

Confidential Report

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These notes are to be read in conjunction with the official report. They are not an "inside" account of what life and research are really like in the USSR but simply describe what happened to me during my stay.

Research in Moscow

Although working conditions in the Lebedev Institute were perfectly satisfactory, if slightly old-fashioned, I tended to work mostly at home in the Hotel Ukraina where things were very quiet. I required a pass to gain admittance to the Institute and when I arrived it took me about two weeks to obtain this pass. I had to use this pass every time I went to the Institute since otherwise it was virtually impossible to get in despite the fact that the people on the gate knew who I was very well by the time I had been there a few weeks. In my case it was particularly disastrous if I forgot my pass since it took about 50 minutes to get from the Institute to the Hotel Ukraina. I would advise visitors to retain their passes under all circumstances. I had to return to the United Kingdom in the middle of my visit and as is officially required, I returned my pass to the Institute informing them when I would return. On my return it took more than two weeks to obtain a new pass.

It was not necessary to go to the Institute every day and some of the members appeared only rarely for seminars and discussions because it proved rather difficult to work without interruption. This was particularly true of someone as distinguished as Professor Ginzburg who would escape to his dacha every weekend in order to get some uninterrupted work done. I was given a desk in a medium-

sized room with Drs. Ozernoi and Keldysh. This tended to be rather noisy because both of them supervised research students there and colleagues continually came in to discuss research with them. This was, of course, often very interesting and one could readily become involved in a discussion in this way.

I was principally at the Institute for seminars and discussions. Members of other institutes had to have special passes to enable them to attend these seminars and they were valid only for the duration of the seminar. For example, they could not normally have lunch in the Institute after one of these seminars which normally lasted for 2 hours with a 10 minute interval.

As a foreigner speaking English, I was particularly popular with the physicists who would often ask me to check the English of a paper to be submitted to a western journal. One had to be very careful or this could have become a full-time occupation. I did one piece of "professional" translation for Professor Ginzburg of an important review article which he and his colleagues had written on pulsars and for which I was paid 200 roubles. Most of the people in the Institute could understand English (they have to pass an examination in English before they can begin research) but generally only a few could speak fluently. From the moment I arrived I insisted that no-one except Academicians was allowed to speak to me in English and this proved very beneficial in mastering the language. Doing the translation the pulsar article proved very useful in becoming familiar with all the technical words I was likely to encounter. Once my Russian was fluent it was obvious how much they appreciated the fact that I was prepared to lecture in Russian. This proved to be very valuable in improving my grammar since I wrote out the lecture

completely in Russian and had some of my friends check the grammar and style. The most common compliment which I received was that I was the first visiting foreigner to address them in Russian.

One thing which I would recommend is to have one's own personal copy of the important journals in one's field sent to Moscow. For the year I subscribed to Nature and because of the great interest in pulsars and quasars, I was very popular. My copy was among the first to reach Moscow being delayed only by 2 weeks. The Institute's copy was normally delayed by more than a month. Professor Ginzburg was making special efforts to have a special quick copy sent to the Institute although he had his own personal copy which arrived about the same time as mine. As an academician, Professor Ginzburg was also sent copies of all the articles of interest to him from a central periodical section of the USSR Academy.

What did surprise me was that all the mail which I received through the Institute was opened and no attempt made to reseal it. This included the copies of Nature in their official brown wrapper. The mail which arrived at the hotel was never opened.

The only time I suffered any embarrassment in the Institute was when I accidentally almost entered a trade union meeting and was rapidly surrounded by three officials who told me that the seminar was being held in another place.

I had little direct social contact with the Institute although such activities did take place. For example, there were art exhibitions and parties which for one reason or another I was unable to attend. Of course I had considerable contact with my colleagues outside the Institute and these proved very agreeable occasions.

