COMPREHENSIVE BIOCHEMISTRY

G. SEMENZA (SERIES EDITOR)

VOLUME 46

STORIES OF SUCCESS

Personal Recollections. XI

Volume Editors:

V. P. SKULACHEV AND G. SEMENZA

COMPREHENSIVE BIOCHEMISTRY

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STORIES OF SUCCESS – PERSONAL RECOLLECTIONS, I–XI

COMPREHENSIVE BIOCHEMISTRY

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VOLUME 46

STORIES OF SUCCESS – PERSONAL RECOLLECTIONS. XI

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PREFACE TO VOLUME 46
(Vol. XI of the ''Stories of Success. Personal Recollections)☆

''Luck'' does not come to a scientist the way it does to a winner of a lottery. Luck in science is man-made, mostly scientist-made, through his or her own ingenuity, hard work, endurance (or, stubbornness, as others might say). Fruitful ideas come to the ''prepared mind'' only, as Pasteur [1] and the mentor of one of us, Tiselius used to say [2].

''Luck'' can be a helpful ingredient among the components, which lead to a discovery. However, the unprecedented explosion of molecular biological sciences began during the ''age of extremes'' of the so-called ''short 20th century'' [3]. Many scientists, their families and friends, like other citizens, were hit by the avalanche of horrors which swept through Europe and much of the rest of the world before, during and after World War II. ''Luck in science'' was often nullified by these catastrophic events. Many were drafted and sent to the front; those who returned would find their countries in ruins and shambles. Even after the aftermath of World War II, emigration (which is always traumatic even in the most favorable of circumstances) was often a required condition to be scientifically active at all.

The Jews – always prominent in the molecular biological scientific community – were discriminated against and persecuted well before World War II began, and even more so during the war, not only in Nazi-occupied Europe; but also often in Soviet-block countries too. Emigration had become for many a disguised sort of good luck. It is well known that Jews could not regard themselves as safe in the Soviet Union. Often they were silenced for years, or

☆Parts of this Preface are taken from that of vol. 45.

Note: Vol. 40 (1997, vol. V of the ''Personal Recollections'') and subsequent ones are online at http://www.sciencedirect.com/science/bookseries/00698032

even in some cases forever, for whatever whimsical political [4] or pseudo-scientific [5] reasons (to name but two examples).

To better illustrate this, let us comment briefly on the first chapter in this volume, that of Prof. Lev L. Kisselev. He, then a boy, his brother, his mother and his aunt were evacuated during World War II west of Moscow (whereas his father stayed to work in Moscow). They were taken by the Germans, and had to work and follow them also when they retired west. What saved their life was that Lev's father was incredibly far-sighted: he never wanted that his children and family should carry his own name – Silber. Such an obviously Jewish name would have immediately given them away as half-Jews to the Nazi – tantamount to a death sentence. At the end of the war the Kisselevs were as far west as Dresden. Prof. Silber had no idea where they were, and they had no news about him, either. Their worry of perhaps never finding Prof. Silber was justified: he was notoriously anti-Stalin, for which he had been arrested various times. By shear luck, however, the family was united again. Miracles do happen – but not always.

Prof. Michel Goldberg's family, originally from Poland, went through the ''French version'', so to say, of Kisselev's teen-age life; they were often in jeopardy in occupied France.

Prof. W. Tanner and Prof. R. Timpl (see Prof. J. Engel's chapter) were born in Sudetenland and shared as children the destiny of the Germans in that region. Prof. Viktor Mutt (see Prof. H. Jörnvall's chapter) was born in Estonia and came as a refugee to Sweden via Finland during World War II. Prof. H. Feldmann and Profs. B. and H. Jockusch experienced World War II and its aftermath as kids or teen-agers. Yet, they succeeded to enrich the scientific community with significant contributions.

This takes us to the second, very important goal of this volume and of this sub-series. The ghosts of the past, which our generation thought had been killed for ever, are lurking and, occasionally, spring back to life. Beware. Those who forget their past are prone to repeat past errors – and suffer past horrors anew. Our children and children's children must not be tempted to repeat the mistakes, which our fathers and fathers' fathers tragically made. Not just molecular biosciences, but indeed any intellectual and decent human initiative can thrive only in freedom and peace. We hope that these volumes will convey this message to our present and – importantly – to our future colleagues.

