Internet. Nancy Marusak was also invited because of her expertise with GIS (Global Information Systems). This collaborative effort was initiated by the French so we stopped in Paris for consultations at UNESCO.

In Almaty we stayed in a Soviet-type hotel with a lady in the corridor on every floor. I bought three paintings of horses from a painter in a street market close to the hotel.



On our arrival, we first were taken to the US Embassy, a small building behind very strong railings. In our innocence we had not realized we were supposed to register our visit before we arrived. The officials duly registered us. After visiting the Almaty offices of the NNC, I flew to Semipalatinsk (Nancy stayed in Almaty) and then went by taxi to Kurchatov City. I was accompanied by Dr. Dias Daukeyev. There were various talks and visits to Labs and the Atomic Museum, where I was photographed with my finger on the red button. (I think every visitor is photographed so). I met the director, Dr. Yuri Cherepnin, and gave a briefing about LANL and the surrounding ecology.



The next day we went to the Experimental Area where the first Soviet nuclear explosion took place, driving to the test site in an uncovered jeep, through desolate uninhabited country but the birds were singing. One of the officials was Dr. Ptitsa – the environmental specialist (but since ptitsa is the Russian word for bird I wonder if it was just a joke?) There were no enforced controls and the barracks on the way were occupied by nomads. The experimental area was arid and flat. Around the explosion area there were several destroyed bridges and two perpendicular lines of towers (called geese) for diagnostic equipment at intervals out to about one kilometer. The epicenter of the first shot (detonated 30 meters above ground) is a shallow depression that was full of flattened reeds from a recent snowmelt. Shattered concrete bunkers were nearby as well as vitrified rock encapsulating plutonium.



Recent trenches had been dug in several directions by people scavenging copper cable. They could have been stealing it, but since no one was sure to whom the cable belonged maybe they were just taking it. In fact we saw someone in the distance with a blue car doing just that. I was then taken to Lake Balapan, a circular crater caused by a nuclear explosion. I was informed the fish from the lake could be eaten but not the bones because of the accumulation of strontium-90.



The whole trip to Kurchatov was depressing. Semipalatinsk is a huge dirty industrial city containing a high fenced area with rusting tanks (about 1000). I was told, accompanied by loud laughter, that this was part of the START reductions. The road to Kurchatov was unpaved and went through long desolate windswept country with few buildings or signs of life. The town of Kurchatov looked as if it had been abandoned yesterday – decrepit buildings, broken windows, empty wide streets with weeds and no one around.

I slept in some sort of guest house. I was the only person and so locked my door carefully. The curtains were attached with paper clips. To wash, I walked through a broken-down empty swimming pool area in the basement. In the morning, I walked to the Irtysh River where a solitary man was peacefully fishing. There was an overall impression of decay and “has been”. No one seemed aware of the natural beauty of the area: a fast flowing river, green vegetation, blossom and overgrown gardens.

While I was in Kurchatov, Nancy was shown around Almaty including a trip to the meat market and a market where you could buy American software (Windows) for \$5. Her disgust at both the meat market and the stolen software was met with laughter. On my return to Almaty, Nancy and I were

taken to the NNC, about 20 km from Almaty. A metal rope across the road was the only security. All the lights were off, the floors were uneven, and the buildings dilapidated. Both Nancy and I gave seminars. These were presided over by Dr. Zhabaga S. Takibaev, an Academician who had been in Moscow with Sakharov. He told us that we were the first American female scientists to give presentations at the NNC.

On our last day we were taken to their show place, an ice rink, Medeo, and together we scoped out the expectations from the visit. These were fulfilled as both Dr. Khromushin and Dr. Daukeyev visited Los Alamos, the former for three months (to learn the GIS software) and the latter to give a seminar and talk to our director, Dr. Hecker. Dr. Khromushin kindly included Nancy and me on his papers.

### **Kazakhstan June 1999**

What a difference two years can make. I was back in Almaty and met my old friend, Igor Khromushin. This Advanced Research Workshop (ARW) had the financial backing of NATO through the Disarmament Program Advanced Research Workshops and resulted in the publication of the proceedings in "Nuclear Physical Methods in Radio Ecological Investigations of Nuclear Test Sites". It was a joint effort between the LANL and the NNC. The meeting was chaired by Drs. Hecker and Kadyrzhanov.

Scientists came from both the premier nuclear facilities around the globe, including the Russian Federal Nuclear Centers and from faraway places like Australia, but, of course, most came from the US and Russia.



