

Experiencing the USSR

The Prologue

When I was an undergraduate, a junior, I was already mentally committed to going to graduate school for a PhD. D. in physics. At that time, the late 50's, most universities had a requirement, at least in the sciences, that one had to demonstrate reading proficiency (more or less) in two languages. I had already taken some German in my first two years at the University of Michigan, so what should the other one be? In view of how well the Russians were doing, science-wise, I opted for three semesters of Russian. Knowing the Greek alphabet (from mathematics), the transition to Cyrillic was no problem. So, when the time came to be "proficient," I passed the language requirement. That didn't mean, of course, that I could carry on a conversation in either language. Just that I could read, slowly, a physics article on a subject I knew fairly well, with the help of dictionaries.

Time went by, and from 1967 I was deeply involved in the Los Alamos Meson Physics Facility (a medium-energy accelerator that would produce oodles of pions). Two other countries, Canada and Switzerland, were also in the process of building accelerators and using them for the same purposes. Toward the end of 1970 news came over that the Soviets were going to be building one at Troitsk, a physics laboratory just south of Moscow. And then we also learned that the scientists at Dubna, a multipurpose laboratory on the *other* side of Moscow, were organizing and would be hosting there an international conference entitled Medium Energy Nuclear Physics, obviously in support of the Troitsk effort.

Naturally I wanted to go to that conference. My bosses at LASL (who may have wanted to know more about what was going on at Troitsk) approved that I could travel there, assuming I could get a visa, etc. Maggie would be accompanying me, since we could also be vacationing tourists in Russia and western Europe. Also, I could visit the Swiss meson factory and attend another conference on the same medium energy topics in Strasbourg, France. Right up my alley.

One might ask, by the way, why LAMPF was being built at Los Alamos, which was generally considered a nuclear weapons laboratory with a tendency to keep things secret. LAMPF's basic purpose was to do basic research in nuclear physics and, as it turned out, almost all of that work was published in the open literature. However, there was a tinge

of interest in certain studies, such as nuclear fission, that could be of interest to the design of weapons. Did the Soviets have similar motivations for Troitsk?

So, we got visas and at the end of August 1971, after stops in Michigan to see family, we flew to Moscow on September 3. After three days of museums and Intourist coddling there, we were transferred to Dubna by bus. The four-day conference had a number of other American attendees, not all of whom I had known before. More interesting, however, was meeting with Soviet physicists whom I had only known from their publications. Almost everyone at the conference spoke pretty good English and most of the papers were presented in English. It was at this time that I met Georgi Vagrado, who would become an important part of this story below.

I was occupied, of course, by attending conference sessions, but Maggie had very little to do. There were very few other English-speaking wives about and there had been little planning for how to entertain them. She was bored with only walking along the river and around the rather small town. So she proposed that she take the train back down, alone, to Moscow as a day trip. (There were still plenty of museums to visit.) This proposal scared the hell out of Intourist and resulted in a big “Nyet!” Not to be discouraged by those people, she appealed to Dzhelepov, the Laboratory Director. Who was evidently impressed by her audacity and somehow he was able to arrange that she could do such a day-trip alone without further coddling. The next day she did, but from what she told me, it wasn't much more than a train trip from one station to another and then back.

The other memorable thing about the conference was the leaving of it. Those of us who going to be flying home were taken by bus to the airport. It was a hassle getting through their visa check. Roy Glauber (who later became a Nobel laureate, he was so smart) was asked his nationality. Instead of saying American, he proclaimed “Ya Russkii!” and pointed to a lapel pin from Leningrad University someone had given him. Oops! This took an hour or two to straighten out, delaying his plane's departure by that amount. His fellow passengers were not amused.

Maggie and I actually stayed over in Russian for four extra days, returning for more sightseeing in Moscow, with an overnight train excursion up to Leningrad and back. One oddity of that was Intourist's insistence that we *had* to have hotel reservations at Moscow *and* for the train *and* in Leningrad. So, we paid for both. Intourist just *loved* to absorb foreign currency.

Before we got to Russia, we assumed the people were, like the climate, cold and aloof. Not so. We were often stopped on the street by persons who wanted to practice their

English. This led to some long and often interesting conversations. In one case, a fellow about our age, Mark Gekht, sort of adopted us. He was in Moscow from his home in Novosibirsk (on business?) and had some free time. He accompanied us to museums and cafes. Once, as we had tickets (from Intourist) to a Bolshoi concert, we tried to get one for him. That didn't work, of course. After we went home, we even exchanged letters a few times.

Our exit from the USSR was uneventful, in contrast to that of Glauber's.

Preparing to Exchange

After we returned to Los Alamos in 1972 I began to maintain a correspondence with Georgi Vagrado, whom I will from now on refer to as Zhor, his nickname. This included the exchange of preprints of papers we were writing (separately, of course). Zhor, as a trusted Party Member was able to travel (once) beyond the borders of the Soviet-bloc countries. It was a stay at the Bohr Institute in Copenhagen, sometime before we met. We never saw each other face-to-face during this period from Dubna to our arrival in Moscow. However, at the end of February 1977, through a colleague, Victor Rostokin, who was visiting Stony Brook where I had been teaching, Zhor sent greetings. And he suggested that I should apply to the American Academy of Sciences for an extended visit to his institute in Moscow. Hmm. Somehow, despite the tensions of the cold war, the two Academies of Science, U.S. and Soviet, were able to set up a cultural exchange program. Hopefully to ease those tensions.

So, I applied and was accepted for a five month visit with the Institute for Nuclear Researches with Dr. Vagrado acting as my host. The U.S. Academy (henceforth NAS) committed to my going by June 1977. The paperwork that needed to be at the Soviet Academy (henceforth SAS) was, according to Zhor, to be completed by August. He sent me an innocuous postcard which I received in late October telling me that it was.

The idea of this exchange was that we, together with his student and post-doc, would collaborate and produce some publishable research in nuclear physics, probably having to do with pion-nucleus scattering. It was to begin in March 1978, assuming that the snow would be mostly gone by then.

We were promised an apartment for this exchange. Maggie began learning Russian from the beginning and I started brushing mine up. In August she got some 7-inch language tapes and a grammar book by a droll American named Alexander Lipson, who taught Russian at Harvard. (These were suggested to us by Roy Glauber.) We ran them

on her old tape recorder left over from her days as a reporter in Worcester, Massachusetts. (We still had that machine, up until we sold the house in Los Alamos.) I tried to help her, and in the process improved my meager oral skills. Maggie also started cooking Russian dishes, such as borscht and shchi (a cabbage soup).

About this time there were several other indications of a scientific thaw between LASL and Russian scientists. Some of the exchanges were between folks in the weapons and non-proliferation areas. On our side Mel Leon struck up an interest in pionic atoms with Leonid Ponamarev, whom I had met and liked at the Dubna conference. David Campbell was able to get Arkadi Migdal to come for a short time and give a T-Division talk. There was another physicist, Dave Edwards, then at LASL, who had already been on this kind of exchange for a year at the Lebedev Physics Institute. Someone from the Academy suggested that we go talk with him and his wife, just to see how strenuous this journey might be. Since I was now committed to going, I had to turn down an invitation to spend a sabbatical year at the University of Virginia. We started reading books about Russia and its history, in addition to continuing with the language.

Around September things began to be more settled, such as details about my salary. I sent off letters to various Soviet physicists informing them of my coming and possible visits. There was a change in my arrival date so that I could attend a three-body conference in Graz on the way home. I started winding down on my duties as T-5 group leader, using the trip to the USSR as an excuse to relieve me of that chore. We continued listening to Russian tapes, evenings and other odd moments. At the end of December, I learned that the Soviet Academy would like me to also visit and give talks at other of its physics institutes: Dubna, Novosibirsk, and Tbilisi (and, later, Leningrad).

The Los Alamos Ski Area, Pajarito Mountain, finally got enough snow to open on January 21. We decided not to bother with skiing that year. Who needs to arrive in Moscow with a leg in a cast? We also started interviewing people who could rent our house during our absence and finalized that.

On January 30 I *spoke* with Zhorl (our very first phone call). We sorted out arrival times, etc. He also asked if I could bring some prescription medicines for his wife that he couldn't get there. I said OK, but then began to worry that it might be a bit illegal getting them through Soviet customs. The next day I got started on setting up airline reservations. A check arrived a few days later from the NAS to cover the air fare and other expenses. Likewise some money (in cash) from LASL. I was to be on 40% salary from March 20 to August 20, when I would be back in Western Europe.

We packed up two large trunks of clothing, appliances we might need, Zhori's prescriptions, and a number of the new Texas Instruments programmable handheld calculators. Those were to be gifts to various people including some that David Campbell had met and felt were very helpful to him on his trip to Moscow several weeks back. On February 22 we took them to the airfreight terminal in Albuquerque for shipment to Moscow. They weighed in at 148 pounds and the foreman wrapped them with bands of steel tape so they couldn't be easily opened anywhere along the way. (That was fortunate, as I later learned.) Maggie and I then flew late that afternoon for stops at Chicago (a talk at ANL), Michigan (visiting my parents, brother, and his family), and New Brunswick (working on our nucleon-nucleon calculations with Wim Kloet).

We had started the process of getting visas in January. It had been strongly suggested that, in addition to getting *into* the USSR, we also already have *exit* visas. In case of a medical emergency, it would be very helpful to be able to fly quickly to Helsinki. They were supposed to be mailed to us, but by the day we were to leave, none had arrived. After frantic phone calls, we were told that we should pick them up at the Russian embassy, at first in Vienna and then, better, in Bern, Switzerland. OK, Switzerland is not a hardship, as we already had some good friends there we could visit. As well as SIN, the Swiss meson factory. We got there on March 2. In all, we were in Switzerland about 15 days. And did get the desired visas on March 10, eight days before we were supposed to be in Moscow. We flew to Sheremetyevo airport from Zurich on March 20, with a change of planes in Vienna, arriving at 4:00 PM.

Finally in Moscow – March

On arrival at the airport on March 20, we had a longish wait to get through passport control. Our bags from the airplane arrived fine and getting through customs was another long wait, but we passed. On going out the exit, there waiting was Vagrado along with his post-doc, Sergei Akulinichev (Seryozha) and his graduate student, Alexandr Goy (Sasha). After greetings and introductions, they took us to the cargo section of the airport to retrieve the two trunks we had sent ahead. Another but shorter wait to pass through *those* customs, along with a fee for I had to pay for some unexplained telegram. The trunks also had arrived OK and the customs man didn't even want to open them. Probably because he didn't want to bother with cutting the steel bands. So much for worrying about our importing fancy new electronics, i.e., the collection of programmable calculators to be given as gifts.

So, we loaded ourselves and luggage into a van Seryozha had borrowed and headed into the city. Past the place where they were building buildings near the Dinamo soccer stadium for the upcoming 1980 Olympics. Unfortunately, we were taken not to our expected apartment but to an Academy hotel. Huh? Apparently no such apartment was ready for us, since we did not have children! We were, Zhorì said, to stay in that hotel “for two to three weeks until a flat can be arranged.”

On entering the hotel, yet another surprise. They were charging us 5 rubles (henceforth ₺) per day for Maggie, since she was only a visitor. That would eat up most of the 6 ₺ per diem that the Academy was paying me. *And*, we were expected to eat our meals in their restaurant, which involved yet another cost. *And*, we were placed in room 521, which overlooked a tram station. Those trams would keep us awake until 1:00 AM and start again in the morning at 4:30 AM.

“This is totally unacceptable,” I told Zhorì. Nonetheless, there was nothing we could do, at least for that first night. So Maggie and I went up to 521, cleaned up, and came down to join Zhorì in the dining room. The meal was actually pretty decent, with two bottles of Hungarian Riesling, totaling about 14 ₺. Despite a small multiplication error in the bill, Zhorì paid for the meal.

At supper Zhorì was open about wanting the TI programmable calculator and grateful for the meds. There would be a car, with Seryozha as a guide, to take us around tomorrow, even though we didn’t know yet where to go. In the meantime, he would work on our housing problem. I was to call him tomorrow at his office after 12:00 to see where we were on that. Also, we were to have dinner at his apartment tomorrow evening.

On retiring to 521, we put up a thick bedspread over the curtain rod to try to muffle the sound of the trams down on the street. That also helped since, in addition to their noise, the electric trams would often spark as they switched wires, emitting a bright flash of light.

The next day, after a stale roll and tea for breakfast, we were picked up by Seryozha in an academy car which was provided, but only for one day. It was snowing a bit. As tourists, we were taken to look at one of the Tsar’s summer palaces, now a museum. There was an attached church, which was being used for a funeral with Gregorian chanting. There were *three* open caskets with old people. Just one service, which must have saved *someone* some money. Seryozha, a young Communist, was a bit leery of being in the church, and went outside “to smoke.”

Oddity: the crows here in Moscow are brown, but they do have black wings.

After trying some other touristic things that were not open on a Tuesday, we went to the canteen at Moscow University for tea and a cookie. Seryozha, whose English was quite good, began to open up a little. At 12:00 he took us to the US Embassy before it closed at 1:00 for lunch. Here we met Shawn Byrnes, the science attaché, who was expecting us. He invited us to come to lunch there tomorrow, and he would expound on what services at the Embassy we could partake of. We were to get our mail there at the Embassy, but there wasn't any yet.

Zhori had arranged that he and I were to meet the number two man in the SAS Foreign Office, named Moskalev, later that afternoon. Although he spoke English better than I spoke Russian, he preferred to work with me through an interpreter. Basically, it was an interview. Was I a professor? Yes (without going into detail about complicated LASL staff positions). As to the promised-apartment problem, he thought it was hard for them to provide one to *all* couples who came through. So I explained how I came to the USSR with a salary cut and that my wife had no salary here. I wasn't expecting to live like a Tsar, but surely in a city of eight million people there must be some way to accommodate us. The outcome of this discussion was that we were to meet again after Moskalev tried to see what could be done by taking advantage of the flexibility in other people's travel schedules.

As a sidelight regarding travels, Georgi suggested that trip to Kiev could be added to my program. On leaving the SAS, he was more optimistic than before, saying that I had taken the right attitude about the apartment problem.

Back to the Academy hotel, we were able to move to a quieter room. While Maggie emerged from taking a bath and I opened a bottle of wine, Zhori made some phone calls. The medicine we brought him was exactly what he wanted, for which he gave us 75 ₺. He evidently wasn't worried about the room being bugged, even though we were. He then disappeared to do some last minute shopping.

At six o'clock we went down to meet him in the lobby. Then by the car, picking up Seryozha along the way, to his place in south Moscow. He lives in an apartment complex owned by the SAS. His wife, Bel, spoke no English but was nonetheless very welcoming. The younger daughter, Katya, was in the first grade at school. We didn't meet the older daughter, Julia, who was sick and stayed out of sight.

Zhori opened a bottle of champagne and then we moved to the table. Borscht, pork cutlet, Georgian re-fried beans, now vodka, a Russian potato salad, caviar and herring.