It is unfortunate, we think, that this subseries ends with this vol. 46 (XI of the ''Stories of Success: Personal Recollections''), in spite of its good success on the market also. Whatever the reasons, we, series editor and volume editors, find difficult to understand this publisher's decision. Still – *spes ultima dea*.

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The editors wish to thank the authors for having written such excellent (auto)biographic chapters, and the staff of Elsevier BV for their help and co-operative attitude.

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Chapter 1

Half a Century Later and, Still, I'm Not Disenchanted with Science

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Abstract

I became a scientist in 1959 and continue to pursue that profession to this day. All these years I have worked at the same institute of the Academy of Sciences. Today the Institute of Molecular Biology is named after the great biochemist who was my teacher, Wladimir Engelhardt. The key words in my areas of research in biochemistry and molecular biology are, I would say, transfer RNAs, aminoacyl-tRNA synthetases, termination of translation in eukaryotes, reverse transcription, and tumor suppressor genes. The reader may not read every page in this chapter. He or she will gain an impression, nevertheless, of how biochemistry and molecular biology have developed and evolved during the last half century in the USSR and then in the Russian Federation. The brief description of a lifetime of scientific activities is supplemented by a quite extensive list of my published works.

Keywords: Transfer RNAs; Aminoacyl-tRNA synthetases; Termination of translation; Eukaryotes; Tumor suppressor genes; Reverse transcription

Instead of a Preface

I was born in Moscow on 14 August 1936. There I remained until war broke out in June 1941, when my mother took me and my 8-month-old brother to a dacha outside the city. In late autumn the invading German forces overtook us and when they began to retreat we were forced to move with them. So it was in the town of Chemnitz, 60 kilometers west of Dresden, that we were liberated by the Red Army on 6 May 1945.

For most of the war my father Lev Zilber was imprisoned by the Soviet authorities. Arrested and released twice during the 1930s, he was again arrested by the NKVD, the Soviet secret police, in 1940 and would not be freed until March 1944. All the time we spent in German captivity we knew nothing of my father's fate – and he had no idea what had happened to us. In July 1945 the family was re-united and thereafter we lived together in Moscow.

I entered Moscow University in 1954. In 1955–1956 the Communist Party organization within the biological faculty persecuted the students in my year for ''Mendelism-Morganism'' and for our hostility to the ''teachings'' of Lysenko. An attempt was made to expel us from the university but it failed. The rector of Moscow University was Ivan Petrovsky, a mathematician and member of the USSR Academy of Sciences. He did not approve our expulsion. His decision became possible since in February 1956 the Party held its 20th congress and there Nikita Khrushchev made his ''secret'' speech about ''cult of personality'' under Stalin.

Since then my whole life, as a biochemist and molecular biologist, has been linked with the Academy's Institute of Molecular Biology. It is named after one of my mentors Wladimir Engelhardt, who is a classic figure in the discipline of biochemistry [1]. My other two teachers, I consider, were my father Lev Zilber, whom I describe in this chapter (for more detail see [2]), and Vladimir Skulachev, who supervised my undergraduate studies at the university's department of biochemistry [3].

My first work performed at the Institute is dated 1961 [4]. The main subjects of my scientific interests have been the transfer ribonucleic acids (tRNAs), the aminoacyl-tRNA synthetases (aaRSases) and the translation termination factors eRF1 and eRF3. These important components of the protein-synthesizing system of cells are all linked because they participate in the specific RNA–protein interactions.

My first trip abroad was in 1964. Since then contacts with foreign colleagues have constantly expanded, especially since the Gorbachev's ''perestroika'' (1985) and the final fall of the Communist regime (1991). As a result, a great many of my studies have been carried out in tight collaboration with scientists from France, Denmark, the USA, Japan, Sweden, the Czech Republic, China, Austria, and Britain. Extended periods of work in France and Denmark have proved interesting, productive, and pleasant.