Sig Hecker presenting at the ARW workshop

I worked on the organization of the meeting both before, at, and after the meeting with much help from Sergey Kislitsin, shown below. Together we edited the proceedings.



I have a distinct memory of walking through a green wooded park one evening where the citizenry was enjoying simple world-wide pastimes like playing ball, pushing prams and eating ice cream. It came as a surprise, nobody in the US thinks about the universality of these activities taking place hidden in Central Asia.

(My only other visit to Kazakhstan occurred years later on an ISTC audit trip in 2008 that was based in Astana. We visited a former Chemical-Biological Weapons (CBW) Institute, a 3-hour drive north from Astana, over poor roads. On arrival we found the transformation to a non-military institute complete and very up to date. With some pride the scientists showed us a plaque in the ground dedicated to the removal of the last CBW last agents.)

### **Snezhinsk, Russia, June 1999**

My first visit to Russia followed closely after the ARW meeting in Almaty. It was in Snezhinsk (formerly known as Chelyabinsk-70). The meeting on “Large Scale Remediation” was under the auspices of the Scientific Advisory Committee of the ISTC.

I gave a talk in an old-fashioned lecture theatre with an enthusiastic audience about radio cesium and strontium contamination. The attendees were all housed in a shabby guesthouse where we also had our meals. In the evenings many of us walked to the nearby lake, always accompanied by guards and many mosquitoes. The place was confining. One couldn’t go outside without a guard as they sat by the door waiting to “escort” conferees.

One evening we were entertained by young children performing folk dancing in a nearby hall. It was charming and reminded me of years gone by and a simpler life. Another night we had a singing evening in the hotel led by my colleague Steve Gitomer.

On the flight back to Moscow from Yekaterinburg we were detoured to Obninsk as there was no gas there for the regular Obninsk - Moscow flight. I didn’t know this until we were landing and thought Moscow had a small airport.

### **1. b MOX Fuel Project. 1999- 2003**

This project, a trilateral program (US/French/Russian) was designed to convert weapons-grade plutonium into mixed oxide fuel for use in nuclear power reactors. I worked on the Russian program

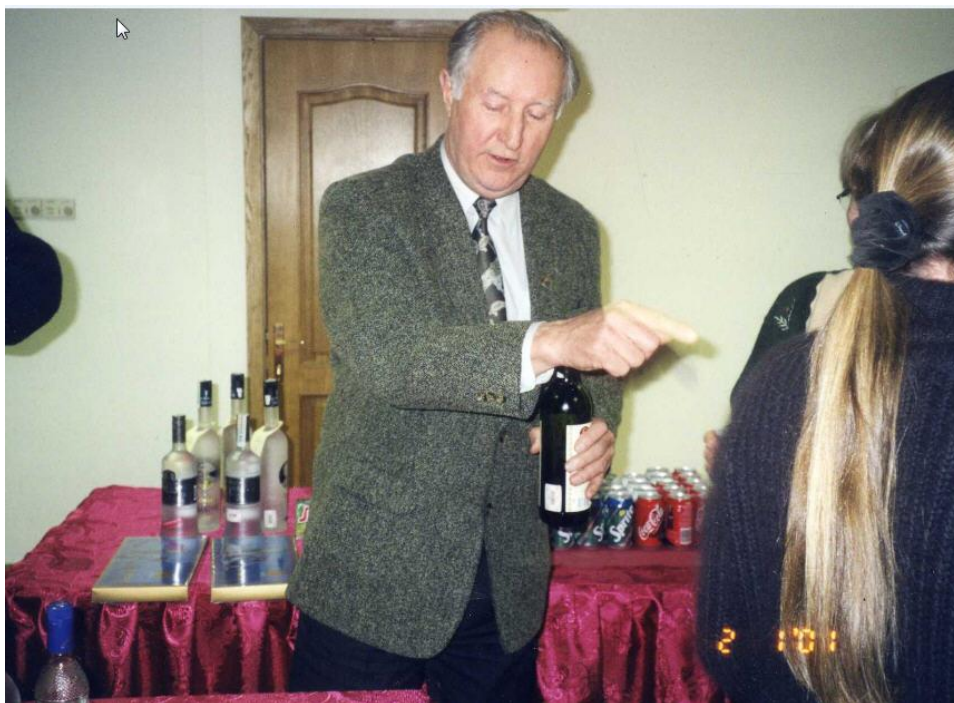
and routinely went to Moscow for progress reports, although sometimes the meetings were in France and Los Alamos. I was in Paris and Cherbourg, visiting La Hague reprocessing center, during and after 9/11. The WWII war memorial in Cherbourg was covered in hundreds of wreaths commemorating the dead from 9/11.