Onto a bottle of Rumanian wine, desserts of “lemon pie” and chocolate cake. We ended up finishing up with more champagne, tea, and coffee. During this feast, Bel and Kamyra hardly ate anything. Around midnight we and Seryozha somehow staggered to a metro station and we eventually got settled back at the hotel.

In the morning we were surprised to have only mild hangovers. After breakfast, Seryozha picked me up and we went by tram to the Institute for Nuclear Researches, where I would share an office with Zhorii. As I started getting settled, various other members of the theory group came wandering in to meet me. Curiosity, I suppose. I learned a bit about what each was working on. In turn, I described what I was involved with, and they set me up to give a seminar on the nucleon-nucleon project the following Tuesday.

At 11:00 Seryozha took me back (by tram) to the hotel to pick up Maggie. We then went by trolleybus to the US Embassy and, with some difficulty, found our way to Shawn Byrnes’s office. He took us to lunch at the snack bar, where we met his wife Jill. In talking we learned that the accelerator at Troitsk is in an area closed to foreigners. And that a big topic these days is the proposed neutron bomb. A big part of the lunch involved going over a lot of housekeeping details. These included things like how to use the clinic for emergencies, where to buy Finnish stamps, and how to get laundry and dry cleaning done. After lunch, we returned to the Science Office, where we met folks. Greenberg, the boss, said he was meeting my contact at the SAS, Kulakov, on Monday for other reasons, and would mention the apartment problem. Someone else said he would send a cable to the State Department, who would then nudge the NAS to nudge the SAS to solve the problem. Hopefully, with pressure.

We returned to the hotel and I to the Institute for more set-up business. Seryozha gave the month’s stipend of 136.40 ₺. (At that time 1 ruble was officially \$1.34 US, but on the street a dollar could buy a lot more.) Somehow a blackboard was installed in Zhorii’s office, for which I got a key. We discussed where and when I would go on visits in the next five months. There would be people I already knew down from Dubna the next day. The possibility came up of my participation in a 60-page review of particle physics to be published in a Russian journal. (Thankfully, that never happened.) More interesting was that Sasha, the graduate student, dropped in and talked about his thesis project on quasi-elastic electron scattering, which he had just started.

At 5:30 I trammed back to the hotel, caught Maggie up on what was happening. We ate our supper quietly in the room with things brought up from the downstairs buffet.

The next day I skipped breakfast and went into the Institute early. So had Zhori, who had spoken last evening with Markov, the director of the Academy, about our housing. At 9:30 Markov called, saying the apartment problem was probably already solved, and “We might even move in today.” A meeting of the Academy Presidium at 10:00 should clear up the matter even further. Wow, I didn’t know I was so important!

Later that day Moskalev called to say the move would be on Tuesday or Wednesday the next week. In the meantime I spent time sorting people’s names and what they did. I found out where the toilet and library were and met the librarians. There was a good selection of Western journals in English in addition to those in Russian. At 11:00 I went back to the hotel to lunch with Maggie at their restaurant (3 ₺) and returned to the Institute to meet with Dubna’s Eramzhyan, whom I knew for his work on muon capture, before his lecture to some young students. This was followed by a talk by Leonid Ponamarev, whom I had also met earlier at Dubna, on pion capture on nuclei and on muon-induced fusion. I also had some gifts and letters we had carried in for him from his friends in the West. (He had been to the Zurich conference back in January.)

At the hotel I caught up with Maggie on her day. She went to the Embassy for coffee in the morning, walked to and back from the Institute in the afternoon, through the mud and slushy snow. Along the way she bought a bottle of French wine at a Beriozka. Beriozkas are special shops selling goods you couldn’t normally find, for which you have to pay in foreign currency. In a similar way, we were told we had privileges to buy, using dollars, groceries at a Diplomats’ Store (henceforth D-Store).

The next day, Friday, at breakfast we met a medical type from Milwaukee, Hal Schwartz. It turned out he knew some of the Milwaukee Silbars, distant cousins of mine. Over much of our time in Moscow we got to see him frequently.

At the Institute, since I was starting to speak some Russian, Zhori decided that he and I should address each other in the familiar second person. Interesting, since he and Seryozha, his post-doc, used the more formal form of address. Later that morning I had a long conversation with Kuzmin, the scientific secretary for the Institute, on his particle physics interests. While we were doing that, Zhori was getting a lot of little things cleared away, like the blackboard, a wastebasket, some lights, and an extension cord. It seemed that was somewhat easier to get that done because the workmen involved had never seen an American up close before. Zhori commented, in English, that “otherwise they can be pretty lazy.”

I had brought a sack lunch based on things from the buffet at the hotel. Zhori never did that, as there was a hot-food buffet there within the Institute. I went there with him, just

to know where among all the buildings it was. Back at the office I noticed on Zhori's desk a Russian translation of the Gasiorowicz text (complete with its typos). Such translations, I soon learned, were ubiquitous and cheap. For the rest of the afternoon we got into a long physics discussion about N-N calculations I was doing with Wim. That morphed into our talking about the Chew-Low approach to pion-nucleon scattering. After that, Zhori and I had no problems in talking physics with each other.

Later that afternoon, Boris Tulepov, a close friend of Zhori's, dropped in to meet me. It turned out he had earlier a very similar problem to mine. He had a visitor from Saclay (outside Paris) who came with his 19-year-old daughter. They were only able to move into an apartment after Borya also got Markov into the act. We became good friends with Borya and Galba, his wife, as our time in Moscow went by.

On getting home to the hotel, I learned that Maggie had several adventures that day. She learned how to use the phone. At the Embassy she was able to buy 50 ₺ of D-Coupons, with which at the D-Store she bought some oranges (!) and Georgian white wine. In the process she had two trolley mishaps. One was a breakdown, everybody out. The other was an argument, which she won, with an inspector over why the ticket machine didn't work after taking her five kopek coin. This was then followed by a metro breakdown. And she was able to buy some daffodils.

After another supper in the room I called Migdal, who had just come back from skiing in the Caucasus mountains. He invited me to come over the next night, not realizing that I'd be bringing Maggie also. She was annoyed about that and also because I'd forgotten that tomorrow, the 25th, was her birthday. We were supposed to have a pleasant dinner at a restaurant, but now we were committed to an evening at the Migdals.

The next day, a Saturday, we ended up going with Hal Schwartz to a Beriozka. Maggie already having become an expert at Beriozkas guided us about to see all the good things we could buy at great prices. For example, a bottle of Johnny Walker Black Label only cost 3.50 ₺. So we bought that (paying \$) to take to Migdal. We three continued walking down Leninskaya Prospekt, trying to locate where the Migdals lived. A soldier in front of the Sengalese embassy set us straight on that. We found a fairly fancy cafe for lunch – zakusky (appetizers), tea, and ice cream. We were probably overcharged for it and were also surprised to see they included a 4% service charge. In general, it was customary (at that time in the USSR) to *not* tip for good services.

We continued walking down Leninskaya and found a Gastronom (a rather plain food store, despite the name). It had enormous lines of customers and one had to pay first at a separate cashier. Who, in this case, had a fancy electric cash register, which was backed

up by an abacus. Further down the street we found Ulitsa Gubkina, a side street containing two tall, new-ish apartment buildings owned by SAS. It was here we expected we might move to next week. They were opposite the huge Moskva department store across Leninskaya, which would be quite convenient.

We took a tram back to the Academy hotel. Hal used his Swiss Army knife to cut the steel bands off our large camp trunks. Whew, fresh clothing! And the collection of gifts and letters that we were to distribute. We then separated from Hal, took a short nap, and ate another picnic supper in our room, finishing off the last of the red wine.

We arrived at Migdal's around 8:00 o'clock. Arkadi welcomed us in a sweater and dirty blue jeans and took us into his "den," which was more like a small museum. It turned out that this was really a party, with other people arriving or already there. After taking our coats and going through greetings, we presented the presents for him we had brought in the trunks. A tin of very nice coffee from David Campbell and the Johnny Walker from us. There were also letters for him and for two of his young colleagues, Zoya and Aloysha, who had been helpful to Campbell when he visited a few months earlier. Aloysha was to call me at work to arrange the pickup of the hand-held calculators.

Migdal's wife, Tanya, came out of the kitchen to meet us, and we were soon directed to a table with food and drink. We then began to mingle. Most of the guests were not physics-related and most of the rest of the evening was only sparsely in English. People began drinking a bit more than socially. We stuck to a Russian vermouth, but Tanya began to enjoy the scotch. At some point Arkadi brought out vodka in Ehrlenmeier flasks. And Hamlet's phrase "To be or not to be" became "To drink or not to drink."

Among the guests was a Teodor (we didn't catch his last name), a film director. He had just finished one on archaeological detective work being done in Uzbekistan that took one-and-a-half years to produce. He didn't speak English but was passable in German, which helped considerably, and we got along well. He invited us to come to his dacha at the end of May, some 40 km away from Moscow. This surprising invitation may have come after he and Maggie did a "Bruderschaft" over some wine.

Around 9:30 a fifty-ish couple arrived, named Volodya and Masha. He was a poet and she a poetess/playwright. She told the following story:

An American spy came into Office X_1 and said he wanted to defect. "How did you come here, by land or by sea?" "By sea," he replied. "Then you must go to Office X_2 ". He did so and was then shuffled off to Office X_3 . And again, and

again. At Office X_n he was finally asked, “Were you *ordered* to defect?” “Yes.”
“Ah, then you *must* do so!”

Teodor then joined in with “What is the most expensive drink in Moscow?” After a pause, “Coffee with gasoline.” Laughter. It turned out that the price of each had recently gone up four-fold.

At this point Tanya’s sister came into the party. An elegant and pleasant lady who spoke beautiful Spanish. She had never been out of the country, so go figure. Arkadi suggested Maggie could visit the magazine where the sister worked. He also provided her the address of a foreign language institute where she could work on her Russian. Better than that, he said he had a “girlfriend” (actually just a friend) named Ina, who might work with her on it. Maggie was to call her up to arrange a meeting.

The Migdal apartment was large and posh, as befit an academician. In addition to physics he sculpted and made jewelry in a shop within the apartment. In his study/museum there were many paintings by an artist named Krasnopevetz. Arkadi had the best collection of this artist in town. The museum also displayed things, such as whale tusks, that he had collected when he was head of a marine expedition in the 50’s. And a minerals collection and many books.

Volodya and Masha left around midnight and the rest of us returned to the dinner table. Everyone but us was drinking the scotch. (We had by then switched to slightly sweetened water.) We left around 2:00 AM, arm in arm with a pretty drunk Teodor, who wanted us to share his taxi. We chose instead to walk home and made it to the locked door of the hotel. A porter let us in, but only after I produced a card verifying that we really were guests there. Thus ended Maggie’s birthday celebration.

The next day, a Sunday, we rose late, moving slowly. Schwartz came by while Maggie was still in her bath and asked if one of us would like to go to a folklorico that night. He had an extra ticket. Maggie said yes, and he left to go to the Byrnes for a “Western Easter Celebration.”

We stayed behind and got ready to take a walk by ourselves. It snowed a bit in the night after we after got home and the sidewalks were sloppy. We went into a cafe that wasn’t crowded and had lunch. Nice place, and the food was good. It didn’t serve any tea (!), so we drank our first glasses of kvass, a beer made from day-old rye bread. The bill once again added up to more than I had calculated, but this time there was a charge for putting away our coats.

We continued walking on to the Donskaya Monastery. The museum there was “open every day except Mondays and Fridays and the last Thursday of every month.” It being Sunday, we visited it. We also walked around in the churchyard cemetery, where some of the tombstones were quite recent. We then returned to the hotel and took a nap, sleeping soundly. On getting up, Maggie dressed for her “date” with Hal and they were off. I stayed behind and caught up on sorting papers and correspondence.

Monday being a workday we got started, with Seryozha’s help at the SAS, to get Maggie more settled with Russian lessons and ability to use libraries. Apparently my threat to leave the USSR if we weren’t settled in an apartment had been clearly received – Markov learning that not from Vagradoy but from Moskalev. I gave a short demonstration to a bunch of Zhori’s friends of how the little programmable TI calculator worked for a small program of about 30 steps. Zhori said another friend of his, at the Lebedev Institute, *really* wanted one, so I asked, by cable, that Herman Feshbach bring another couple with him when he was coming to Moscow next month. It was at this time I learned that a *used, non-programmable* hand-held calculator would cost 300 to 400 ₺ in a second-hand shop.

Also that day I did get to talk some physics. Zhori provided a useful remark about how one of the diagrams in what Wim and I were doing would vanish when antisymmetrised. He also brought in a friend, Belyak, who was having trouble getting a paper he wrote published (in a Russian journal). He went into much detail for me on its contents. I suggested he try sending it to a western journal, such as AJP, but since he had no English, he was unwilling to try that. Also, Lobashov, an experimentalist up from Troitsk dropped in to say hello. Maybe we had previously met at the Dubna Conference, but I’m not sure.

Back to the hotel to find Hal talking with Maggie. We declined his invitation to join him at the restaurant downstairs. Maggie described a new bunch of adventures during her day on the subway and in (regular) shops. She came back with fresh vatrushkies from a bakery along with wine, Hungarian salami, tomatoes, and a cucumber. Another picnic dinner in the room, but excellent. After dinner I wrote out an introduction in Russian for the seminar I was giving the next day on our nucleon-nucleon work. It was, of course, my favorite story about how Mother Mouse saved herself and her kids from a large, angry cat by invoking a second language (dog-talk). The rest of the talk was to be in English using slides for the equations and Feynman diagrams.

On Tuesday, March 28, now having been in Russia eight days, my talk started at 10:30 and lasted till 12:00, with about 15 in the audience. I was speaking slowly and stopped before it was completed. The second half of the talk would be given next week on

Monday. But the big news of the day was that we were to move into an apartment on Ulitsa Gubkina either late this afternoon or tomorrow. A lot of the scut work in getting to this point was done by Seryozha. He arranged to get the apartment key and a van to take us and our luggage there from the hotel.

Thus we all went as a group to complete the transfer. Maggie wasn't in the room when we got to the hotel, but the bags were packed and ready to go. We took them down to the van and I paid the hotel 42.50 ₺ for the 8 ½ days we stayed there. We left, with Sasha staying behind to wait for Maggie. However, I forgot to take the receipt, so we went back to the hotel to get it, finding Maggie already back and waiting for us with the receipt and my also-forgotten coin purse.

On to Ulitsa Gubkina street, the five of us, to check in. The lady manager of the building took us up to the apartment, number 96, on the 12th floor. It had a large living room, a kitchen, and a bathroom with a tub. It came with stainless tableware, pots and pans, and dishes. It had a gas stove, requiring matches. The TV was "being repaired, back in 2 or 3 days." The trunks and bags were brought up in due course. Maggie then opened a bottle of a better vodka she had bought for the occasion at a D-Store. Smiles all around. The five of us finished off the bottle and Zhori, Seryosha, and Sasha were able to leave by 5:00.