The Sternberg Institute was effectively completely open and only on my very last day in Moscow was I asked if I had a pass because there were some new women at the door. Everything was very open here and it proved one of the most convenient places to meet for discussions. In the Institute there was a really wonderful room where all the people mentioned in my report worked and it was always a hive of activity.

On the other hand, the Department of Applied Mathematics was completely closed and I never even found out where it was situated although I was quite free to telephone to my colleagues. This proved slightly awkward in my dealings with Dr. Sunyaev and so we normally worked in his flat. Similarly, Professor Zeldovitch invited me on several occasions to his house for technical discussions, on one occasion preceded by breakfast and exercises.

What was very evident about my Moscow colleagues was their great enthusiasm about their work. The circle of young physicists and mathematicians with whom I was associated would regularly phone up in the evening and ask me to go for a technical discussion which would last until the early hours. I was very fortunate to be in this type of environment and to be in a position to take up these opportunities. It would have been much more difficult, for example, if I had been a married person.

None of my colleagues would come to the Hotel Ukraina to discuss physics or even to come socially to the restaurant. This was because of the presence of at least two policemen at the entrance of the hotel which contained a large fraction of Intourist visitors. On the one occasion when a friend of mine did come to the hotel about an academic matter, he had a special pass to ensure

that all was well. In Moscow itself, however, we did everything and they introduced me to all the really interesting places such as the best jazz clubs, art galleries and theatres where "avant-garde" plays were produced. Very often the entertainment consisted of an evening in one of the regional restaurants such as the Restaurant Uzbekistan which were very interesting musical and social experiences.

So far as I could gather, there was no-one specially watching me to see what I was up to either in the Institute or in Moscow generally. Dr Ozernoi made a note of the work in which I was engaged but this was no more than one would expect.

Scientific Visits

Although I had described in detail the scientific visits I wished to make, one of the first things I was asked was what visits I would like to make and when I wanted them to take place. Once this schedule was settled, it was pretty well adhered to and the fact that my visits all came off was largely due to the hard work of Dr. Ozernoi. In general these arrangements were entirely satisfactory although there were one or two of these little things to which one becomes accustomed in making any arrangement in the USSR.

On arrival in Moscow I was meant to proceed immediately to the conference in Tbilisi. I was told that Professor Ginzburg was not in Moscow but on holiday in the north of the USSR. When I arrived at the conference it had already been in session a day and a half and I met straightaway Professor Ginzburg who had arrived the previous day from Moscow.

My trip to the Crimea and Armenia was originally planned for the end of April and the beginning of May to coincide with the May day holiday when all the institutes

in Moscow (and the rest of the USSR) are closed as I thought it would be pleasant to spend the official holiday in the south. Everything was prepared for my journey until it was cancelled only 4 hours before my plane was due to depart. It was then impossible to do anything until after the holiday and I eventually flew to the south on the 15th May. By this time I was more expert at handling the USSR Academy and told them exactly when I wanted to go and if I could not go then, I would not go at all. When I reached the south, I found that everyone had been expecting me at the end of April and no explanation had been given for my non-appearance. The excuse which I had been given in Moscow proved to have no foundation.

These illustrate the two most important things which the visitor to the USSR has to learn. Firstly, nothing is certain - one must be prepared for any plans to be changed at the last moment, often for apparently no reason at all but probably due to the fact that the large amount of paper-work which has to be done to arrange the simplest of things had not been completed. Secondly, the tendency for officials to give the first excuse which comes into their heads for changing one's plans. There is very little that one can do about this except to keep at people and remain patient. In my case, although I came up against this on one or two occasions, I am sure that having Dr. Ozernoi act as my intermediary with the USSR Academy minimised the number of such interchanges with officials.

People tended to throw down the red carpet whenever I appeared but I suspect that this was just because they enjoy celebrating for any reason. This was particularly true in Armenia where the hospitality was really overpowering and I learned how to drink cognac properly. When I visited the radio astronomy observatory at Pushchino, I was very formally

met by the director and a wonderful lunch was prepared for us.