We oversaw progress and corrected reports. This meant going to Moscow two or three times every year. We made advances, albeit slow, developed friendships and indulged in many vodka parties. The program was cancelled in 2003 due to indecision as to who would insure the Russian plant (American design/ Russian materials). I no longer know the status of it.

Many of the meetings were with Bochvar (The Bochvar Research Institute of Inorganic Materials) scientists, although we were never invited to Bochvar. The meetings were held in hotels where we made headway at a slow rate. I made friends and practiced my Russian. At Los Alamos, we bought equipment for several Russian institutes that we were unable to ship because the receiving departments at the institutes could (or would) not prepare the necessary paper work - a huge waste of money.

Of course, every meeting was accompanied by toasts and parties.

Bochvar's Eduard Glagovsky in Moscow:



Eduard Glagovsky and Hecker in Los Alamos:



In Los Alamos, visiting the Plutonium Processing Facility (TA-55)



In Marcoule, France at the Melox Manufacturing Facility for MOX fuels



I should mention that we also hosted the Kazakh scientists Drs. V. Shestakov and B. Berikbolov, in Los Alamos, who together had shown me the uranium museum in Almaty. I was not allowed to take photographs there. They left on May 9, 2000. As we were driving back from having delivered them to their Sandia host, we saw the plume of smoke over the town. The next day the town of Los Alamos was evacuated because of a massive wildfire.

My husband, Rod Mason (right), with the Kazakh scientists, Drs. Shestakov and Berikbolov.





## **2. Visits after retirement from LANL**

### **a. For the International Science and Technology Centers (ISTC), 2005- 2008**

**Overview of ISTC** ([https://en.wikipedia.org/wiki/International\\_Science\\_and\\_Technology\\_Center](https://en.wikipedia.org/wiki/International_Science_and_Technology_Center))

These centers are designed to provide scientific employment to nuclear scientists to prevent their emigration to countries where their skills might be used for the production of nuclear weapons. Scientists write proposal to obtain grants to support their research. Our visits were audit visits to check that the grant money was being spent correctly (two financial auditors) and that the science was also being done correctly (one science auditor - me). So more time was spent on the financial arrangements and equipment inspection bought with grant funding.

The format was the same everywhere. First there were briefings followed by questions. The financial auditors then questioned all the scientists and I was shown the labs where the work was performed.

Except for the inspections in Ukraine and Tajikistan, all the inspections (about 5) are jumbled in my mind: fast taxi rides, cold dilapidated buildings, warm and polite welcomes, excellent English, and shortage of project funds.

There was one interesting glitch in the audit in Ufa. We arrived to be told that there was an oil conference taking place so we couldn't stay in the hotel where our rooms had been reserved. But not to worry as there was a sanatorium about 30 miles away where there was room for us. We were taken there and had a glimpse of Russian life we hadn't seen before. The food was rustic Russian. Trains loaded with coal rolled by every hour all night long.

At the audit in Sarov we were only allowed to stay one night and performed three inspections in one day. Our movements were closely monitored. I was accompanied by a guard on an early morning walk through a beautiful park. It was claustrophobic.

During an audit in St. Petersburg we were shown where Pavlov performed his classical conditioning experiments with dogs at the Institute of Experimental Medicine. It was extremely run down. The dogs did not have good lives.

In general the lack of sufficient project funds was apparent. Although the buildings needed repairs, scientists generally spoke good English and were proud of their work.

#### **Ukraine, June 2005**

I went to Ukraine In June of 2005 on an audit trip that was originally scheduled for November 2004 but was cancelled on very short notice because of the Orange Revolution. We visited two facilities in Kiev (Taras Shevchenko University and Nuclear Research Institute), several in and around Dnepropetrovsk and three in Lviv.

At Taras Shevchenko University, the speaker, Vasil Prorok, presented work on the uptake of strontium and calcium in plants and soil solutions from soils taken from Chernobyl. I had been the ISTC collaborator with him on this project and a coauthor on his papers. Prorok is unfortunately afflicted with a bad stammer so my previous knowledge of the project was useful.

At the Nuclear Research Institute, we saw counting and soil preparation labs with modern Italian counters. The samples were being dissolved on a kitchen stove. The institute buildings were not in a good repair and the grounds were neglected. I was given a flag of the Orange Revolution that I still have on my desk.