As a full member (academician) of the Russian Academy of Sciences I am entitled to continue my scientific investigations for as long as I wish; and though I recently turned 70 I do not yet feel the desire to cease my studies.

My Parents

When I was born, my parents, Valeria Petrovna Kisseleva and Lev Alexandrovich Zilber, were not officially registered as man and wife. As was then common (and indeed is the case today in Russia), theirs was a ''civil marriage.'' Therefore, in accordance with Soviet laws, I was entered in my mother Valeria Kisseleva's identity document and given her surname. My parents were only legally married in 1946, due to the pressure of external circumstances (on a trip to the south the hotel management refused them a double room). Mama then suggested that when I and my brother reached 16 and received our own identity documents, we take Father's surname. He was categorically opposed. It will become clear from what follows, why he took that decision.

My mother graduated in art studies from the history faculty at Moscow State University. Her special field was medieval Russian painting. Since there was no secular painting in that epoch, she studied Russian icons. This was not a very safe occupation under Stalin – one might be accused of promoting religion, which was a kind of ''anti-Soviet activity.'' Mama was a most energetic and active woman. The prospect of becoming a modest guide at the Tretyakov Gallery would not have suited her at all. Abandoning her training, she studied to become an assistant in a microbiology laboratory: in the USSR, once you had graduated, it was not permitted to become an undergraduate in a different discipline. Successfully completing the course, Mama got a job at the Institute of Microbiology and it was there that she met Father

already a well-known microbiologist and in charge of one of the laboratories.

Lev Zilber was 9 years her senior and he had no children although married 3 times before. Two previous wives remained warmly attached to him until he died. Maria Shevlyagina was a highly thought of general practitioner and professor of medicine. Zinaida Yermolyeva was a well-known microbiologist and would subsequently become a member of the USSR Academy of Medical Sciences. It was Yermolyeva, with Father's younger brother, the famous Soviet writer Venyamin Kaverin, who several times waged a desperately bold and exhausting struggle to free Zilber from imprisonment. It was thanks to their efforts, and to the support of many outstanding scholars and of Father's own pupils, that he was 3 times plucked from Stalin's dungeons. For those times it was a unique achievement.

Lev Zilber attended Universities both in Petrograd (St. Petersburg) and in Moscow, graduating from the natural sciences and medical faculties, respectively. The superb biological and medical education he received between 1912 and 1919 formed the basis of his scientific career. Today the field is called biomedicine.

In 1923–1927 Father discovered the serological transformation in bacteria, several years before the renowned experiments conducted by Griffiths. In 1930–1931, at risk to his own life, he suppressed an outbreak of plague in the Caucasus, in the mountain region of Nagorno-Karabakh. There followed his first arrest. The absurd accusation was that Father considered the outbreak to be natural in origin: the NKVD demanded his admission that spies had introduced the infection from neighboring Iran. Fortunately, intervention from Moscow secured his comparatively rapid release. He immediately returned to the capital from Baku when he was a director of the Microbiological Institute. In 1937 he led an expedition to the Soviet Far East which culminated in a triumphant success. After three and a half months of intense, wearisome labor in the forests of the untamed taiga, Father and his young co-workers, identified the pathogen of the spring-summer encephalitis that afflicted the region. It proved to be a new virus and he demonstrated that it was transmitted by ticks. Throughout the world this virus is today referred to as the tick-borne encephalitis virus. The outcome of these efforts, in autumn 1937 after Zilber had returned to Moscow, was his second arrest on the monstrous accusation of

being a Japanese spy. According to NKVD version, the virus Father discovered had been brought from Japan and was the Japanese encephalitis virus. Thousands who lived in the Far East and worked out in the taiga, and the soldiers and officers of the Red Army who were based there, were saved by the discovery made by Zilber and his colleagues. That did not halt the secret police. It took enormous efforts to secure his release in 1939. Yet in 1940 he was arrested, once again, on the very same ludicrous charges and this time Father was sentenced to 10 years in the camps for being ''a Traitor to the Motherland'' (the sadly notorious Article 58 of the Soviet Criminal Code) (Figure 1).