I was left with no particularly strong impression of the Crimea since the pace of life was much slower than what I was used to in Moscow. The people there were very concerned that I should relax and I suspect that they thought that I was there for a holiday rather than a scientific visit.

Armenia was quite the opposite since everyone was very actively interested in what I was doing scientifically. It was here that I realised the benefit of a bilingual society because whenever there was anything private to discuss, they switched into Armenian. Here I attended the oral examination of Dr. Tovmassian who was completing his Doctor's degree. I had the great honour of being appointed assistant tamada (toastmaster) at the large banquet which was held to celebrate his success that evening.

I was shown everything I wanted to see so far as radio telescopes and instruments were concerned. In Leningrad I was encouraged to take photographs of the full-scale models of the leaves of the new RATAN instrument to show my colleagues in Cambridge.

My Research

The big difference I found in comparing the way research is done in this country and in the USSR was that it was possible to give seminars about tentative ideas which were not necessarily correct or worked out in great detail but which might be interesting. A seminar was not necessarily a formal discussion of a completed piece of research as it is in this country. It was thus common for rather wild ideas to receive a hearing and then be widely criticised without there being any stigma attached to the person who had proposed the idea. This is readily done in a subject such as astrophysics in its present turbulent state and

of course this system must not get out of hand or pure chaos results.

There was little trouble in obtaining secretarial help since I was able to use Professor Ginzburg's secretaries, one of whom typed exclusively in English, although she could not understand the language. The process of sending off papers for publication, however, proved laborious in the extreme. Fortunately most of the papers which I sent off from the USSR to western journals were joint ones and so my colleagues did most of the paper work. What was normally involved was preparing four copies of the paper in Russian and at least two copies in English. These had to be sent to the appropriate committees with the correct forms filled in in quadruplicate with the signature of the head of department. I never found out how many committees the papers went through but I know that one of them had to certify that the work was not classified. Going through the normal ^{procedure} / it took anywhere upward of two weeks to complete these formalities. It was possible to abbreviate this procedure if a letter of recommendation could be obtained from a very senior Academician and this we did on one occasion. I am sure that with time one becomes expert at pushing papers through the system but it was clear that this lengthy procedure was quite recognised and I can recall Professor Ginzburg doing exactly the same as I had to do.

An even more frustrating exercise proved to be the occasion on which we requested preprints of our work to be sent to interested astronomers prior to publication. I was told that this was only possible through the Lebedev Institute and this involved twice the amount of paper work since the paper had to go through an extra series of committees. In this case we had a letter of recommendation from a very senior academician and even with this it took over a month before all the formalities were completed and the production

of the preprints could begin. This held up the publication of our work by more than two months and resulted in our work missing an important conference. However, it proved a very instructive exercise in how one does things like this in the USSR. The scientist responsible for this told me that I had been given preferential treatment because I was a foreigner! This was only partly a joke.

It was interesting that my colleagues were rather worried about me having any contact with the Department of Applied Mathematics. For example, I could not have any of our joint papers typed in English in that department. The process of producing preprints would have been very easy had it been done through the Department of Applied Mathematics, but this was said to be impossible. I am sure that my colleagues were entirely sincere about this and they were very annoyed when it took so long to produce preprints in the Lebedev Institute.

It is interesting that socially the profession of scientist is regarded as the top job in the eyes of the public and entails rather more prestige than the corresponding position in this country. This is probably because professions in the arts, journalism and the humanities in general are circumscribed by political considerations. At the present day scientists are happily free of these.

General

During the first few weeks, I was helped to find my way around Moscow and to iron out any difficulties I might have by a student of English who worked for the USSR Academy. He spoke absolutely perfect English with a tendency to use obscure Dickensian slang but he was invaluable during these weeks as I became acclimatised to the new environment. He took considerable pains to trace my baggage which went astray somewhere between Cambridge and Moscow (eventually it was traced

to London, a mistake which I feel should have been avoided particularly when one has so many difficulties of a similar nature in Moscow itself).