Kiev was quiet, with broad streets, markets and hills. From the top of one hill, it is possible to see Chernobyl. The day I was there it was too misty to see the whole 60 miles.



The citizens are proud of Kiev's history. During the weekend I was taken to the Chernobyl Museum, old Kiev, Lavra (a famous cave monastery and mausoleum), Bulgakov's house, the Golden Gate and more.

An effigy of Bulgakov's cat, Behemoth, from "the Master and Margarita" adorns the outside of his house:



We also visited the square of St. Michael where there was an aggressive nationalistic display of folk dancing and music, under the watchful eye of a Ukrainian hero.



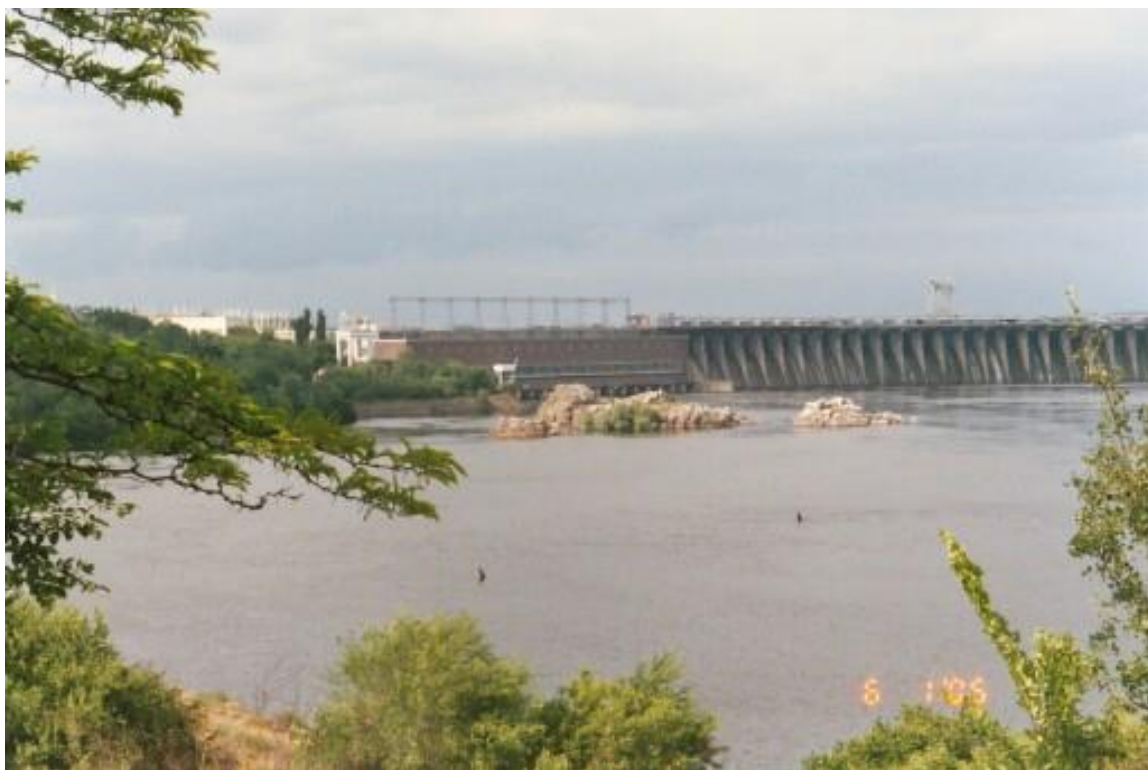
Scientists are not treated well here. I was excited to be invited to dinner with a scientist, Dr. Larissa Brizhik, who I knew through Renate Zinn (a friend in Los Alamos). She was excellent company, spoke impeccable English and had first-rate knowledge of Kiev. Her tiny apartment, in a large apartment complex, spoke to the frugality of lives of scientists. Of her adult children, one lives with her and the other has immigrated to Belgium.

The team took the train to Dnepropetrovsk. The train ride seemed like riding back in time to the country side of Tolstoy and Gogol, speeding through rich green pasture, small rolling hills, individual vegetable plots, with old ladies weeding and young couples holding hands.

Dnepropetrovsk, a large ugly industrial town with little history, strong Russian influences, was less cosmopolitan than Kiev. We inspected large resistors that were to be used for electric power lines and received the usual questions about how to obtain funds. It was lonely as not many people walked on the streets. Some of the scientists appeared to be more interested in their gardens than their research and some of the project leaders were surly, aggressive and not well informed.