We then did a bit of sorting out where what would go where, but most of that would be put off until tomorrow. Maggie was able, from her shopping, to make a dinner, here at our new home. We soon learned that the trolley here was also noisy, as was our small refrigerator, but we could get used to it and live with it. We also noticed that things were pretty dusty – so much for "no apartments being available."

As we unwound, there was a knock on the door. It was our neighbors in #95, an American couple, Al and Carolyn Evans, with two daughters, aged 9 and 7. He was also here for an exchange, in his case as an economist studying Soviet farming practices. We got to know them better as time went by.

After figuring out how to place the twin beds, we hit the hay early. I had a lump in my bed, which I would have to deal with later.

In the morning we had a fruitful breakfast. I had to stoop down a bit to watch my shaving in the mirror. At 9:00 we knocked on the Evans door and asked some questions. Telephone? Down in the lobby, a pay phone. Toilet paper? From the American Embassy commissary (or possibly at a stationery store). Etc.

I left to walk to the Institute, not too far but a bit muddy and grimy without any shortcuts. The food store on the corner didn't look too bad and didn't have long lines. There was also a delicatessen and an apothecary.

At the office Zhori was already there. Borya Tulepov came by to discuss a problem he was working on involving coupled harmonic oscillators. I didn't follow the language or the physics all that well. But after that, we three discussed my travels to come. I might go to Kiev near the end of May, but that seems to require visas. Seryozha has kept our passport to register us someplace and, with luck, also get those visas. For that he would need both of us to provide two photos. Zhori began trying to call someone in Kiev about this. He also mentioned that Slava might be able to pay us, in rubles, for the TI-58 calculator before it arrived. That would be useful, having them to cover Maggie's travel costs which would not be paid for by the SAS.

I went home for lunch on the other side of the street. It was just a grimy and I had to walk past a dead dog. After an extended soup and bread and reviewing the day so far, we spent the first part of the afternoon moving and re-arranging furniture to our liking. I made phone calls to Byrnes to say we were now in the apartment and to Moskalev to thank him for his help.

I walked back to the Institute on a different street, a much more pleasant way to go. I gave Seryozha the photos he needed for the visas. On my desk was a roll of toilet paper and an address notebook, presumably from Zhori. I spent the rest of the afternoon reading some two or three papers by Vagradov and his collaborator Gorchakov, trying to get a feel for his style and taste in physics. We were by now sure we wanted to work together on meson-nuclear topics.

Returning home, I helped prepare dinner. We had invited Hal for supper, and we were joined after 9:30 for a while by the Evans. The "repaired" TV set had come that afternoon and it worked. Soviet programming, it turns out is different. After seeing the drawing of balls for the Sport-Lotto, we found we were watching a science news program. In one 15 minute segment there was Arkadi Migdal (!) talking about the quantum complexity of the vacuum! This was followed by another academician, going into details of crystallography. Bear in mind, please, that *this* was prime-time TV in the USSR.

Thursday morning I went with Maggie taking the subway to a Beriozka just as it opened at 10:00. My major chore was to carry home the backpack full of the heavy non-perishables she bought. She got the lighter chore of carrying the bag of cheeses. We were now well stocked with comestibles.

I only ended up at the Institute in the afternoon. Sasha had painstakingly evaluated a function he needed using a slide rule. It showed an unexpected peak, which Zhori felt might be wrong. So I offered to re-do the calculation using the TI-58. My result also had a peak, agreeing with Sasha. The next day, with a different choice for an input parameter, re-running the calculator program (which was quick and easy to do), it showed a less pronounced peak, more like what Zhori expected. The value in all this is that I got to understand much better what Sasha, who did not speak much English, was doing for his thesis.

Speaking of thesis, the system here is more like that in Scandinavia than in Britain. One earns a Candidate's degree at about age 25. One earns the Doctorate around age 35 after serious concentration on one narrow subject for those ten years. For Zhori that was only eight years ago. Another difference from our system is that when someone defends his dissertation, he faces a designated "opponent."

It was now Friday, a payday, which was another of Seryozha administrative chores. A Candidate gets about 300 ₺/month while one with a Doctorate gets 400. In Zhori's case, he got a bit more because of some extra commissions he served on. If someone ends up at an institute where he only teaches, the pay is 500 ₺/month.

Seryozha also was very helpful in getting a "propusk" (a permit) for Maggie to use the foreigner's library. It was clear, however, just what she could do there, but it was a chance to help people with their English. I don't recall how often she went there. Along this line, Maggie was getting pretty discouraged about getting help with her Russian. She had not yet made contact with Migdal's friend Ina. There will be more about that below.

Moscow – April

Having gotten settled in the Gubkina apartment, things became a lot more settled. From here on, I will try not to be giving you a day-by-day report. And hopefully not going deeply into the physics we were doing and discussing. Maybe just the highlights, but we will see.

I mentioned above that the Moskva department store was just across the street, a major thoroughfare named Leninsky Prospekt. We finally got over to look at it. It is huge and always very crowded, with departments ranging from chinaware to technical books. We just had two ice creams. Russian ice cream, by the way, is of very high quality.

On the other end of the spectrum are the farmers' markets, where we were able to find fresh vegetables and, later, fruits. There was one quite nearby. The prices there were not controlled by the state, and they were a small taste of Capitalism in that Workers Paradise. In the *regular* food stores fresh produce was come-and-go and could not be depended on. What *could* be depended on in these Gastronomes was good bread, cheese, potatoes, and sour cream.

On one Saturday we met Zhorii at the Vavilov trolley stop. He took us to a gallery (it cost 10 kopeks to enter) exhibiting works of four middle-aged "leftist" artists. They were important in that they had painted in opposition to the prevailing official style, which might be described as Soviet Realism. There was a variety of styles but they largely tended toward Impressionism. These artists were able to survive but they were not ever likely to be admitted to the Union of Soviet Artists. Their paintings were available to buy, but we never learned any prices. In this gallery we met Zhorii's friend Stella, who was editor of a decorative arts magazine, and Vadim Belyak, with whom I had spoken about his publishing problems.

After leaving the exhibition we were taken by Stella to visit one of the artist's studio who does sculpture in addition to oils. His grandfather, also a painter, was (or is?) heavily represented in the Tretyakov museum. He told us that the new Tretyakov was going to exhibit actual modern art, including some previously hidden-away works by Kandinsky and Chagall.

Following that, Stella took leave, and the four of us popped into a bookstore specializing in science. Zhorii and Belyak were looking for a text by Drell and Bjorken that was just then being published in Russian translation. Bear in mind this was 1978 and those B&D texts came out in 1965. From there we invited them to have a drink in our apartment. Cinzano was a bit foreign for them. We took advantage of their visit by having them read a Lipson story into Maggie's tape recorder. Zhorii was not as good a voice-actor as Belyak.

Dubna's Eramzhyan works there during the week but lives in Moscow on weekends. He came over on a Sunday and we talked physics for about two hours. As we were finishing up Maggie brought out some vodka and a few hors d'oeuvres. He surprised us by inviting us to supper at his place that evening. We accepted, and Eramzhyan called his wife to warn her we were coming. On arrival we learned Svetlana was a chemist. She spoke less English than their 12-year-old daughter who was learning it in school. For all the short notice they were able to put out a pretty good table and it was a very

pleasant evening. We left for home at 10:30, *still* without knowing Eramzhyan's first name.

At the Institute the next day, I unloaded some more of the presents we brought from States. I finished up my seminar on the N-N work, and Nazaruk asked some questions about our amplitudes at 300-400 MeV. He and colleagues were calculating pion production cross-sections near that threshold. We, together with Kazarnovski and, later, with Zhori, spent an hour or more arguing about whether *our* model would be of any help to them.

There was an embarrassing situation at our apartment soon after we got there. Maggie was taking a bath when I with Zhori and someone else arrived. Fortunately we knocked on the door and Maggie told us to wait a bit. As she got out of the tub, she grabbed the sink and it came off the wall. I was able to get in and take it off her hands. She got dressed and we then let the others come in. The next day a workman came by to glue the sink back in place, telling us to let it dry for three hours.

Maggie was continuing working by herself on the Lipson lessons in the apartment and was getting annoyed about the lack of progress in getting help with the language. Also, at the foreigner's library she was told that she could only read there, not study! Only after some argument was she able to take in paper and pencil as well. But no bag, in which she might be able to smuggle out a book.

While still in Moscow (no visa needed), on April 4 I gave a talk at ITEP (Institute for Theoretical and Experimental Physics), meeting a number of people I only knew about from their papers. Some of these were "professors," meaning they were required to give lectures in addition to doing their research. After my talk I stayed on talking at length with many of the members of Shapiro's large theory group. A curious thing is that *all* of these people had been students of his at the Physical-Technical Institute. They apparently never left and never brought in anyone from the outside. It was also interesting that all of his people working on proton-antiproton physics were compartmentalized, in one large room, unlikely to mingle with the N-N guys. I went back to ITEP the next day to continue talking physics that was closely related to my N-N research. It was snowing as I left late that afternoon, carrying away an armload of ITEP preprints.

Back at the Institute, Seryozha came in with our passports validated for trips to Leningrad and Kiev. He also had lined up a tutor for Maggie, but that was still pending. With those bits out of the way, we two fell into some *real* physics discussions, finally. After work I met Ponamarev at the gatehouse, and I took him to our apartment. There,

after meeting Maggie again, he was much amused to read Lipson's "Sverkhchelovek" (Superperson) story into her tape recorder. We drank some wine with some zakuski, talked a bit, and then he left before supper. After supper we called the tutor, Clara Alexandrovna, who arranged to meet with Maggie at the apartment at 2:00 the next day.

Slava Pafomov, another of Zhor's many friends, invited us to go for a ride next Saturday in his new car. He had just begun to study English and also just had a tooth pulled. Since he worked on transition and Cerenkov radiations – which were Russian specialties – he had no particular need for English until recently. In that regard, Sasha Goy, had also just started learning English; he already knew some German by the time he came to work with Zhor.

Yessin, the director of the Troitsk accelerator, came by to say hello. He had arranged for some people from LAMPF to visit, after he met them at a meeting of the four meson factory directors held in Los Alamos at the end of March. He offered to call Erevan to see if I could visit there between the trips to Tbilisi and Kiev. That never worked out, nor did the Los Alamos people's trip to Troitsk.

At home, Maggie and Clara got along OK working from a book on Russian starting at an intermediate level. There was also a visit from the apartment complex's "landlady," who (finally) counted things. We came to think of her as the Kommandant. She said we were due for *more* things because the previous occupant was just *one* person. Whenever that was, in view of the dust when we arrived there.

On Saturday Slava and Zhor drove us, in his new Zhiguli, first to see the Novodevichy Monastery, now mostly a museum. However, in the church there was a service going on. Old ladies singing hymns and a simultaneous funeral, this time with only two caskets. In the museum itself there were many tourists, including some Uzbeks. There was an exhibit of things from early years in the rooms where Tsar Peter's sister was incarcerated for 14 years as a reward for her political trouble-making. Zhor learned all this from the 70-year-old lady guard who obviously loved all that history.

On my suggestion we then drove to the Ostankino Dvoryets museum to the north of Moscow. On the way we passed a wedding party, in two beribboned taxis, that stopped to put bouquets on the tomb of the unknown soldier. At the former church that was now the museum we had to wait to enter until the ticket taker had assembled a large enough group to justify the guide. We again had to wear felt slippers over our shoes and to suffer through long speeches. As this late 18th century nobleman's palace was designed and built by serfs, it was now called the Museum of Serf Art. Its marble columns were in fact painted wood, but it was quite fancy nonetheless.

As it was now after 2:30 we drove to the All-Soviet Exhibition Park, where it was easier to park. We had a nice lunch at a restaurant with lemonade and a little vodka. Except Slava didn't drink, which was just as well, as fines for driving intoxicated were severe. Afterwards we walked around in the Park. The Stalinesque baroque architecture was ridiculously ornate. Most of the exhibit halls were closed for renovation, to be open in time for the summer tourist season. The Radio/Electronics building was open and we even saw, among the consumer goods, some hand-held calculators there.

On emerging from the Park, Slava found he had a parking ticket. This came also with the removal of his front license plate. He had indeed parked illegally – there was a no-parking sign – but two cars next to his did *not* have parking tickets. Slava had to retrieve his license plate on Monday and it apparently took most of the day to do so. After driving us back to the apartment, we invited the two up for some wine (and a glass of ice water for Slava). They left, after a rather long day, at 6:30.

The next morning the bathroom sink came off the wall as we were washing up. We made up a list of things to be fixed, but the Kommandant wasn't in her office when we went down to see her. So we went shopping at the neighborhood stores, getting an ice cream and having a coffee. Back at the apartment, while waiting for the pay-phone to become free, we met a West German also living there, with a wife, two kids, and a grandmother. He was a historian interested in pre-revolutionary Russia. He was not connected to any particular institute and did his research at a library (without problems).

At the Institute Slava said he got his license plate back without paying a fine. But he was required to go to a Sunday lecture on how to park properly. He also gave me some plastic films so I could make transparencies for my future lectures. Projecting them was not a problem, it turned out, while the 35 mm slides were in some places. I later learned from Zhori that Slava's time at the police station was harder than he had indicated to me. He had to re-do the whole driver's license exam.

As regards physics, Zhori's group and I were starting a project on quasi-elastic pion scattering from nuclei and how that might be related to pion production in proton nucleus collisions. I was also helping Sasha with the draft in English of his work on excitation of particle-hole states by pion scattering. And with Stepanov on a preprint he wrote in 1976 but never published (why?). In addition, Boris Tulepov and Belyak were dropping by frequently, socially. No trouble keeping me busy.

Maggie was also busy in good and less good ways. Taking the bed sheets to be laundered at the Embassy also allowed her to borrow some issues of Science from *their*

library. The Kommandant brought up more things like bedspreads, broom, and lightbulbs. Clara Androvna came by in the afternoon unexpectedly and that went badly. She evidently was convinced that *no* foreigner could ever learn to speak Russian properly. Maggie became livid at that and we decided to drop her completely.

Migdal had called earlier and asked me to come by in the morning before 9:30. So I did. I said hello to Tanya and we had some of Campbell's good coffee. He recalled there was a French fellow from Saclay who also stayed in #96, our apartment. He reminded me of his friend Ina, who might be a better Russian tutor for Maggie. And he arranged for us to go hear a balladeer, a sort of a folk singer named Evgenii Bagurin, that evening. I left a little after 10:00, as Bjorken was in town and Arkadi was expected to see him.

At the Institute I gave my newly prepared seminar on pion quasi-elastic scattering, this time to about 25 people. Sometimes my jokes even got a little laughter. That afternoon Victor Rostokin, whom I had met at Stony Brook, gave a lecture to students. I was also entertained by three guys who had developed a Monte Carlo code at Dubna. I came away with a bunch of their preprints that should be sent to my colleague at LASL who was doing something similar.