I found no difficulty in getting used to a hotel existence. Apart from my first four days in the USSR when I stayed in the Hotel Rossia, I lived in the Hotel Ukraina for most of my stay in the USSR. This proved a very fortunate circumstance and I suspect that it may have been a mistake on the part of the USSR Academy. The Ukraina is a very large Intourist hotel and to my knowledge no other Academy visitor has lived for such a long period there. I arrived back in Moscow from Georgia without the knowledge of the USSR Academy although I had asked the Academy in Georgia to send a telegram to Moscow warning them of my return. This they had not done and so there was some difficulty finding accommodation for me. Eventually I ended up in the Ukraina.

The great advantage was that being a very large Intourist hotel, I could use all these facilities and pay for them in roubles. This meant that I could obtain tickets for the opera, ballet, theatre and concerts very easily and I made full advantage of this opportunity. I am a very keen opera lover and was 26 times at the Bolshoi theatre as well as attending all the big musical occasions in Moscow. This would not have been possible in any other hotel except the Hotel Rossia. This meant that it was very easy for me to repay the hospitality of my friends since it was in general very difficult for them to get tickets for the opera and ballet.

On the more mundane level, there were other advantages in living in a big international hotel. There were two restaurants of quite reasonable quality and buffets on every floor where it was possible to get a quick and reasonably cheap meal. Even in restaurants the service was not nearly as slow as is reputed but this partly results from knowing the technique for obtaining quick service and partly from

being known in the restaurant.

I had no problems financially. My room was paid by the Academy and all one had to do out of one's 200 rouble monthly grant was to eat and entertain oneself and one's friends. With the fee which I was paid for my translation work and a further fee I was paid for the review article for Uspecki Fizicheskich Nauk, I was very well off. In fact so far as money was concerned, I was living in a fantasy world since I had taken with me all the clothes and other consumer goods I was likely to need for the year. If I had had dependents with me, however, the story would have been very different and it would have been difficult to make ends meet. Certainly my standard of living would have dropped.

In my room it was quite impossible to cook and I was quite reconciled to having to use the restaurants and buffets. In practice, I rarely used the restaurant more than once a week because I often ate out with friends - often I would just have a snack in the interval of concerts or operas. Normally I would have a substantial lunch at the canteen of the Lebedev Institute or that of the Sternberg Institute.

My room in the hotel was not large but it was very comfortable with its own private bathroom and telephone. The only drawback was that my colleagues would not visit the hotel. All the mail which was sent to the hotel reached me unopened. This included the "Sunday Times" which my mother sent to me every week. Even the copies including the anti-Soviet articles came through without any trouble. Mail took between a week and a fortnight to reach me and my letters took about five days to reach home.

As mentioned in my official report, perhaps my greatest feat in overcoming the system was in being able to hire a piano for the duration of my stay at the Ukraina. This had never before been requested by any visitor from the Royal Society (or any other exchange visitor, I suspect).

The major stumbling block, of course, was that there was no precedent for scientists hiring pianos. However, after three months negotiation, I was able to hire one of the pianos owned by the hotel (but only after I had twisted the hotel's arm by having arranged to hire one from outside the hotel!!!). This illustrates the important fact that you can do almost anything provided that you persevere - but you must be very patient while things slowly work themselves out.

For the last couple of weeks, I lived in the Hotel of the Academy of Sciences and this I found not quite so satisfactory, partly because the building was just being completed. The room was smaller and I had to share a telephone and bathroom. Intourist facilities of the type I had enjoyed in the Ukraina were non-existent. However, my friends would visit this hotel and I suspect that I was only disappointed by comparison with the relative luxury I had become used to in the Ukraina. I suspect that in future most visitors will be housed in the Hotel of the Academy of Sciences which seemed to be used almost exclusively by people in some way attached to the Academy.