One project was in Zaporizhzhya, an industrial town 75 km south of Dnepropetrovsk built in the Soviet style with little houses and vegetable plots. After the presentations, the scientists took us to Khortytsya Island- the cradle of Ukrainian nationalism with Scythians and Cossacks, where large stone prehistoric grandmothers guard the island that overlooks a hydroelectric dam on the Dnieper River.

Here are some of the stone grandmothers. In the next picture they are guarding the new hydroelectric dam.



We returned to Dnepropetrovsk via Yuzhnoe, a large missile complex. It was run down but the staff, (shown below) were friendly and cooperative.



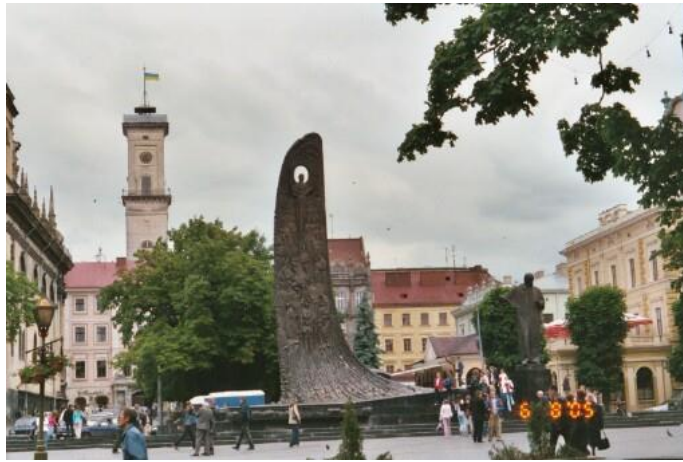
After catching the train back to Kiev we flew to Lviv via Lugansk Airlines, in a 1970s turbo prop. Lviv is European in character, having been subject to many border changes in its history and, consequently, the center of much fighting.

The institutes and town were ram shackled but full of boisterous people drunk on independence. Only Ukrainian is spoken. To quote one scientist: "the regime in Russia was evil. The 20<sup>th</sup> century will go down as the century of failed bad social experiments. Hope we will learn but this is unlikely. Nationalism is scary."

However, you can see from the picture below that the community was joyful.



Lviv was poor, with many winding streets, street markets and an intermittent water supply available only for a few hours every day. Nevertheless the citizenry appeared upbeat and happy. Below is the central square.



At one institute the scientists were concerned with surveying property boundaries which had become obscured during Soviet times and so were interested in GIS and mapping programs. At our last interview at a space science institute, Director Soroka (who looked Japanese) explained to us in Ukrainian how he could control the weather. It was a fitting final act to a trip with many surprises both good and bad.

### **Tajikistan, September 2008**

We flew to Dushanbe (in a small plane carrying 48 people) from a previous audit in Bishkek. From the aircraft there were surreal views, range after range of barren desolate snowcapped mountains, steep arid valleys, a few with roads and dry stream beds. We were met at Dushanbe Airport by a young enthusiastic Tajik, Khushdil, who was our guide for the whole time. He talked nonstop practicing his English. He took us everywhere to the institutes, different museums, (archeology, modern and natural history etc.) and on a couple of expeditions outside Dushanbe.

The next day, Friday, we started work. The institute was dilapidated with weeds, concrete crumbling, uneven steps, dark corridors, bad lighting, worn carpets and eastern toilets. However the scientists were helpful. The lead scientist was a member of the Tajik Academy of Scientists. We learned that the Institute was closed in the winter as there was no heat.

On Saturday, Khushdil took us for a drive up the Varzob Valley. A steep narrow road was being built by Chinese laborers. Cars and lorries shared the road with flocks of sheep and donkeys laden with wood, as well as cows and goats. A comic incident occurred when we were stopped because two trucks were facing each other on a stretch of single-track road with mountains on one side and a shear drop on the other. No way for the two trucks to pass. It took half an hour for one driver to back down and move!

Sunday, after visiting the Museum of National Antiquities with artifacts dating back to BC, we were taken to the Hissar Fortress, an 18<sup>th</sup> Century fortress destroyed by the Red Army in 1924. Only the gate and the outline remain but it is still impressive.

The drive took us through country populated with people in bright colored clothes, selling autumn fruits with goats, cows and donkeys everywhere. I purchased a brightly colored prayer rug (shown below) from the local market, but it had been made in Pakistan.