Zhori finished the day with a bunch of small things, including whether Katya had Julia's measles and how Bel was doing with the medicines I brought. Maggie was at that moment visiting Bel, giving her the cloth material we had brought for her along with some dress patterns. So I called there to warn her of the impending songfest that evening. It turned out that Bagurin's wife had also called her about it. We were to meet her at the Akademicheskaya metro station wearing our blue coats. We did get there that evening at 7:05 but there was no lady there in a blue coat and blue beret. So, at 7:30 we just walked back to the apartment and I worked a bit on some physics things.

I learned how to get to the Institute library. It has, in addition to the Russian journals, recent issues of Physical Review Letters (US) and Physics Letters (European). It also has somewhat older issues of Scientific American and Science which, though reprinted in the USSR, still have the ads (for things the average Soviet scientist can't get) and the articles on science politics. I still consider that surprising.

I was planning to go to the foreign literature library to use their microfiche reader. I had brought some reading materials and slides for possible talks on microfilm, but couldn't read them at the Institute. However, phoning ahead saved me the trip, because they didn't have one. The person I spoke to didn't know of one *anywhere*. Boris suggested later that he probably thought I was a Georgian trying to read microfilmed pornography. We later learned there *was* one at the technical library, but that place had become very

busy since the USSR signed the international copyright convention. Many institutions could no longer subscribe to hard-currency foreign journals.

I had a message to call Migdal and did so. He somehow already knew that we didn't connect with Mrs. Bagurin at the metro station. It was because she was waiting *inside* the station, not *outside* like us. He thought we might try again soon, but with his colleague Chernautsan as a guide. Chernautsan is one of the young people that Campbell was sending a TI-58. We would give it to him when he picked us up at 5:00 before the performance.

However, it got more complicated. Maggie was able to get two tickets for that night to see Andrei Eshpai's "Angara" ballet at the Bolshoi. As a last-minute thing we couldn't give them to any of our friends for one reason or another. Zhori suggested that Krasnikof in the office next door would buy them. I had not yet even met that man, but it apparently worked.

As spring advanced things around the Institute were being spruced up. Fences were painted, the lawns raked, and trash burned. On the street where I walked to work the dead dog was gone and there were women with long pointed sticks picking up litter. But the field with the early yellow composite flowers remained very trashy, albeit less muddy.

Alyosha Chernautsan arrived to take us to the Bagurin performance. (It was probably too high-falutin to call it a concert.) We gave him the TI-58 calculator, some books, and, for a few weeks, a Swiss voltage transformer. He immediately started trying to program it. It also turned out that he also lived in an Academy apartment block a bit to the north. It was an exact replica of our building and by coincidence he *too* lived in #96 on the twelfth floor. He was married and they had a four-year-old son, who mostly lived with his grandmother. They were looking hard for a bigger flat.

The concert took place in a small classroom of an institute for the training of middle-level technicians for automotive factories. Evgenii Bagurin was 43. He had only been singing publicly for ten years, originally making his living as a painter. His songs were written by him only and consisted of poems about trees, birds, the sea, etc. His seven-string guitar was tuned gypsy style, and his playing was high-quality and complex. There was a group of younger people who sang along with him. The audience was largely following quietly, and didn't react much, even to the funny parts. The concert began at 6:00 and ended at 7:30.

Afterwards, Bagurin came over to meet us. Alyosha had some of his (unofficial) tapes, evidently made and sold on the side. The two had met before. The manager of the institute came over to thank Bagurin and gave him an envelope, which presumably contained some money. We then parted with Alyosha and trolleyed home.

Besides Bagurin, Alyosha had told us there were three other important poet-balladeers, Bulat Okudzhava, Aleksandr Galich, and Vladimir Vysotski. They were allowed to travel and give concerts in the West. Galich, who was more political and a dissident, died in Paris the previous year under “strange circumstances.”

There were often fireworks displays which we could see from our apartment window. One was on the Day of the Astronauts (Gagarin had just had his flight). Another, on a Sunday, was for the Day of the Anti-Aircraft Fighters. In this vein, there were three upcoming major holidays – May 1 and 2, Labor Days, and May 9, Victory in Europe.

On a Saturday we went by ourselves on a more extended shopping expedition. First was the Beriozka Department Store. It was supposedly more complete in its selection of goods, but really wasn't much different from the Beriozka in the Rossiya hotel. There was a guitar available for 17 ₺, which I was tempted to buy but didn't. The liquor there was about twice as expensive as it was at the D-Coupon store. When some tour buses started to arrive, we left to see what was in the hard-currency grocery store. It even sold toilet paper, but again the prices were much higher than at the D-Coupon store. On the way back to the apartment with our bags of goodies we found three potted cacti in a dumpster and took them to their new home.

That evening we had the Vagradovs and Eramzhyans over for supper. They arrived with lots of goodies. The Eramzhyans brought Armenian brandy and two preprints. The Vagradovs came with tulips, Georgian wine, a multi-band radio, and a sharpening stone. Maggie put together a very nice meal, but was aghast when the pork tenderloin was still pink inside. She took it back to the oven. Our guests showed no concern about trichinosis, claiming that pork in the USSR was inspected. After Maggie's apple Wehe (a Swiss pie) and washing up, the party broke up at 11:30.

The next day, Sunday, we went with Zhori and Belyak to an art exhibition put on by about 100 Moscow artists of various kinds. Paintings, sculpture, jewelry, clothing, fabrics, and weavings. Some of the works were rather avant garde. The exhibit hall was run by the Union of Soviet Artists. Afterwards we walked around in the area with many cafes and bookstores. One of the latter had books from East Germany. In reference to that, it turned out that Vadim knew a fair bit about Orwell. But he didn't want to talk

about that on the open street, much less at our apartment. Good, since we didn't know, but suspected, that we were being bugged.

Zhori and Vadim, as we walked back through the Red Square, told us that April 22nd was going to be the Moscow Day of Suddotnik. This was a day when I was expected to participate in some civic housecleaning like cleaning streets or washing windows. This amused them considerably, knowing that I had come to Russia on scientific exchange.

At the office on Monday, Krasnikov came in, introduced himself, and thanked me for the ballet tickets. Slava popped in, bringing along his tape recorder. He was taking his English lessons seriously. His text was from 1960 and its jacket said it cost 2 ₺. In 1961 the value of the ruble was cut by an order of magnitude. The same book today, he said, would cost 29 kopeks. I spent much of that day (Zhori had stayed home, as Bel was sick) drafting an article on pion knockout reactions. Seryozha arrives finally at 6:10 to close up shop. He gave me a ride back to the apartment in his Fiat-like car which he was about to sell.

By this time we had spent some time and effort trying to find out how to make contact with Mark Gekht, the fellow we met in Moscow back in 1971 when we came to the Dubna Conference. We tried through friends and official sites, but without success and we gave it up.

In the continuing saga of trying to find a microfiche reader, we both went to the foreign literature library. After some discussion, I too ended up with a "propusk" (it's like a library card), just like Maggie's. There was further discussion on whether or not they have a reader. Many denials, with Maggie watching it all with amusement. It ended finally, after a phone call to Zhori who said to keep at it, with an English speaker admitting they *did* have one, but no one knew how to use it! We were escorted up to the third floor and encountered a man working on changing something on it. Yes, it did work, displaying what was on the fiche. Maggie left for home and I spent some time using the reader before leaving, late, for the Institute.

Back at home that day, I found Maggie entertaining Ina Sergeeva Shirshova, Migdal's "girlfriend" who could help Maggie with her Russian. The two of them got along famously, and they would be meeting on Tuesdays and Fridays. It only later turned out that Ina did *not* speak any English.

At work we were already writing a draft of an article about charge exchange in pion knockout reactions. In general my physics interactions with Zhori and his colleagues were quite satisfying.

April 22 was indeed Lenin's Saturday Workday, but I had *not* been asked to help the crowds sprucing up streets. So I took some photos instead. We went on to visit the Tretyakov Gallery, not very crowded that day. There were many portraits of Lenin and one of Brezhnev (loaded down with medals). But, as we were told earlier, we found one Chagall, two by Kandinsky, but none by Malevich. On returning to the apartment we were asked by a guy named Dick, also an American resident, if we wanted to go to the Bolshoi that night – they had two extra tickets at 2.60 ₺. We of course said “yes.” It was a bit of a problem finding out where we were to pick them up at the Embassy. On arrival at the theater we were expecting to see a Shchedrin ballet. However, Cyrus Vance, our Secretary of State, was in town and *he* wanted to see the Nutcracker Suite. Guess what we saw.

Back when we were in Switzerland, Maggie's former German teacher and now our friend, Helga Hillmer, had expressed an interest in visiting us in Moscow. For a long time it looked like it would be impossible to arrange that, but on April 24th the SAS contacted us, asking for more information about her personal data. On providing that, Seryozha came back from the Academy saying it now looked possible. There were still things to sort out with several other bureaus, but maybe it would actually work.

We hadn't seen Hal Schwartz for some time as he had been doing a lot of traveling to different medical institutes. He came over for supper that night, the 24th. Good, because it was snowing on the 25th.

At work Seryozha and I were now also on “*tyi*” terms, the familiar second-person tense. Rostokin and Belyaev came to give lectures to the students. And Zhori continued to have strained relations with his boss, Tavkhelidze, who I gathered was quite an operator. A lot of that was because Zhori had been asked to review a Candidate's thesis on the history of atomic weights. Tavkhelidze did not think the Institute ought be involved with history. Zhori was also worried about Belyak's paper being rejected by the JETP, the most prestigious Russian journal, which has a 30% rejection rate. Work on the draft of our “Non-Analog” paper continued.

We went to another Bagurin concert with Alyosha and his friends, including Zoya, also one of David Campbell's helpers. Bagurin greeted Maggie as he came out of the john. Tonight's performance was filmed for television and the cameraman and various officials were quite a pain, they were so officious. Some of the songs were the same as before, but others were new and some of them were sung by Tanya, one of the young people in Bagurin's “chorus.” At the break we had some trouble understanding Zoya's “British English”, and she had trouble with ours. Maggie thought she was a pill.

After the concert Alyosha described what he had been able to do with the TI-58. He programmed it to solve a second-order non-linear differential equation (wow!). It only took 20 hours to run.

At work, we borrowed an English-language typewriter from Borya Tulepov and I started typing up the paper we were writing. Also, Zhori suggested we attend the Russian Orthodox Easter services that weekend. The next day, Friday, would be short as a result. This got us into a history lesson on the reforms of the alphabet, calendar, and week that took place in 1917, the year of the October Revolution. For a while the week consisted of only five days (i.e., 73 weeks per year), but they went back to the seven-day week in the 30's.

In preparation for Friday's session with Ina, Maggie had written an essay on brooms. The one she had bought for 1 ₰ didn't work very well. We had to tie it back together with string. Ina scratched on it a lot but was pleased. She invited us to come to a jazz concert the following Thursday. Jazz? It was a group headed by her husband, who was a flugelhorn player.

The toilet that morning had stopped working; the threads on the ballcock had stripped. On the way to work I arranged with the Kommandant to get it fixed. Nothing had been done by lunchtime. Zhori called her to remind her about the *important* professor living in #96 (me). A somewhat brusque plumber did come by later that day to do the job.

We went to see Hal Schwartz at the academy hotel. He was about to return to the U. S. We went to a Uzbekistan restaurant for lunch, where, as foreigners, and the fact I had made a reservation, we were allowed to jump the long line waiting outside. Excellent food, with a not-so-wonderful Moldavian white wine. Then back to the hotel, as he had to pack things up. Among other things that Hal didn't want to carry back was the guitar he had bought, so he gave it to me. (I had left *my* guitar back home in Los Alamos.) It was playable, but with nylon strings.

The next day was Russian Easter Sunday, for which we carried along the camera and recorder. At the cathedral (if that's what it would be called) we had some trouble finding the foreigner's entrance. In the courtyard there were tables laden with Easter cakes and eggs, with their owners standing by to be blessed with holy water or whatever. We were surprised to see there was no guard at the door.

Inside we ended up with a group of old women quite near the front. We were remonstrated – twice – for not facing forward and for having our arms behind our backs.

The service began at 9:00 and the priests were fairly young, not old. Two nuns were lighting candles in front of statues of saints. There was incense in the air. The other people in the congregation were all over 40, except for one young boy whose mother was singing the words of the hymns in his ear, apparently so he could learn them. We ran the tape recorder, not knowing if that actually worked. I also tried to take some photos, but that was unsuccessful. After two hours we left, even though the service was still going on.

In walking back through the Red Square with about ten murals of Lenin, one of which on the side of a building, 14 stories tall. The essence of the art called Socialist Realism now became clear to me. Figures must always be striding forward, with one arm raised and the other perhaps holding an important piece of machinery.

Back at the apartment, around 2:30, Zhorl picked us up (with Slava driving) to go to his apartment in the south. The original purpose of this visit was to find a more comfortable chair for Maggie. Bel and Iulia were off at a cemetery and arrived only after we had already gotten started on some sardines and cheese, accompanied by vodka and bottled kvass. I wasn't comfortable going along the cheers of "Christ is Risen," but Maggie did chime in. Bel put together "a simple family supper," which involved one of the Dutch chickens Zhorl had found on the streets.

The large Vagradoy apartment is on Academy land. (Up to five years ago they all lived in a one-room apartment.) After the war some city body tried to annex the area. That takeover was stopped when somebody in the Academy's history department produced a letter from Lenin saying it was always meant to be Academy property. The history department became an important part of the Academy ever after.

We were rejoined by Slava and some of his friends after supper. Conversation that evening lasted until about 10:00. Someone wanted to know what a "black hat" was. And what were "miles" and "knots?" Someone else asked if there were circumstances, when driving in New Mexico under license, one could only drive on side roads. Zhorl explained to us why there were so many police in the subways. There was a bombing there last winter that killed seven people. There were two other bombings elsewhere in town, but without deaths. He did not know who was responsible or why. Even more interesting, about five years ago someone fired on a procession of limousines carrying Brezhnev! Did that make the Western newspapers? And, of course, the neutron bomb that LASL was designing, always a good subject for discussion.

May – Moscow, Tbilisi, and Kiev

The first of May, a Monday, was a big holiday. It began with a huge parade, martial music (dubbed), and loudspeaker slogans (also dubbed). Brezhnev was at the Red Square grandstand, unsmiling but waving at the marchers from time to time. We got to see all this on the TV. There were interviews of various foreigners, including an old dame speaking English (American?) who marched there in 1934. She expressly sent greetings to the Ladies Garment Workers Union. And lots of balloons, released in front of Lenin's tomb. These celebrations ended at noon.

We went out for a long walk past the Kremlin, the British Embassy, the tomb of the unknown soldier, and over the river. We were able to buy a little black caviar on a piece of bread for 46 kopeks. Since caviar was difficult for ordinary citizens to get, we wondered if that was something special for May Day. The next day, May 2, was also a holiday, but Ina came to work with Maggie and I just worked.

At the Institute the large blackboard, which had been delivered to our office more than a week earlier, finally got mounted. They also installed a telex across the hall, so I could now communicate with LASL more easily than before. I also learned from Belyak that he had sent off his paper to a journal. Another finally. Discussions about our so-called big review paper were going badly. I began to hope that it would never happen.