This is a further example of the uncertainty in which one lives. I was never really sure how long I was to be living in the same hotel. In the Ukraina I was moved from one room to another very shortly after I arrived because the room was needed for a conference of the Young Communist League. Later, when I went down to the Crimea and Armenia,

I was in great danger of losing the room in which I had installed my piano and the vast quantity of stuff I had accumulated and brought with me. This is because the USSR Academy take the attitude that they are only required to pay for one hotel room for visitors where ever they may be in the USSR. Rather than pack all my baggage and unpack it all again in another room or perhaps another hotel and go through the procedure of hiring a piano again, I paid for the room during my absence

in the south.

When I went to Leningrad, since it was very close to the end of my visit, I packed my things and left them in the left luggage of the hotel. On returning to Moscow, I was told that I was to move to a new hotel, that of the Academy of Sciences which involved a major upheaval. This type of moving around is not at all uncommon and I was very lucky to spend nine months in the one hotel and then have only one hotel-change. Others who went out at the same time as I had many more changes.

I feel that this is a rather annoying aspect of the exchange agreement, but I find it difficult to suggest a reasonable alternative. Ideally I like to work with all my papers and belongings scattered around me and to feel that the room in which I am living is in some sense "home". This extra uncertainty that one's whole universe may crumble under one at a moment's notice is not what I consider an ideal research environment. My ideal would be that one is given a flat or hotel room for the duration of the visit (unless there are to be periods of more than, say, three weeks during which one is absent from one's base) and that one can regard that as one's home base for the year. I fully appreciate the difficulties of making such a scheme practical.

I spent much time exploring Moscow by both day and night and it proved endlessly fascinating. Suffice to say that I visited most of the famous places and many of the more obscure ones such as Moscow's only night club, the Scriabin home and the only place in Moscow where you can buy draught Pilsner but there remains still a whole lifetime's exploration.

Whenever I wanted to explore further than 40 km from Moscow I had to have a special visa but this was given almost automatically. A particularly memorable visit

was that to the Tchaikovsky home at Klin for which the Academy provided me with a car and chauffeur. If I had asked sufficiently far in advance, it would have been possible to make this type of arrangement for other occasions.

One continually hears about foreigners being approached by black-marketeers for foreign currency and items of clothing. In fact throughout my stay, I was only approached three times and they were very easily discouraged. I was only conscious of being followed in the streets on one occasion after I had paid a visit to the British Embassy. It was so blatantly done that I cannot believe it was a professional and he was very easily shaken off.

The one thing which I did encounter very frequently was telephone calls from girls who "wanted to meet you". During my first three months in Moscow, this was an almost nightly occurrence - on some evenings I would receive as many as three such calls. After this period, the calls became much less frequent. It is difficult to know how to interpret this behaviour. I myself observed some of my Moscow friends receive similar calls from girls they did not know and they would arrange a meeting. Some of the girls who phoned me worked in the hotel as I found out in conversation. However, one never quite knew who these girls were.

The first night I was in Georgia (I had only been 5 days in the USSR) I received a call from a girl claiming to be a colleague from the Lebedev Institute. I subsequently found out that there were no girls from my Institute at the conference. Having been forewarned by the Royal Society that these things sometimes happen, it was easy to take avoiding action.

On the other hand there was no lack of opportunities for meeting girls in Moscow. I was invited to many parties and made many good friends. These parties were very similar to ours but the pop music was five or more years out of date. Among the elite youth of Moscow, which consisted of the sons

and daughters of academicians, however, things were much more up to date with miniskirts (only worn at home), the latest western pop music on tape and a general standard of living not unlike that associated with the affluent youth of the west. The dancing tended to be much more formal than ours but they appreciated it all the more when one did something different.

This is another general point. It is impossible to merge into the background. I got the impression that my colleagues liked the fact that I was different and very much appreciated it when one appeared in a modish suit or shirt. It was not at all held against one. I was amused to note that whenever I gave a seminar, the girls seemed to outnumber the men present. Over and over again they were very pleased to introduce ^{me} as a foreign guest from England to their friends.