Monday it was back to work, going to the Hydrology Institute, also crumbling with dirt floors and the labs far too clean for any ongoing work. An interesting project we monitored was dealing with water issues in the Syrdarya River, a continuation of the Navruz project. (Navruz is the project that studies the watershed from the Syrdarya River that passes through several countries. Thus it is a particularly difficult project).

Shown below a map of where samples had been taken.



On my last day I wanted to put my remaining Tajik currency (Sonomi) in a charity box outside a mosque. This made Khushdil extremely uncomfortable: "Hurry, hurry," he kept repeating as I inserted the coins. I still don't know the reason why. Perhaps because it was unusual in some way? Perhaps it was because I was a woman?

We all left on Tuesday. My fellow auditors left on time. I did not and I spent about 12 hours in a crowded hot area outside the airport (the only Caucasian in sight) hoping my flight would leave. It did eventually. I still hear, at Christmas time, from Dr. Mukhabatsho Khikmatov, Head of the ISTC Tajik

Branch Office. He was most helpful in finding information about my flight from Dushanbe and prayed before leaving for the airport to find out first-hand about my flight.

## **2. b CRDF, 2005-2008**

The Civilian Research and Development Foundation (CRDF) (<http://www.crdfglobal.org/>) promotes international scientific collaboration, primarily between the United States and Eurasia, through grants and training. One branch is the Basic Research in Higher Education program that funds selected science institutes through competition to become Research Education Centers (REC). From these institutes graduate students compete to come to English language camp, held in different locations every year.

The format of the camps varied little. The schedule for each day was morning sessions with a science teacher and afternoon sessions with an English teacher. After about two or three weeks of sessions, the students made verbal presentations, with posters, to the assembled student body and teachers. They answer questions and the presentations are evaluated with first and second place awards.

Interactions between students and staff are encouraged and, of course, the language of the camps is English. Thus there are opportunities to interact with skits, mealtime conversations and many games such as volleyball. There are ceremonies at the beginning and end of each camp and a day's expedition to some local landmark. The students, like students everywhere, were lively.

I was fortunate to attend 5 of these camps near the following cities: Samara, Bishkek (Kyrgyzstan), Petrozavodsk, Rostov and Chisinau (Moldova). These are discussed separately.

My one criticism of the teaching is that the level of English teaching was for high school students and was not necessarily appropriate for graduate students. The similarity of the programs became a little monotonous.

### **Camp Nadezhda, Samara July 2005**

The fourth English Language Camp (my first) was held at Camp Nadezhda (Camp Hope) near Samara. Twelve Americans, 8 for English language and 4 for science English language, staffed the camp.

The 64 students came from different Russian universities from as far away as Vladivostok, to as near as Samara with everything in between: Moscow, St Petersburg, Ekaterinburg, Nizhny Novgorod, Voronezh, etc. Since the classes were for English science comprehension, emphasis was placed on class participation with the students talking and reading with written exercises for homework. Their science specialties varied from quantum mechanics to the life cycle of worms. Even so, somehow the language was basic enough that we all learned and communicated.

Camp Nadezhda is about 50 kilometers north of Samara in the country, in the middle of a pine forest with the nearest village about 3 kilometers away. Close by is the River Kondurcha, with sandy beaches suitable for swimming and sunbathing. Fields of flowers surround the river. Here we walked and talked. The weather was usually hot but when the rain came, the lightening caused power failures, once for 6 hours.



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## ***CAMP NADEZHDA***



Apart from studying, activities included volleyball, soccer and a morning aerobics class. In the evenings there were English films, including *My Cousin Vinnie* and often, loud music to which the students danced. The staff organized a treasure hunt one Sunday as well as a trip to Samara (at one time, home of the aircraft industry) and the magnificent Volga River. One night there was a campfire and the students sang loud patriotic songs about the homeland.

Group Picture with the Volga River in the background.



I served as science leader for 15 students over the course of the three weeks of camp and held 12 science classes of 2.5 hours duration, 7 or 8 in each group. During this time we covered comprehension in English through speech, reading and writing. Each student was required to talk about his or her research, read from a science text and write an essay in English. I also helped to

organize the scientific poster session and served as an evaluator for 32 students during their presentations. Additionally, the students had opportunities to practice their English as we sat with them at meals, went for walks, participated in aerobics classes and generally were on hand when they wished to talk.

## *LESSONS*



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## *MY STUDENTS*



**Urals State University**

**Nizhniy Novgorod  
State University**

**Voronezh State University**

**Moscow State Engineering  
Physics Institute**

**Moscow Institute of Physics  
and Technology**



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Every day we met in the mornings and studied spoken English. The students starting ability ranged from excellent to almost nothing. In the afternoons the students were taught by nonscientific teachers on the finer points of speech.