We went to the jazz concert by Ina's husband. Not everyone was a stranger. Tanya Migdal was there. And the playwright we met at the Migdals was there. Her name was really Muza, not Masha. She was Ina's mother in law, i.e., the mother of the flugelhorn player. The concert was preceded by a boring thirty-minute lecture on the history of jazz, *all* of it.

Finally the music. The group consisted of a piano, a bass, alto and tenor saxophones, and the flugelhorn. It was *modern* jazz, close in style to that of Miles Davis. And *very* good. The players were much too professional to be just amateurs. Most of the pieces were old standards but some were written by German Lukyanov, the flugelhorn player and Ina's husband. I wondered how on earth such music ever came to Moscow and how did they get permission give public performances. We later came to know Lukyanov fairly well. He had studied composition with Khachaturian before switching over to jazz.

At work on Saturday arrangements were made for the trips to Tbilisi (Georgia) and then Kiev (Ukraine). Maggie's air fares came to 78.30 ₺. We were to fly to Tbilisi on May 16, stay five days there doing physics and tourism, and then on to Kiev on the 22nd. We were there only three days, returning to Moscow on the 25th. When I called the

American Embassy to report on this, they also said there were tickets for that evening, if we wanted them. I said “yes,” but I had some trouble getting hold of Maggie to tell her about it.

It was a little hairy getting to the Embassy to pick up the tickets, then getting to the Bolshoi in time for the performance. Alas, it *wasn't* at the Bolshoi but at the Kremlin Palace! We were able to get there and seated just as the curtain was rising. We were also surprised to find it wasn't a ballet but a performance of an opera, “Prince Igor.” We eventually bought a program and learned it was by Borodin (but finished by Rimsky-Korsakov and Glazunov after his death). We were even able to get some light food at the buffet during the entr'actes.

The next day, Monday, I played hooky and we took a long walk up Leninsky Prospect, to the river and the Lenin “mountains” (small hills) and took a boat ride on the Moscow River past the Kremlin. Tuesday May 9th was Victory Day, also a holiday. Ina had called in sick (as were we, fighting colds) and didn't show. We took another long walk like the one the day before but this time down the Prospekt.

I began bringing copies of the International Herald Tribune and Newsweek from our Embassy to the Institute for people to read. They quickly disappeared, of course. Other than that, our physics work continued steadily and without much excitement until the day we flew to Tbilisi. Maggie continued working with Ina, again writing little essays for her to correct. Evenings I often plunked away on the guitar.

That is, a quiet lull, but there was one evening when we and the Vagradovs went to dinner at Victor Rostokin's place. Among his other guests was a fellow who was the Secretary of the Soviet Union's Rugby Association. There were about 500 teams involved. A guitar was brought out and we all sang along. This was followed by word games. And, finally, a quite sumptuous dinner with interesting conversation about books. We caught the next-to-last metro and it was 1:20 by the time we got to bed.

At work we continued discussing the proposed multi-author review paper, but I had continuing misgivings about it. One of the authors, Sergeev, appeared anxious to drop out, and Seryozha worried about making a mistake. I decided to circulate the English language version of it on my return to the states. Provided it still existed and I was proud of it.

On April 16 we flew to Tbilisi from an airport to the south of Moscow. Zhoris, who has some Georgian ancestry, came along with us. He came along to smooth things, but was planning to stay with some relatives. We landed there about 1:00 PM and Teimuraz

Kopaleishvili, our Georgian host, was waiting for us at the gate. (I had met him back at the Dubna conference in 1971.) Evidently he and Zhoris had known each other for some time and were on a “tyi” basis. Zhoris spoke Georgian. Our bags were already in a taxi and it only cost 1.20 ₴ to free them. We were taken to an Intourist hotel, where we were asked to pay 12 ₴ per day, presumably for Maggie. Zhoris and Kopaleishvili got into a pretty heavy argument about that and it was eventually reduced to 6 ₴ per day. Kopaleishvili outlined his plans for our stay and said one of his students would pick us up at 7:00 for a drive around town. He and Zhoris then left.

After cleaning up and with nothing to do until we got picked up, we went out for a walk. We found a nice cafeteria where we ate two khachapuri, fried bread stuffed with cottage cheese. Excellent but not very filling. After, we looked at a few stores, a church, beggars (!), an art gallery, and a foreign-exchange shop, which in Georgia was called a Tsinantela instead of Beriozka.

Back at the hotel we were picked up, on time, by Misha Chachkhunashvili and his wife Nellie. She spoke only a little English so we survived most of the evening in Russian. They drove us around all the usual tourist spots – many statues. Tbilisi has quite different architecture from that in Moscow. There was a row of houses precariously perched on a cliff high along the river. Misha talked us into a Byzantine church as it was closing up. There was a big chair in the middle in which the patriarch sat during the high services. The old one who died last year was buried in the floor. They drove us up a small mountain (which had a funicular) to the TV tower for a view of the city and a walk through an amusement park.

It was now 10:00 and it was clear that we were not going somewhere to eat. They dropped us off at the hotel. Maggie asked the floor-lady (dejournaya) for a vase for the lilacs Misha had bought her. We were able to put together a reasonable picnic in the room from the salami and things we had packed along.

The next day Misha picked me up to go to the university. First to the dean’s office for administrative things. Irakli Marabeli, the dean, had *also* been a student of Kopaleishvili. Then finally to the physics department. I was to give my talk the next day, so for now it was just general physics talk. Zhoris had also come for that. I learned that Kopaleishvili had written a book on scattering theory – in Georgian and its alphabet! He gave me a copy, but I could only guess what was in it from the equations in Roman and Greek.

I later learned from Irakli that the Georgian language may be distantly related to Basque. It has no genders and eight tenses. The alphabet was founded in the 5th century and has

33 letters. There is, I was told, a Georgian word that has eight consecutive consonants. No wonder I couldn't read anything. Irakli also said that some Georgian poetry rhymes in up to five syllables.

After lunch he and I went off to pick up Maggie from the hotel. Some guy from the Foreign Relations department took our passports to get permission for the long touristic excursion planned for Sunday. The rest of that day was a shorter touristic excursion to the confluence of the Kura and Aragvi rivers, a bit west of Tbilisi. More churches, driving past an old nuclear reactor, and archeological excavations between apartment buildings. And a stop at a cafe for beer and good Georgian food.

Back at the hotel we arranged airplanes for the flight to Kiev, then went out for another walk. The metro in Tbilisi is similar to that in Moscow but is even deeper. We bought some bread, some "keks," and juice. And once again had a supper in our room.

At the university the next day I hustled about trying to get the Kodak Carousel projector working for the slides I was going to show during my talk. After a long introduction, I finally began to speak. Unfortunately, the first slide never came on! The electricity was off and it stayed off. So my talk was postponed to the next day.

Back at the hotel, Maggie and I were taken out by Misha and a fellow named Vasha for another khachapuri snack. She declined to eat much since, on her earlier walk that morning, people kept bring her pieces of blinchiki and coffeecake. They felt sorry for the "poor American foreigner with only 5 ₾ a day." She was also given some dates in exchange for an American quarter. We went to a well-laid-out historical museum containing relics back to the Stone Age.

In the evening we, together with Zhori, had dinner at Kopaleishvili's. His wife, Marina, was Russian, not Georgian. The older of the two daughters could speak some English. Another guest was his friend, Nodari Amaglobeli, who was the head of the experimental group. They had a big color TV which was turned on so they could watch the football match while we ate. The meal featured an excellent fish in a pine nut sauce and chicken in a tkemali (sour plum) sauce. The wine was home-made from Kopaleishvili's brothers.

My talk the next day went without electrical problems. I spoke in English, of course, and that would have been hard for some of the students, but Kopaleishvili translated what I was saying into Russian (not Georgian). He often anticipated what I was about to say from the slides until some girl spoke up with "That's *not* what he said. Let *him* speak."

In the afternoon Irakli took us to an art exhibit of paintings by Elena Akhvlediani. She had recently died and her home became a museum. Besides her paintings she had collected a lot of ceramics and Georgiana. She also had a fine piano, perhaps because she was a friend of Sviataslav Richter.

In the evening we walked, alone, to an hotel, more pleasant looking hotel and had an unpleasant meal with a lot of arguing and waiting for service. The meal itself was pretty good, however, and we finished with kupati, grilled sausages containing pomegranate seeds, served with a light barbecue sauce. Very tasty. By this time service had improved, since they recognized we were foreigners, and the waitresses became friendly.

Four gentlemen from a nearby table sent over a bottle of wine. We raised our glasses to say thanks as we wondered if we could really finish off a second bottle of wine. Not to worry, as suddenly a plate of white cheese and a tomato-cucumber salad arrived at our table. Followed by four more kupati. A band started playing classical rock-and-roll, loud and not too good, and people started dancing. At which point ice cream for six persons also arrived. And older man came over and asked for Maggie's coat check. We didn't understand why and he went away without it. It turned out that he just wanted to go home early and he couldn't leave the coat unattended.

As we got up to leave, we discovered that the four gentlemen were also *buying our whole dinner!* How could we deal with this and thank them? Fortunately Maggie had some Kennedy half-dollar coins to give them. With many thank-you's and much handshaking, we were able to depart and waddle back to our hotel.

The next day, Saturday, Misha took us to the (huge) Georgian Art Gallery. Twelfth century metal and enamel icons. About 200 Niko Piramanashvili paintings (he was self-taught and primitive, reminding us of Henri Rousseau). Stone works, frescoes, and mosaics from 14th century churches and earlier. (Many of those pieces had their faces obliterated by Muslims who invaded from time to time.)

Next on the program we went to the Park of Victory and its outdoor ethnographic museum. These were transplanted lower- and middle-class houses from all over Georgia from the 19th century and earlier. There were guards/guides who explained things inside the houses. In the park there were many school groups. We walked up a hill to a fortress-like tower which had no apparent door. It was built for self-defense by two or three extended families. Apparently when enemies came through, they tended to kill everyone they could. We came down the hill past a small lake with rowboats to hire. Further on we heard Turkish-style music from a trio consisting of a clarinet, an

accordion, and a drum. They were playing for a group of dancers from the south part of Georgia. It was a pretty gay party. From there we returned to the hotel around 4:30.

After another in-the-room supper we went to a concert at the Philharmonia Hall. (The tickets had been bought for us by Misha in the morning.) It was a complicated program of Georgian dancing (mostly males), a sword fight done with sparks flying in semi-darkness, a comic ballet, a procession with candles, and even what was apparently some religious music. Maggie's opinion was that this performance was far better than what she and Hall Schwartz had seen in Moscow.

As you see, the Georgians were making sure we were well-treated as tourists. But there was more. Sunday was for a long excursion to Kakheti in the eastern part of Georgia. There were nine of us – three Kopaleishvilis, their friends Guram and Kateri Dolidze, Misha, and a driver for the borrowed Intourist car. Misha drove his car also, following behind. We heading east past the airport and into some hills. Nice scenery with lots of sheep and goats, some with tall horns. The houses were mostly brick or stone one-family homes with fancy tin waterspouts. We stopped at a spring famous for its water and again to take a picture of a very new Victory Statue.

We arrived at a town named Tsinandali, known for its very good white wines. We toured the landowner's 19th century palace with a guide speaking Russian. Kopaleishvili kept asking us, "Do you understand?" But since it was all about a big family's history, we did not.

From there we drove on to Telavi (not Tel Aviv, which was a source of jokes for the Georgian Jews) and on to Gremi. We stopped there and climbed up to a monastery on a knoll by a creek. Guram told us that Gremi was the capital of Kakheti, but it was destroyed by the Persians in the 17th century. We then returned to Telavi past an airfield with about a hundred helicopters but no airplanes.

We had lunch at the Intourist hotel. It was arranged by Kopaleishvili and was also sumptuous. Georgian bread with caviar; beans; a marinated herb salad of some kind; another marinade of cucumbers, carrots, and onions; beef chunks in tkemali sauce and without. The rosé wine was a Rkatziteli varietal. The meal was accompanied by a complex folk song sung by a group of men at the next table. They were still singing when we left.

After the Intourist driver repaired a flat tire, we continued on, now heading west. More churches, more small towns. Guram found for me a roadside plant that was in the herb marinade. It may have been portulak, a variety of purslane. On the way out of one

church, a photo of Stalin's grandson prompted a long and sympathetic discourse by Kopaleishvili on Stalin's role in Soviet history. It turned out Kopaleishvili was a Hero of Soviet Labor, so it made some sense he spoke that way. The political discussion was getting a bit difficult. It stopped when we said that, just as they do not consider Americans as peace-loving, nor do we them.

Continuing our way west, there was another stop at the watering hole and an extended "snack" at a stand-up cafe. It was now dark as we came back into Tbilisi with the driver flicking his headlights often between low and high beams. We concluded that the driving there was much like that in Mexico. Perhaps a coincidence, on arrival at our hotel at 10:30, Maggie gave Marina a Mexican reboza that she just happened to have brought along. In return, Marina gave Maggie some Georgian recipes.

The next day, Monday, we were met by Zhori and Kopaleishvili for goodbyes and then driven to the airport by Intourist for the flight to Kiev. We arrived about 2:00, some 50 km from downtown Kiev, and were met by Simonog, a three-body theorist. He had a bid in to also go to the Graz conference that I would attend when we left Russia. As our bus crossed the Dnieper, we had a spectacular view of the church domes reflected in its water.

It was another 20 km taxi ride to the Academy hotel near the very large theoretical physics building. Checking in involved the usual nasty hassle, but Kharchenko arrived to smooth things out and to describe tomorrow's program. I was to give my seminar on Wednesday at 3:00. Simonog and Kharchenko then took leave after suggesting that we go across the street to the gastronome for wine and vittles. Another of our glorious in-room picnics. Our room was not exactly up to Swiss standards, as many things were not working.

The next day Maggie took the trolleybus into Kiev while I was at the institute talking physics. More three- and four-body physics, close to my nucleon-nucleon work with Kloet. There would be a car with a driver for taking us around as tourists the next day.

Back at the hotel, Maggie's day in Kiev was mostly running around, not very exciting. However, things had improved in our room; the refrigerator now could turn itself off and the broken parts of the mattress replaced. Maggie assembled the fruits of her day's labor in the city into another in-room supper.

On Wednesday it took some time to locate the car and driver. He was kind of surly and apparently did not know Kiev all that well. We were met by Igor Kozlovski, a pleasant young chap from the institute, who acted as our guide. Walking on foot by yet more

churches and statues, skipping the Mariinskyi Palace for a monastery and some catacombs with mummified old priests. We returned to the hotel about 2:30 without lunch. I got over to the physics building in time to give my talk, ending at 4:30. I invited Kharchenko to our hotel room for a glass of bourbon, Maggie joining us. We talked until he left (with the bourbon) at 6:30.