Medical services are provided by the USSR Academy and there is a hospital very close to the Institute specially for members of FIAN. As luck would have it, after only a week in Moscow I suffered from an impacted wisdom tooth which had to be extracted. In fact, it all took a very long time to remove because being so early in my stay I did not know about the facilities of the USSR Academy and the person from the Academy took me to the hospital for foreigners where after an X-ray I was prescribed 5 days physiotherapy! Getting no better during this period, my friends took me to the Academy clinic where a large woman dentist said she would take it out. To my horror she proceeded to work on the wrong wisdom tooth saying that she could not get to the impacted one without taking out the other one first. So I returned to the original clinic for more physiotherapy after which I was sent to a specialist in yet another hospital who gave me a local anaesthetic and removed the wisdom tooth. Following this I returned every few days for about a month to ensure that the gap was

healing properly. The minor operation was performed very well in a modern surgery using the most up-to-date equipment (which was Italian). I also had a filling replaced at a later date and the lady dentist found another one to do at the same time. Both were done without local anaesthetic with an old-fashioned drill.

For the first three months of my visit, I had absolutely no contact with the British Embassy. Then, over the Xmas period, being a new bachelor in the rather enclosed embassy circles, I was pounced upon eagerly by hostesses from several different embassies. This provided a welcome contrast to the life I had been leading but I found that it could only be taken in small doses. It is very much up to the individuals themselves how much they want to become involved in the social round of the different embassies which forms a completely separate closed society in Moscow. After Xmas, I attended only about one social function per month in addition to singing in the choir which was organised by Lady Wilson, the wife of the British Ambassador, for a performance of excerpts from Handel's "Messiah". Personally, with the amount of things I was involved in, there was not any more time to spend in these circles. I also feel that by associating too much with the embassy circle, one is jeopardising one's Moscow friendships which are the whole point of the exchanges.

It was however essential to keep the scientific attache at the embassy informed about all one's plans and movements. They were able to be of considerable assistance in some cases where the USSR Academy were being difficult by having direct access to more senior members. Such an occasion occurred during my visit as a result of the sudden death of my father. With the help of the embassy, I was home within 20 hours of receiving the news. I am most deeply grateful to the British Embassy and the Royal Society

for their invaluable assistance at this time.

At the end of my stay in the USSR, I decided to return to England via the Black Sea and the Mediterranean. I was only granted an exit visa two days before the departure of the Litva from Odessa in which time I had to book all my rail and boat tickets as well as dispatch all eight pieces of luggage to the port. The USSR Academy left it almost entirely to myself to arrange all these formalities but by then with a year's experience behind me I knew all the tricks and somehow succeeded in reaching Odessa complete with all my luggage. My only piece of advice is to apply well in advance for an exit visa - I only asked a month before my departure date.

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appendix Some random advice on things which I found particularly useful.

- a) a wide range of electrical adapters for the electric gadgets you take with you.
- b) sufficient stationary for one year - especially ink and a number of large (foolscap) envelopes - also a giant roll of sellotape.
- c) you still require your own bath plug
- d) I found a year's supply of toothpaste and other toilet artifacts invaluable.
- e) as much foreign currency as you can afford. With it you can buy western goods in the foreign currency shops - Berioska shops - and these make excellent presents. There is also a Berioska gastonome where English food and drink can be bought - this is very popular on picnics.
- f) take classical records as well as the latest pop. There are many people who appreciate the higher quality of western pressings.
- g) As is mentioned in a previous report, take many more paperbacks than you think it is conceivably possible to read in one year. You will read them all and they make excellent gifts.
- h) Take exotic wrapping paper for the gifts you take.
- i) A selection of modern "pop" items such as can still be found in Carnaby Street were very popular.
- j) take several time-pieces of different types - they seem to pack up rather easily under Soviet conditions.