The students' specialties were extremely varied: x-ray crystallography, quantum mechanical calculations, semiconductors, preparation of thin films, phase transitions, hydrogen embrittlement, high-energy compounds, lasers etc. One of them (Maxim Anayev) went on to do a post doc at Imperial College, London.

Participation in the classes was good. All the students talked and the ones with stronger language capabilities helped the weaker ones. So a level of camaraderie developed.

By the end of the camp the student's language capabilities had improved markedly and they all gave excellent presentations. The initial cultural barriers decreased. It was rewarding to receive smiles and thanks from students who had been shy during the early classes.

After the final presentations we had a closing ceremony and party. Certificates of attendance and prizes were presented: prizes for the best presentation, for the most improved, etc. This being Russia we also had many toasts. The final toast was to the future of science in Russia and the US. The students produced guitars and sang songs in praise of the teachers, of the camp and of Russia.

## *CLOSING AWARDS CEREMONY*



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(All the photos from the camp at Samara were taken from a presentation I gave at a Los Alamos AAUW meeting in 2006.)

### **Bishkek, Kyrgyzstan, October 2005**

Bishkek is ringed by mountains (Tian Shen) and has many poplars so the autumn colors were magnificent. The Bishkek airport (Manas International Airport) was, at that time, the resting place for hundreds of US aircraft – an impressive sight. But soon afterwards, the US lost the agreement to park their aircraft there. The hotel (Issikul) was on the outskirts of Bishkek with sheep and cows grazing on the opposite side of the road.

Classes started on Monday. I had 9 students, mostly women, some in their forties. The subjects of most interest were virology and the avian flu outbreak which was rampant at that time. Class participation was spotty and homework was not always completed but there were some lively class discussions. One bright student, Ainagul, years later wrote to me to tell me that she was married and living in Moscow. Behind the hotel was a park, built about two years prior to our visit, now a rundown closed amusement center, a cross between a child's fantasy park and a memorial (to Manas the Great) in crumbling concrete.

Ainagul and me walking in the park.



My students and me.



On Saturday we all went to the market where I bought, in a damp basement, a beautiful rug hand woven in the Narine Valley, dark grey with light grey pattern made of felted wool.

My friend, Tobi Nagel (from Camp Nadezhda) had a missionary friend to whom I was introduced. We went downtown where we saw the damage caused by the March Revolution when the President was deposed. Many buildings were boarded up as a result of looting. The banks had armed guards outside and multiple levels of security. Christian missionaries are considered subversive, so Tobi and I surreptitiously bought greeting cards made by orphans and learned of the dismal future awaiting the girls as outcasts with no protection.

There was a party with the family who had hosted one of our teachers when he worked for Peace Corps. As the oldest female teacher, I was given the place of honor next to the host and had to eat part of a sheep's head (the sheep having been slaughtered that morning). Conversation was desultory as the Kyrgyz family spoke no English and, except for the Peace Corps volunteer, none of the Americans

spoke Kyrgyz. Relatives of the host wandered in and out all evening. But, as everyone tried, the result was a successful evening.

The Kyrgyz family Party



The expedition was to the Ala-Archa River National Park, where we hiked beside the clean fast flowing river in the cold brilliant autumn day, with snowcapped peaks. The hike was followed by tea and vodka with our packed lunches. Coming down the mountain we passed herds of sheep, horses and cattle with an occasional goat.

The Ala-Archa River National Park



The evening before we left, there was the obligatory poster session, the culmination of the workshop with the leader giving out certificates. Some, but not all, of the posters were good. Following this was an evening of Kyrgyz dancing, presents, food, drink, toasts and speeches to everlasting friendship. The best part was the music with Kyrgyz string instruments: the temir komyz, the jygach komyz, and the kyl kyiak.

A Kyrgyz Musician



### **Petrozavodsk, July 2006**

The workshop was held at Camp Darevya (about 60 km north from Petrozavodsk) situated in woods near a large lake surrounded by trees with many mosquitoes. The camp had recently been upgraded probably due to the booking by CRDF. It is in Karelia, so in July, it hardly gets dark. I had 16 students divided into two classes. All the students were good English speakers and eager to learn. One exercise I gave the students was to write an essay “Why I want to be a scientist” which produced much discussion about current science issues.