The next morning was again mostly talking physics at the institute. Then Maggie and I went back downtown by trolleybus for more sightseeing. There was a shopping mall named Lavra. We went to a museum of decorative arts – high quality household goods that were not easily available to ordinary folk. Then on to the Obelisk of the Unknown Soldier, which was guarded by goose-stepping children carrying machine rifles. And, again, a bridal party dropping off a bouquet. We stopped in at a Beriozka, but there wasn't anything of interest to us. From there past the construction site of the Museum of the Great Patriotic War. Unable to find a restaurant that wasn't "on break," we found a cafe for a coffee and a piroshki. The bus ride back to our hotel was bumpy and took over an hour to get there.

As we entered the hotel, Kharchenko came by to say he had solved the car problem to get us to tomorrow's 7:00 AM flight to Moscow. After raiding the buffet downstairs, we retired to our room for our supper of leftovers from the night before. We packed up and I went downstairs to settle our bill of 6 ₴ per day for Maggie's non-Academy stay. There was an additional charge of 6 ₴ for Sunday night because nobody cancelled the reservation when our flight plans changed to Monday. So, phone calls to Kharchenko and an administrative lady (who was worried that *she* would have to pay the extra charge if I didn't) and it *might* get sorted out in the morning. I don't know if it ever did.

Up early and off to the airport with the same surly driver as the day before. He didn't wait around to take Kharchenko back to the institute. We said goodbye and took the bus out to the small Aeroflot plane, leaving for Moscow *on time*. The airport we landed at was closer to town and we were met by Sasha. First to our apartment to unload, then I went with Sasha to the Institute. I brought Zhori up to date and we then turned to reading Sasha's second draft of his thesis. Zhori was now more excited about the usefulness of such a paper, but it still would be helped by the evaluation of a two-dimensional integral. Seryozha also had something cooking for publication. OK, business as usual.

As for gossip, we learned that Rostokin had two tires stolen from his car. This sort of thing evidently happens often, and it is not just tires but also windshield wipers and headlights. That would explain why we saw so many puddles on the way back to

Tbilisi in the dark. One's insurance would cover the loss but getting replacements is time-consuming and chancy.

Another gossip item, mentioned to me by Kharchenko just as we were leaving Kiev, was that a conference just held on gauge theories in Moscow was boycotted by *all* the invited American participants. This was in protest of the sentence passed on May 18th on Orlov. He was a dissident physicist who illegally published some anti-Soviet essays. I asked why Sakharov wasn't also sentenced for the same thing. Apparently not, because he published his critical writings openly after submitting them to the Central Committee.

As a third gossip item, Zhori explained to me why the Institute of Theoretical Physics lived in such a plush building. It was because a son of a First Secretary of the USSR once worked there as a vice director under Bogoliubov. Zhori also said that I was now set up for going to Leningrad University on June 4. We were to take the overnight train there and back at a cost of 38 ₺. We were putting off a decision about my going to Novosibirsk. The pending visit by Helga Hilmer was still in limbo at the Foreign Relations department.

The next day, Saturday, we caught up on housework. Maggie had started washing laundry on Friday because we were told the hot water sometimes disappears for a while in the summer while they clean pipes at Central Heating. We went to the Diplomat's Store and stocked up on 15 ₺ worth of food items. Then on to the American Embassy to pick up mail (a lot of it) and have one of their filet-mignon hamburgers at the snack bar. On the way out we met Shawn Byrnes. He said there were *three* American delegations that canceled their visit because of the Orlov affair: condensed matter, gauge theory, and nuclear physics.

The next day, Sunday, involved yet more catching up on mail and housework. In the evening we had the Vgradovs and the Byrnes over for pizza (my crusts and Maggie's sauces). It went well. We learned that, because of the forthcoming 1980 Olympics there was going to be both a McDonalds and a Pizza Hut in Moscow. Hopefully ones with the electronic cash registers. There was at that time a McDonalds in Warsaw, Poland, but with only an abacus at the cash register. That's where the line formed.

At work things were more or less back to normal. Belyak's paper was favorably refereed and, after small corrections, accepted for publication. Seryozha said he wants to learn hang gliding. On Wednesday, Borya, Zhori and I went off to play tennis for two hours. For me the last time I played tennis was back in '68, before I switched to squash. I was awkward. My serve wasn't too bad, but my volleys were poor. Borya said my squash playing didn't do much good for my tennis.

June – Moscow and Leningrad

On Thursday, June 1, Zhor, Seryozha, and I drove south to Krasnaya Pakhra in an academy car. That is a small resort village with hotels and spas. By itself not too interesting, but on the way back we stopped at the town of Troitsk. This was (and still is) a place where many of the Academy scientists and their families lived. It was also where they were building a 1 GeV electron accelerator and the meson factory linac.

We stopped in at a few of the laboratories for which we did need a propusk (certifying we could enter legally). In one I met a fellow who was developing a liquid Argon detector to study elastic neutrino-electron scattering. That was thirty-three-odd years before the liquid Argon detectors *now* being built for the DUNE laboratory in South Dakota, also largely dedicated to studying neutrino reactions. *Deja vu*, all over again. We also visited with Lobashov, whom I had met several times before, e.g., when he visited LAMPF. Tavkhelidze also popped in to say hello, and he told me that I was the first American to visit their facility.

On Saturday, June 3, Zhor and Slava took us to Zagorsk, a monastery town about 30 miles northeast of Moscow. Along the way we stopped at a Kafeterii for a coffee, but there wasn't any. It was cold, cloudy, and blustery, but I took a lot of photos anyway. Many other tourists and many colorful domed churches. There was a service going on in the main church with numerous priests and a male chorus. And a funeral in the smaller church next door. The art museum was quite impressive, particularly in that there were *no* pictures of Lenin on the Soviet-era vases and linens. Back in Moscow, Slava dropped us off and said goodbye. He was on the way to his dacha, and he (whom we had never seen drink during all the times we did) needed to buy some vodka.

Maggie and Ina Sergeeva were making good progress on her Russian, despite the usual difficulties with verbs of motion. Maggie would write up little essays about her adventures, which then would serve as topics for conversation. On learning that we were to be in Leningrad and when, Ina decided to join us there for times when I was not occupied at the university. I was a little surprised she could get away to do something like that.

Nimai Mukhopadhyay, whom I knew as a frequent visitor to LAMPF, had been in Russia all of two weeks when we met him on Sunday at his Moscow hotel. He had become a newly-converted anti-Communist. We walked about, took a boat ride on the river, had a few beers, and started for our apartment. I should have used the men's room

on the boat. On exiting the metro station I hurried off to use the public toilet on Leninsky Prospekt, to discover it was “Closed for Repair.” The next nearest convenience was way down at #43. So I hopped on a tram without waiting for Maggie and Nimai, rushed on to the apartment, and got there just in the nick of time. Eventually Maggie and Nimai also arrived at the apartment. Maggie made a nice Beef Stroganoff and, with some sour cherries, we had some of the coffee that Nimai had brought for us. He then left in time to catch the 9:00 PM train going back to Dubna.

In our conversation during the day Nimai said that Sergei Polikanov at Dubna had just lost most of his privileges and was about to lose his job there. This was because of a news conference he held with Western media. He was a corresponding member of the Academy, a theorist specializing in high-energy particle physics and his papers were well-known in the West. I later learned he and his family *were* soon expelled from the USSR; he eventually ended up in a good position at Darmstadt. Nimai also commented that 80 % of the physicist at Dubna were “tenured” and as a result didn’t really do all that much. I was due to go to Dubna in August.

On Monday, June 5th, we boarded the overnight train to Leningrad at 11:30 PM. It arrived at 8:30 AM and we were met by Vadim Bunakov and were taken to another Intourist hotel. Check in, unload, up to the 6th floor buffet for coffee and rolls. I had never met Bunakov before. His English was very good, having perfected it during a long stay in Copenhagen. He outlined the plans for the rest of the week and left.

For the rest of Tuesday, we walked about in the downtown savoring (again) many of the usual touristic sights. Despite the cold in Moscow and the fact we were further north, it was actually pretty warm, and I shed my coat. One place we had *not* seen on our visit in 1971 was the Peter and Paul Fortress on the Neva river. There were many bathers by the shore, mostly not swimming but sunbathing. One lad had a tattoo of Lenin on his chest. Apparently, such a thing was officially sanctioned.

We had a meal in a Kafkazi (Caucasian) restaurant, which we were allowed to enter only after Maggie returned to ask again but in English. We were joined at our table by a young couple who lived near Arkhangelsk, about 1000 km away. They shared some of their bottle of vodka, which involved a lot of toasting. The food, not *all* Georgian, was good but not cheap. The couple had a nine-year-old son, and Maggie gave, for him, one from her hoard of Kennedy half-dollar coins.

On Wednesday I called Bunakov and after some telephone tag with Ina, we decided it was OK that the three of us could go tour the Peterhof Palace. This was Peter the Great’s emulation of Versailles, a bit outside the city. Ina met us at our hotel, and we got

there by hydrofoil. The huge palace had a long line, so we decided to skip going inside to walk about in the surrounding park. It was huge with many fountains in a baroque setting.

While we were walking about, we learned quite a bit more about Ina's life. Her husband German, the flugelhornist, was a vegetarian and something like a Christian Scientist when it involved his health. Ina also tried vegetarianism for a while but gave it up when she got sick.

They had an unusual courtship. Once German decided that he had to get married, he undertook a big program of looking *everywhere* for the person he should fall in love with – parties, trams, etc. One night in the metro, after band practice, he saw Ina through the window of a passing train. “Her!” After two weeks of waiting for her after her work and asking her to go out with him, she finally consented. They went to his apartment and talked about themselves for five hours, until her daughter Anya got out of kindergarten. Not his daughter, obviously. After about a month of this he declared “Maybe I *will* fall in love with you,” using the formal form of “you,” not the familiar form “tyi.” That angered her some, as she was already smitten. She undertook her own program of alternating saying “yes” and then “no” for another month. He began to toe the line better. Soon after they married, they took a trip (a honeymoon?) to the Danube and stayed in a fishing village for twenty days. German couldn't swim but he bravely plunged in to rescue her when she got caught in a swift, black current.

As a musician Lukyanov was always interested in jazz. At the Leningrad Conservatory he earned a 2 (out of 5), since they considered his compositions “too formal.” So he moved to Moscow to study with Khachaturian. Since German mostly worked on jazz, Khachaturian didn't pay him much attention at the time. However, when later he became well-known for his jazz, Khachaturian promoted him into being “one of his three best students.” By the time we met him, Lukyanov had been “officialized” and his band might even be allowed to play in Western Europe.

We returned to the city by hydrofoil and took Ina to dine with us at the same Kafkazi restaurant as the night before. We were joined by a group of women. The kupatis there came without the pomegranate seeds. We took leave of Ina, who then went off to see one of her author clients somewhere in the outskirts. On the way walking back to our hotel we watched two cops busting up a group of women selling lilacs. Forbidden in Leningrad but not in Tbilisi?

On Thursday we were met by Bunakov and driven to Gatchina, the laboratory in the south. In addition to the experimentalists, there was a theory group headed by Gribov.

The lab boasted a 1 GeV accelerator and a small, research nuclear reactor. I started my talk at 11:00 and while I was doing that, the *other* speaker for the day came in late because his train from Dubna was late. So, I was relieved I didn't have to give *two* talks that day. I continued with my talk and there were frequent interruptions with questions. Which was, of course, good because it meant they were paying attention and understanding what I was saying. In fact the guy in the front row even got up once and went to the blackboard to explain what *he* was talking about. I realized then that he, obviously, was Efimov, a three-body type we knew well in the States. My talk finished up at 1:00 (whew!).

Before lunch at the lab cafeteria, I presented Gribov with the wetting solution that Campbell had given me to take to him. Efimov bought my lunch and the conversation turned to questions about the rate of muggings in Los Alamos, the neutron bomb (of course), the SALT talks, and what salaries were like at LASL. He did not expect to go to the Graz conference, which was surprising to me. I was also surprised to learn, from Bunakov, that Los Alamos was going to repeat a controversial experiment that Lobashov and his collaborators did at the local accelerator. So, I had to go all the way to Gatchina to learn what was going on back home!

I and Bunakov were then taken to see the accelerator, a synchrocyclotron. The central magnet is huge, which is why we had to remove our watches before entering. The lock-up procedure was not all that formal (compared with that at LAMPF), but we were told there *were* scram switches about. On an announcement that the beam was coming up we had to leave. Outside we were able to talk about the experiments being done and the equipment they were using. To me the mess on the floor of the experimental hall looked jolly unsafe, again compared to what I was used to at LAMPF.

Back at our hotel in Leningrad Bunakov came up with me to our room where he, Maggie and I talked over wine and cheese. The discussion on history and armaments was much more open than I thought was appropriate in what was a possibly-bugged hotel room. Bunakov didn't seem worried about that. After he left we had another great in-room supper based on what Maggie had been able to scrounge during her day.

The next day, Friday, Maggie and I left to meet Bunakov at the Pushkin statue. We sat in a park beside the church built on the site of the assassination of Aleanxdr II and he and I discussed physics for a while. However, it was quite a bit cooler than the day before, so we ended up in a museum to warm up. It was an art gallery and here they also had pictures by Chagall, Kandinsky, *and* Malevich. Afterwards, at coffee, more physics discussion. (I don't know how Maggie survived all that, but she was used to people talking physics in her presence.) When we finished, Maggie went off to a Diplomat's

Store while Bunakov and I handled some business at the Academy Headquarters. I met Maggie back at the hotel, and we had yet another in-room meal.

On Saturday we were met by Bunakov and his wife Allya (she was also a physicist). We went off in a car with a driver to see Pushkin, a town 30 km to the south which now was a bedroom community for Leningrad. Back in its days of splendor it had many parks and a palace for Catherine the Great. During the WWII siege of Leningrad the Germans were both destructive and looted many of the palace's treasures.

Again, in walking around the grounds, we got to know the Bunakovs better. He had a lot of vacation he had to use up or lose. Where could they go with any likelihood of finding a place to stay? Once they went, with their daughter, for a month on the Black Sea and it cost them 1000 ₺. That sounds expensive, even by today's standards.

After leaving Pushkin we went on to Pavlovsk for another tsarist palace and park, but this one did not charge admission. In walking about here, Bunakov mentioned knowing something about Polikanov's problems, even though there had been nothing about it in the newspapers. As a corresponding member of the Academy, he could probably have survived for some time. If it were only about the press conference, that wouldn't have serious enough to get him expelled. The real cause was that he *agitated* to be kicked out of the Party.

Bunakov also brought up another tidbit on Sakharov, the academician who was considered by us as the father of the Soviet nuclear bomb. He had more recently become a co-founder of the Helsinki Accord on Human Rights. As a result, had fallen into extreme disfavor with the regime. Nonetheless, he was still working as a physicist and had recently published a paper in the JETP. Bunakov estimated his full salary to be about 1000 ₺ per month, which belies the shabby appearance in the photos of him shown in the Western media.

Back in Leningrad around 3:00 the Bunakovs declined to come up for a drink, saying that had to get back to their lonely 15-year-old daughter. So, we took the metro to the rinok (farmer's market) to buy things just before it closed at 4:00. At closing time there was a big crush of people trying to get out the building's only door. This habit of having only one door was satirized, Bunakov later told me, in Ilf & Petrov's novel "The Golden Calf." Maybe it was meant as a means of crowd control, I don't know.

That novel, we learned later from Belyak, was written, along with their "Twelve Chairs," back in the early 30's. These satires are only available on the black market or

in New York. The 1971 movie version of “Twelve Chairs” is rated 8.2 (out of 10, i.e., very high) on the International Movie Database.

Someone on this Leningrad trip said that Brezhnev was a medal-hungry man. There was once a small-edition medal made for WWII’s supreme commanders like Eisenhower, Zhukov, and the King of Romania. Brezhnev had it resurrected so it could also be given to him. He had been just a colonel-brigadier during the war. We were further told he might also soon get a Prize for Literature, since his memoirs had just been published.

Sunday, we checked out of the hotel at noon, even though our train back to Moscow left around 11:00 PM. We set off by ourselves for an afternoon of more sightseeing, the lesser sights. The Arctic Museum was pretty interesting for only 2 x 20 kopecks. We visited a cemetery for people who starved to death during the German siege. Many were buried in a mass graves marked on by the year. Bunakov had told us that he lived through that blockade as a child and, because of the poor diet, his teeth came out of it in very bad shape. He had also said that the first winter was so cold that it probably helped staving off an epidemic. After a lot more walking about, failing to find a restaurant that would take us, we ended up back at our hotel around 8:00 PM. The restaurant there was having a show, so we went up to the buffet on the 18th floor to get something to eat. It was not overcrowded and had a nice view of St. Isaac’s. And the food and the service were good. We even bought some vatrushki (cream cheese buns) for tomorrow’s breakfast on the train before arriving in Moscow.

We then went down to the lobby to retrieve our checked bags. Bunakov arrived to help us and another couple get to the train station. This was complicated by the car breaking down, but its replacement got us there by 11:20. We gave Vadim a book on pre-Columbian pottery, said goodbye, and boarded the train. We were asleep by 12:15.

On Monday we woke up at 7:20 and tea arrived, without the conductress knocking, as I was pulling on my pants. We arrived at the station and Zhoris was there waiting for us. We took a taxi to Ulitsa Gubkina (our apartment) where we unloaded and cleaned up. I then went to the Institute to catch up on mail and the goings on. Sasha had a final draft of his paper, which now had Zhoris and my names attached to it. Seryozha wanted to know if I still wanted to go to Novosibirsk. I didn’t but told him to hold off a bit on a final decision. We soon fell into more interesting physics to discuss. I went home to the apartment at 5:00 to find Maggie napping after her trip to the Embassy to pick up our mail. I too took a nap before supper.

The next day Maggie worked with Ina, also back from Leningrad. At the Institute there were more physics discussions and calculations. That evening we went to the Embassy

for the farewell party for Shawn and Jill Byrnes. It was mostly Embassy people but there were a few Soviets. Shawn's parents, Bob and Eleanor, were now also in Moscow on a two-month Academy exchange. He taught Russian history at Indiana University.

At the Institute we fell into a pretty regular routine doing physics, except for breaks now and then for tennis. The work was going well. At home Maggie continued to make good progress with Ina and the Lipson tapes. She was also beginning to spend more time with Bel and the girls. That is, our life was pretty boringly good for our work and for socializing with our Russian friends. Alyosha, whom we hadn't seen for a while, came by and gave us some Bagurin tapes.

Apart from our Russian friends, we were invited to watch a first-run movie at the Greenberg's apartment. Here we met Jim Gallagher, the Moscow correspondent for the Chicago Tribune. When I asked him what he knew about what was happening with Polikanov, he didn't say much but suggested that we get together sometime later. Since the movie was about a jazz saxophonist (played by DeNiro), we were not surprised that one of the Soviets at the movie was an ex-physicist, Alex Zhukov, who had become a jazz saxophonist. He knew Lukyanov, of course, and said he was hard to work with.

One evening we had a surprise visit from Vladimir Burich, the poet we met at Migdal's back in March. He arrived carrying the side-view mirror of his car. We learned he was Lukyanov's father, despite the different family name. The purpose of his visit was that he needed some help in translating a poem by John Updike. He was editing an anthology of contemporary American poetry and wanted to include that poem. For example, he didn't know what Necco Wafers, Nibs, and "Ju-Ju Beads" (i.e., Jujubes) were. For all our "help" he gave us a copy of his poems which had been translated into French. After a glass of wine, he left. We thought him more pleasant and outgoing than when we first met him.

When we got together with the Gallaghers, Jim told us that Mohammad Ali came to Moscow about this time for an exhibition boxing match. He evidently spoke with Brezhnev thirty-five minutes longer than Cyrus Vance did. The Gallaghers had come to Moscow, with their kids, with only six-weeks prior notice. The kids were at a Pioneer camp and would be going to Russian schools in the fall. Pretty gutsy, I would say.

On a late afternoon Zhori took Maggie and me to an exhibition of paintings by Ilya Glazunov (not Alexandr, the composer). There was a huge line of people waiting to get in, folded two times around the block. Could Zhori talk our way into the head of line because we were foreigners? Yes, he could and did, by showing my LASL ID and Maggie's New Mexico driver's license. The crowd inside was also huge. Even though

Glazunov founded the Russian Academy of Painting, I couldn't get very excited about his works. Belyak later told us he wasn't a Party member, which was somewhat surprising.

Seryozha went to Dubna on Friday the 23rd to defend his thesis. We made a celebratory apple pie for the occasion, and I took it to the Institute to give to him. But he never showed up there, so he missed out on the pie. When the pie came back to our apartment, Maggie was boiling mad at first, but she eventually calmed down.

We had dinner at the Vagradovs the next evening, Saturday, without Seryozha, but with the Rostokins. We had brought Zhorl a bottle of Posolskaya vodka, which was hard to get outside the Diplomats' Store. He had earlier mentioned it as "the very best" vodka, but to me it was strangely flavored and not worth the cost (about \$40 a bottle today). Bel's meal of Georgian Chicken Satsivi, however, was very much to my taste. It was in a sauce spiced with cinnamon, garlic, and walnuts. We learned that we might not see Bel and Katya again before we left for home, as they were leaving for a long vacation by some seashore. The Rostokins were also going away, but to White Russia (now Belarus).

The next day, since Maggie did not have a session with Ina, so we went to visit the Park Culturi. There was not much on culture. It was more a third-rate amusement park, with many of the rides apparently coming from the West. We had ice cream cones, and again did not get back our change from our 1 ₺ coin. That had happened to us more than once before. It was often difficult for vendors to make change, and of course they benefit from that inability.

At the Institute we finally had a celebration party for Seryozha (but without the apple pie). Champagne, cookies, and candy instead. With the secretaries and the high-energy people also invited, we were about twelve in all. I wasn't following the conversations all that well, so I tended to hold my tongue unless it was my turn to speak.

We woke one day to terrible news. The authorities had summoned two of the American correspondents to court for "slander." Apparently, they had reported that a TV confession by a dissident was really faked. I don't know what happened to them. Also, when Maggie went to the Embassy, she found that six Russian Christians had taken refuge there. The next day when she tried to go to the Foreign Literature Library, she found it closed for Sanitary Day. Whoosh, such childish games!

July – Moscow

We started this month on a Saturday by going to the botanical garden. It was a quiet and tasteful place with a lot of trees. The plants were largely unlabeled. It was about this time when we discovered kissel, a dessert/drink made with pureed berries thickened with potato starch. Very tasty.

Work at the Institute continued as before with Sasha and Zhori. Without going into details of their contents, this eventually resulted in four publications in 1978 and 1979. One of them was in Russian, the rest in English in Western journals. I had by now switched to the “tyi” form with Sasha, but he was unwilling to reciprocate.

On the Fourth of July Maggie stayed home to work with Ina on verbs of motion. I went with the Evans to the Embassy to join in the celebrations. Hamburgers, hot dogs, and beer. Besides our ambassador and Embassy folk, there were a lot of newspaper and magazine correspondents and other exchangees like me. Many of the conversations were about Polikanov and his problems.

There was a lot of digging and bulldozing out in front of our apartment building. It was amusing to us how quickly the Russians would begin a destructive digging project and then how long it took for someone to start re-filling the holes they made. This all was happening at the time when the hot water was turned off for the whole area for several weeks.

We were invited to dinner at the Tulupovs on a Wednesday evening. The apartment was near Migdal’s off Leninsky Prospekt. It had four rooms plus kitchen and bath with high ceilings and good quality old furniture. As it was pretty warm Borya prepared okroshka, a cold summer soup. It was served with potatoes, herring, and the remains of the Posolskaya vodka we had given to Zhori a few weeks earlier.

We called Gallagher and invited them to come for dinner with the elder Byrnes on Friday night. We decided, in view of the heat, to serve quiches, so I started making the crusts on Thursday evening. In the morning Barbara Gallagher called to say they had to cancel because one of the kids was sick. Could we go to their place for dinner next Wednesday? “Yes, of course.” So, with Bob and Eleanor Byrnes coming, we asked Caroline Evans to join us that evening to fill in. (Al was away in Moldavia.) The dinner went well. Much of Bob’s conversation that evening was about the things he could *not* get done because of bureaucratic obtuseness.

We had some trouble on Wednesday finding out just where the Gallaghers lived. Their apartment was in a block reserved for the foreign correspondents. However, the apartment number on Jim's card was for the Trib office, not where they lived. The policeman at the parking lot gate, probably KGB, said he "didn't know the Gallaghers" and he didn't have a phone that we could use to call them. Pretty hard to believe. So we went out to find an outdoor phone, found one and called, got the right address, and arrived at 7:30, half an hour late.

After zakusky and sherry, dinner consisted of Scallops Newburg. We were not the only guests. Nikki Frank, the nearly arrived AP correspondent, was a whirlwind of non-information about dissidents and refuseniks we had never heard of. After wolfing down her share of the dinner, she left in a hurry to chase some other story.

Their apartment was owned by the Trib and had bugs everywhere. It had recently been gone over, so they knew where most of them were. Barbara told us about the time she looked out the window overlooking the parking lot and saw a guy trying to remove their windshield wiper blades. She went over to the nearest bug and announced in a loud clear voice that "There's someone trying to steal our windshield wipers!" She then saw the gatekeeper promptly emerge from his shack to come over and take away the hapless thief, presumably to some authority somewhere.

Soon after that dinner we hosted one of our own for all four Evans, Sasha, and Seryozha. The evening started a bit stiffly, but it got smoother when we lapsed into Russian. Al told us about his visits to Moldavian collective farms. It seemed like one of their biggest problems was to build enough garages to house all the cars. I got out the guitar and sang a few American folk songs. At times I had to explain to S & S what the songs were about and in the process we also learned more about their families and where they grew up.

On the morning of Friday, July 14, we learned from the BBC's radio news that four "minor" Helsinki dissidents got long prison sentences, followed by labor camp, and then exile. It was also to be the day that Shcharansky, the computer scientist who wanted to emigrate to Israel, was to be sentenced and it might be that he *wouldn't* be sentenced to death. I went on to work, as usual. Later that evening we learned that it was only three years prison, then ten years of labor camp.

The following Sunday evening we went, with Bob and Eleanor Byrnes, to see Andrei Petrov's contemporary ballet "The Creation of the World" at the Kremlin Palace. It was performed by a troupe from Leningrad, but we weren't sure if it was the Kirov or not. The paintings on the scenery were more "shocking" than those of Glazunov, and Eve

was in a body stocking! At the break between acts, we fell into conversation with a Mexican couple who had come there because they thought it was going to be Cesar Franck's "Creation of the Earth."

On the evening of July 19, we and Ina Sergeevna were hosting a party at her apartment. Migdal had called trying to beg off because his hair "was too shaggy." Ina told him to come early, and she would cut it. We arrived also a bit early to help with the last-minute preparations and, finally, met the famous German Lukyanov. Our guests began arriving at 7:30, starting with a shaggy Migdal and Tanya, then Zhorl and Ina's sister and her husband. Volodya Burich (the poet of the "Ju-Ju-Beads" and German's father) arrived after we were already sitting at the table.

There was plenty to drink. By virtue of the Diplomats' Store and most of our coupons, we provided two bottles of Posolskaya vodka and six bottles of wines. Zhorl brought a cognac and Arkadi a vermouth. There was also orange juice! German, who generally avoided liquor, even drank some. He proposed a toast to Soviet-American collaboration, which I thought was a bit droll, but which otherwise was taken seriously. He also recited a doggerel poem he had written about Maggie's essays and her lessons with Ina.

Ina had scrounged (i.e., traded favors with her friends) a marvelous seafood feast, which included some caviar which we also got with our coupons. We learned that German, the vegetarian, avoided salt and sugar, which he called "white death." I remarked that, for us, "white death" was heroin. Arkadi then asked if I had ever tried heroin? I didn't bother answering that, but he did say that he had once tried marijuana. For dessert there was ice cream with strawberries.

By now the party was pretty lively. The Migdals left about 12:00 – we later found Tanya's popped button in the salad. The rest of us stayed on. German started playing the piano – old American standards and some jazz. I sang along for a while but I was queasy from the drink and had to retire to the bathroom to vomit. Maybe nobody noticed. We left with Zhorl about 2:30 and somehow he convinced a taxi driver to take us home. I was still queasy.

In the morning I felt better, not too hungover, and got to work around 11:00. In the evening I accompanied Maggie on a return to Ina's for her lesson, bringing along the guitar. German woke up from his nap, and he asked me to play a few songs. Did I know any blues? The best I could do was "Won't You Come Home, Bill Bailey," which he didn't really consider as blues. The girls joined us about 9:30, we talked and drank tea, and left for home at 11:00.

On Wednesday the 26th we had Zhor, Borya and Belyak over for pizza. Vadim says he is a “conservator,” and therefore he hardly ate much of the strange things we put on top of the pizzas. Afterward I played the guitar and sang a bit. Vadim was sufficiently impressed, he said, that he invited us over to *his* place the following Tuesday. In cleaning up, we found the kitchen sink was clogged and wouldn’t drain. In the morning the Kommandant found a plumber’s friend for me, and I got the sink cleared just as the plumber she had called arrived.

At the Institute Tavkhelidze came by and asked why we weren’t working his latest enthusiasm, a quark-gluon model for nuclear forces. At that time, *not* one of my enthusiasms.

On Saturday we both went over to the Lukyanov-Shirshovas for what we thought might be a mutual excursion somewhere. But that was canceled, so Maggie went off to the kitchen with Ina for a lesson. I was left talking with German, mostly about jazz things. He explained why the flugelhorn had four keys instead of three like trumpets and cornets. In fact, he asked me if I could somehow get him a Getzen flugelhorn. I don’t know what one of those would have cost back then, but today they run well about \$2700. I demurred because I couldn’t see how I could get it in through customs. Or what he could do for us in return. The lesson finished, Ina served us a light lunch, after which we left for home.