Every afternoon we walked in the countryside. It was, in general, messy with dilapidated houses, barns, cart tracks, rubbish, dogs, dachas, uncut hay and wild flowers in profusion with no wild animals, not a single rabbit or squirrel. All eaten, someone explained but this didn't bother anyone. The village houses had gardens crowded with flowers (no herbicides) with many potato fields. Between the houses was uncultivated land or possibly hay fields. We walked and watched peasants tending potatoes and broad beans, much like I imagine the 19<sup>th</sup> century must have been like.

The cafeteria where we ate our meals was too small and not well managed. One had to arrive early in order to get served, even sometimes had to wait outside for space. Everyone swam in the lake most days. The final party, after the poster competition, was uproarious with skits, toasts and drink.

The excursion day was in several parts. First we were taken by bus to a waterfall; the Kivach. It was fairly small although the students were in awe of its grandeur. The bus took us through endless birch and pine forests. Beside the road there were bomb craters from the Finnish-Russian War. This was

followed by a visit to Petrozavodsk, dominated by the memory of Peter the Great statues and a garden designed by him. Some of the teachers also took a boat trip up the river Neva to Kiji, an island with large wooden churches and an open-air museum.

On the plane back to Moscow, the air hostess rolled a samovar of tea down the aisle.

### **Rostov, June 2007**

The camp was in a rundown hotel close to the Don River, about 30 miles north of Rostov. The nearest village (about 2 miles away) was where Sholokhov wrote "And Quiet Flows the Don". The hotel was run by a crew of elderly women who cooked food that was barely edible (lot of fish bones). We ate outside on chairs that easily turned over because the ground was bumpy. The water was turned off many hours and sometimes the electricity also. The students (and sometimes the staff) played volleyball and badminton.

However we got used to the discomfort. In the science classes we discussed global warming and treatment of laboratory animals, and other topical subjects.

As usual all the teachers took long walks and swam in the River Don keeping a look out for the large barges that used the river daily. Families of otters lived in the banks of the river.

The expedition was a day in Rostov with its countless war memorials, street markets in narrow winding streets. One park separates Russian Rostov from Armenian Rostov in the Novocherkassk area of Rostov.

### **2, b Moldova, July 2007**

This camp followed immediately after the Rostov camp. We had to fly to Moscow and wait at the airport for 12 hours in order to fly to Chisinau. I shared my ideas with an English teacher and later learned that they were incorporated in the next camp that I was unable to attend.

The camp was on the banks of the River Dnister, next to a bridge with 2 camouflaged tanks permanently positioned to prevent movement into and out of South Transdnistria that is governed by Russia. Looking over the river one can see rich cultivated agricultural land with an overhead irrigation system, quite unlike the bank where the camp was. On our side there is no irrigation and farming was carried out in the model of the 19<sup>th</sup> century with no organized fields, ducks herded by women and water drawn from wells in buckets.

The camp facilities were modern. The students did not all come from Moldova. There were some senior scientists from other parts of the FSU who were there to improve their English. They made a welcome relief from the young and were happy to discuss science in Russia. The younger students did not appear to be interested in the broader aspects of science and were unmotivated.

One of the teachers became sick and was taken to a Moldovan Hospital. She returned and, after a day's rest, was healthy. The cost was \$7.

The expedition was to two monasteries: Capriana and Hancu Monasteries. They were both situated in a dense deciduous forest (the Codrii Forest). The Capriana Monastery was being rapidly restored with dust and people everywhere in an effort, by the President of Moldova, to make it a tourist attraction. The Hancu Monastery, was actually a nunnery, and the real thing. It was self-sustaining with two churches, beautiful gardens and cloisters, and farm animals, all looked after by 100 nuns.

## Summary

I enjoyed every minute of the travels and would do it all over again. It was a two-way effort. Russians came to the US and were entertained here as we were there.

I never once was approached and asked to do anything illegal.

I made some good friends, including Sergey Mikheikin, initially through the ISTC. I hear from him every year. He gave two talks at LANL (2001 and 2004). After I retired, about six years later, when I was working for the Northern New Mexico Citizens Board Committee he gave a talk at the Bradbury Museum entitled "Radioactive Cleanup in Moscow" that was well attended. I met him both in Moscow in Los Alamos and in Phoenix (The Waste Management Meeting). In Los Alamos we took him to Bandelier National Monument, etc. I mention Sergey's talks just to show that Russian scientists came to Los Alamos as well as Americans visiting Russia. It was a two-way stretch of communication.

For me, they were good days!

Sergey, self and Wendy Hahn at Bandelier