Thinking ahead about my departure, Zhor said it would be illegal for me to take typewritten or handwritten materials out of the country. Hmm. I checked with the Embassy, and they said they might be able to send back one of our trunks in their diplomatic mail. That would be possible because at least one of the trunks that had been full of gifts for people was pretty empty. On a related note, Zhor said that the copyright symbol © on a preprint did not mean it was copyrighted. Just that it had passed the censors.

August – Moscow and Dubna

On Tuesday evening we actually went to Vadim Belyak’s apartment – I was not really convinced he wanted such dangerous people as us there. We never knew it until we met her, but he had a rather attractive girlfriend, Ludmilla. Vadim put out a nice zakusky and champagne spread, also not what we expected. His large collection of books we *did* expect. We even danced a bit to some of his Russian rock records until his *mother* came home. Just full of surprises. We left for our apartment at 11:30.

At the Institute the next day there was some paperwork to deal with for what we were going to submit for publication. It was a form to fill out and on it there was one blank line for “Party Affiliations.” I asked Seryozha “How many?” and he replied “Just one.” He wrote in “Komsomol,” Zhori wrote in “Communist,” and Sasha left it blank. I thought about writing in “Registered Democrat” but on second thought also left it blank. I still have some trouble understanding why a scientific journal wanted to know about such things.

Following that, Maggie and I left by an afternoon train to Dubna for a four-day physics visit. This trip had been postponed from July so that I would be able to talk to people after they came back from their vacations. Seryozha came with us, having business of his own. After delays we arrived there at 3:30 and checked into the institute’s hotel. They charged us 3.60 ₺ just to process our passports. Seryozha then accompanied me to the Lab and eventually I got to see Belyaev, who was expecting me.

After a few minutes catching up on three-body things, Volodya suggested we take a swim. Why not? We caught up with Maggie at the hotel, changed into swimsuits, and went down to the beach on the shore of the Volga river. The water was cold. So we mostly talked, and the talk was general. For example, Lenin once attacked something written by the mathematician Poincaré, and as a result it was difficult for years to read anything by him. Poincaré, not Lenin. Similarly, Ponamarev’s book on quantum physics, a popularization, was attacked for not having enough requisite blather about Lenin. The book, however, survived and was later even translated into English. On a high-society note, the morning radio reported that Christina Onassis, age 27, was going to marry some middle-level 40-year-old technocrat and was going to live in Moscow! Belyaev wondered “How is she going to live?”

At the hotel we ate in the restaurant, had fried sturgeon, and retired to our “Lux” room, where I prepared transparencies for my talk the next day. The room came with a plastic glass with a built-in hole in its bottom. And we couldn’t figure out how to work the radio.

My talk the next day was on inelastic pion scattering and had about 15 attendees. As usual, it went a bit long. But it did generate a number of interesting remarks and some good questions. After lunch I talked with Suslenko, whom I had met back at the Dubna conference in 1971, and we subsequently corresponded about something. What it was about I no longer remember. He somehow decided to adopt us, me and Maggie, and he became something of a pest. He would address me with “tyi” while I stuck with the formal “vyi.” He intercepted us at the hotel’s buffet that evening, so we went for a longish walk along the river after supper.

On arriving at JINR in the morning, the guard didn't know anything about me. I was about to leave when Khakhasayev, whom I had met the day before, came by on his bike and he made a phone call to someone. While we were waiting for something to happen, we got into a discussion about the distorted-wave approximation. Eventually the guard got a phone call himself, and that allowed him to let me in.

So, finally some physics discussions took place with both theorists and experimentalists. Dzhelepov, the director, came by to say hello while we were in the cafeteria for lunch. He had been helpful in 1971 in getting permission for Maggie to go to Moscow for a day. Not all of our conversations were about physics. Ponamarev had just come back from rafting on a river in the far north. Rudi Eramzhyan gave me a copy of the local newspaper, in which I was featured as a lab visit in two paragraphs on the first page. And Belyaev again proposed we go swimming at 5:00.

Maggie invited Eramzhyan and Belyaev up to our room for some Ballantine's Scotch before dinner. Which we had at a newly opened restaurant, bought by Rudi. Afterwards we went up to *his* small room where he stayed during the week. It had a small refrigerator and a hot plate. He opened a third bottle of wine and we talked a bit about books. It was probably not surprising that he did not know about Orwell's "1984" and "Animal Farm." Svetlana was due to come to Dubna the next day, Saturday, instead of him going to spend the weekend at their place in Moscow.

Thus, Saturday was a very social day. We dealt with Suslenko as quickly and as politely as we could. Belyaev came by with his daughter Vera to say hello (and goodbye) before going off to buy her a bicycle. There was some confusion about where we were supposed to meet the Eramzhnyans, but that was settled soon enough. We went with them into the nearby woods looking for mushrooms, raspberries, and strawberries. Some of the talk was about physics. Rudi's opinion about the Troitsk meson factory was close to mine; he wasn't sure why it was being built, if it was coming on-line so late.

On the way back to our hotel we ran into two Czech physicists, Mach and Gmitro, who had come back early from the mountains. Did I have anything to say about what he, Mach was working on? I did, but only briefly. We met our wives in the cool hotel lobby. Maggie gave Svetlana two Mexican bracelets and we said goodbye to her, as we were not likely to see her again.

We finally also connected with Leonid Ponamarev for a light meal at his place. His library contained a lot of science texts in English. "How so?" I asked. It turned out that Doctors of Science in the USSR (he was one, as was Zhori) get \$30 a year (yes, dollars!)

to buy books. This was a privilege I had not known about. The big news, Leonid said, was that the U. S. State Department announced that it would not issue visas to *any* member of the Communist Party. If that happened, he pointed out, it would mean that *no* Soviet scientist would come to America, since no one could travel there unless he was a Party member or was accompanied by one.

On Sunday we had one last meeting with Suslenko at a “dietetic” restaurant. Meaning they did not roast, only fry. Valentin had a schnitzel, but we only had coffee and a cookie. Our real meal, after we packed our bags, was with Belyaev and his wife Lenya at the hotel restaurant. She gave us a book about Suzdal, an old and colorful town to the northeast of Moscow, and a set of nested metal hedgehogs (i.e., ashtrays). It was the 33rd anniversary of the bombing of Hiroshima, and Volodya remarked that 33 years had gone by without a war with nuclear weapons.

We took the afternoon train back to Moscow. On our ride back to our apartment, the taxi ran out of gas just as it turned onto Leninsky Prospekt. We left the embarrassed driver to figure that one out by himself and took a tram the rest of the way. We had a light supper in the room. With kissel.

At the Institute work resumed as before. In the evening we went again to Borya’s place, this time meeting his younger brother and his wife, Galya. He was a computer programmer and she a teacher. Their hot water was off fifteen days longer than ours was. We again had okrushka (the summer soup), but this time with belyashi (small fried buns stuffed with meat). Borya brought out and played a commercial vinyl record from 1967 in which Lukyanov’s trio played.

Zhori figured out how to communicate with me after I leave. He would give real letters (i.e., that didn’t need to pass through a censor) to the Academy. They in turn would pass them on to our Embassy, which in its turn would send them along in the diplomatic pouch, and then finally get to me by the U. S. Postal Service. Other planning: Maggie began thinking about how we were going to clean out the refrigerator before we left in ten days. I started packing up whatever handwritten or typewritten notes I wanted to keep. They too would go in the diplomatic pouch. Any of our preprints that passed censorship could be sent to me directly from the Institute. I also started trying to get a hotel reservation for the three days we would be in Vienna. It turned out my German had deteriorated considerably, so I had to do that in Russian.

On Saturday afternoon we packed up materials and pans for making pizza at Ina’s apartment. They were assembled there. German arrived home about 6:30. His mother, Muza, came a bit later, as did Zhori. When the pizzas came out of the oven, Ina and

Muza ate rather little, but German the vegetarian had four pieces. The conversation got a little awkward when Muza asked us why we Americans were so belligerent. Around 11:00 we collected our pans and left, with Zhorì, to go back to our apartment by the subway.

Sunday involved an expedition to Nikolina Gora, a town about 20 km west of Moscow. We, together with Zhorì, were picked up by Borya and Galya Tulepov and driven to Sergei and Tanya Kapitsa's dacha. This was a large ten-room log building in an acre of woods surround by a tall green fence. It had its own tennis court. Tanya's father, a famous cardiologist, was the original owner of this estate. Sergei's father, Pyotr Kapitsa, was a very well-known cryogenic experimentalist at Cambridge University in the 30's, before Stalin essentially forced him to return to Moscow. Thus Sergei grew up speaking English. He was, at the time we met him, an influential accelerator physicist.

After sitting down for coffee and meeting their kids, we morphed into tennis duds and played some doubles. I, of course, continued my losing streak. Other players came by, joined in, and there was a lot of switching of partners. When it clouded over and started to rain, we were called in to an unexpected dinner of for about twenty guests. Another sumptuous feast. We had brought a bottle of scotch, which was opened, but these people were careful about how much they drank. Especially if they were driving. Zhorì had brought a tort, which turned out to be better than he expected, and Maggie added some Swiss chocolate to what was on the table.

There was good and spirited conversation. Someone told a story about a well-trained American spy who spoke the local Siberian dialect perfectly. But he was quickly found out, because he was black! Another one was "How many philosophers do you need to slaughter to get one kilo of brains?"

After a walk in the woods between rains, we started to think of heading home. Not so, as Tanya had assembled a supper with the leftovers. And finished it with a raspberry soup. We eventually got home around 11:00 after passing by what Zhorì called "Stalin's Dacha."

At five days before our leaving, Maggie started packing the large camp trunks. At the Institute we worked on finishing up the papers we were writing for publication. That evening we hosted a "Pizza School" but after those lessons it became a vodka tasting with three different brands. Everyone agreed that the Stolichnaya was best. What the tasters didn't know was that Maggie had switched the contents of the bottles, and what they thought was Stolichnaya was really Posolskaya. Zhorì was angry at first that she'd done that, but then he realized that he *had* correctly identified the best vodka.

Our friends were now giving us all kinds of books and gifts that had to go in the trunks. On Thursday before our Sunday flight to Vienna, we locked them and took them to the Pan Am office for shipping to Albuquerque. Unfortunately, I had forgotten to carry along our passports and plane tickets; who would have thought *that* would be necessary? So, the driver had to take me back to the apartment to get them before we could finish up the shipping papers. It all weighed 63 kg, and they did again get banded with steel tape. It was a relief that Pan Am took my MasterCard to cover the \$251 of freight charges. This adventure chewed up all of that Thursday. Except that, when I finally got back to apartment, I found Maggie entertaining Belyaev and a friend. I joined them for coffee before they left to catch the 5:30 train to Dubna.

The next day, Friday, was mostly occupied cleaning up a bunch of things at the Embassy: clearing mail, sending off letters, giving the last potted plant to Judyt Mandel at the Science Office, saying other goodbyes, and having lunch in their canteen. Judyt also took my pile of handwritten notes for sending along in the diplomatic pouch. Back at the office, more clean up, and finally home to a light supper and early to bed.

Saturday, our next to last day. Maggie went off to a Beriozka to see if there was *anything* we still needed to buy. I wrote up the Proceedings of the 1978 Ulitsa Gubkina Pizza Summer School. Starting already in the afternoon our friends began our going-away party. We began with a visit to the Arkhangelskoye Palace, known as the “Moscow Versailles.” It was here that Zhori took me aside and, in English, gave me warnings about how *not* to contact him in letters, either through Soviets or through unofficial Americans. He also asked me if Sasha had done enough to write his these; I said yes.

On returning to Moscow, we ended up at the Kaluzhskaya Restaurant at a table for ten. Again, lots of food and drink. Borya and Galya had to leave at 9:00, but Vadim Belyak and Ludmilla arrived at 9:30. A band began to play, and we all danced, even though Sasha said he didn’t know how. Maggie convinced him otherwise. With many toasts already under my belt, Sasha surreptitiously helped me by sneaking away my glass and dumping it under the table. At 10:30 they started blinking the lights, so Zhori and Seryozha settled the bill and we left at 11:00.

Sunday, our last day in Moscow. The assistant Kommandant came by to check us out. We were to leave her the keys at 2:00. Borya came by, had a coffee, and said goodbye. Zhori and Slava arrived to take all the things Zhori had loaned us back to his place. Back at the apartment we had our last lunch on the leftovers. At 2:00 the car arrived to take us first to the academy hotel and then, after Seryozha arrived, to the airport. After

filling out yet one more set of customs declarations, we said goodbye to Zhori, Sasha, and Seryozha. We checked in on Austrian Airlines Flight 602 and entered the international departure lounge about 4:30.

Do svidaniya, Moskva! До свидания!

Epilogue

In what follows I may be a little hazy about details, since I don't have the benefit of my detailed diary for the time we were in the USSR.

We flew from Moscow to Vienna on August 20, 1978. For the first three days we were in Austria I found that every time I opened my mouth to speak German, it came out in Russian. I got better when the proprietor at our B&B asked, "If I may be so indiscreet, just what were you doing in Russia all that time?" He wasn't all that interested when I started to tell him.

We finally got back to Los Alamos on October 1 after going to the three-body conference in Graz, followed by visiting friends and parents. The two trunks and the suitcase with the down jackets had arrived safely. What did *not* arrive, however, were all the handwritten notes about our research that I had given to the Science Attaché at the Embassy to send back in their diplomatic pouch. If I ever want to know what I did at the Institute, I will have to read the papers we published.

We were never debriefed by the CIA about what we saw and learned in the USSR. I assumed that they would have wanted to know, but they didn't.

After we left Moscow, I thought there was a good chance that we would never see again any of the friends we made there. At that time there was no possibility, in my mind, that the Cold War would ever end. It did, but maybe it is starting up again.

Anyway, my prediction was wrong. Somehow, Georgi Vagradoy was able to arrange a longish visit to Texas A&M a few years later – I don't remember exactly when, but it was before the Berlin Wall came down. While he was in Texas, I was able to invite him to LANL, as it was now called, and he gave a seminar to my nuclear theory group. I don't know if he is still alive, since he did not respond to my Christmas greetings in recent years. I do recall him writing us that his wife, Bel, had passed away.

Sergei Akulinichev also showed up for a long-term visit at Texas A&M. I think he was by then married and could even bring his wife. I don't believe he came to Los Alamos, but we did arrange to meet them somewhere.

Several years later, after the break-up of the USSR and back when I was developing tutorial software at WhistleSoft, I got an e-mail from Seryozha detailing a "business proposition." He had a friend who had developed interesting little mathematical problem sets for school kids that ran on IBM personal computers. Could we market them here in the States? I put together a proposal to the NSF to support such a project, but it didn't get funded. So that idea just faded away.

I never did see or hear from Sasha Goi again, but he did finish his thesis and returned to teach at the university in Vladivostok. He must have kept active in research since I read a notice not too far back of a paper of his on the preprints Archive.

We also didn't see Boris Tulepov again, although we exchanged Christmas letters for many years after. He had been able to come to the States before our time in Moscow. He had been a participant in one or more Gordon Conferences in New England. The last I heard from him, he was having heart problems.