Fig. 1. *A portrait of Lev Zilber (1943) drown by anonymous author in GULAG at far-north of the European part of Russia near Pechora river (archive of Zilber's family).*

Only in March 1944 did a direct appeal to Stalin, passed to the dictator's immediate entourage and signed by two dozen of the country's leading scientists and scholars, resulted in Father's immediate release, though the charges against him were not withdrawn.

Lev Zilber was a man of iron will and great gifts and he endured a fate in which tragedy mingled with joy. I shall not dwell further on his life here. For those who read Russian, however, there exists a large 700-page biography that I wrote with the biologist and historian of science Elena Levina [5].

While in prison Father created in 1943–1944 the viro-genetic concept of the origin of malignant tumors. His work was published in the USSR in 1945 when the Iron Curtain rendered it quite unknown to the outside world [6,7]. Only in the late 1950s when Zilber was able, once again, to travel to other countries did foreign colleagues learn of his theories and investigations. His unexpected and sudden death on 10 November 1966 at the age of 72 was a great grief to his family, his students, and colleagues. I am proud that he entrusted me with the task of writing a chapter in his last book, which he finished a day before his death [8].

Undoubtedly his qualities and character influenced me greatly. He set an example as a scientist, displaying inexhaustible optimism, vitality and love of life, an enormous capacity for work, limitless erudition and possessed a rare combination of qualities, being both a deep thinker and a virtuoso experimenter. Despite that, Father never directly intervened in my education or upbringing. He did not ask how I was doing at school or university; he never ticked me off or interfered in my private life. I lost my father when I was 30 and to this day I feel his absence, and a void that nothing, and no one else, can fill.

At the request of a family friend, Professor George Klein of the Karolinska Institutet, Stockholm, I wrote a scientific biography of my father. My co-authors were his closest pupil and scientific heir Professor Garry Abelev and my younger brother Fyodor [2].

After the biography was published I received a letter from the Nobel laureate Howard Temin. It is included here in the form of a photocopy without commentary (Figure 2). *Cancer Research* journal illustrated on one of its covers Abelev's discovery of the alpha-phetoprotein, which was made in Zilber's department. What follows are merely a few of the English-language references to his investigations [9–19].

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February 3, 1993

Dr. Lev L. Kisselev
Engelhardt Institute of Molecular Biology
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Moscow
RUSSIA

Dear Lev:

I was deeply moved by your article on your father that Jan Svoboda sent me. We in the United States cannot even imagine what he and others of his generation went through. I also had no idea of your World War II experience. I only had the pleasure of meeting Zilber (and Svoboda) in 1964 at Duke at Joe Beard's meeting on RNA tumor viruses. Zilber made an indelible impression on me even then. I am sorry I didn't get to know him more.

Among the tragic byproducts of Stalinism were the isolation of U.S. and Russian science. Although we knew about the transmission of RSV to mammals, we knew little of his general theoretical ideas.

I hope that things are not in too great upheaval in Russia for you and your family.

With best regards,

Sincerely yours,

Howard

Howard M. Temin

HMT/kaa

P.S.: As you may have heard, I have advanced cancer, but am under intensive and so far successful therapy.

P.P.S.: Please share this letter with Abelev and Feodor. I remember well meeting all of you in Russia in 1976.

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Fig. 2. *The letter addressed to myself from Howard Temin as a commentary to the publication about L. Zilber [2].*

On our return from German captivity, Mama resolved to devote her life wholly to her husband and family. She quickly learned to use a typewriter and typed up Father's manuscripts – between 1945 and 1966 he wrote six major monographs; she became

particularly adept with lists of Russian- and English-language references. Mama was dearly loved by her numerous friends, many of whom she had known from their schooldays together at the pre-Revolutionary *gymnasium*. They became friends of the family and I have heart-warming recollections of these kind, loyal and genuine members of the intelligentsia. My mother liked to entertain and invite guests to eat with us; she was exceptionally good in the kitchen. When Professor O. Muhlbock, a friend of my Father, was about to return to Europe he insisted that Frau Valeria make some of her pies for the journey. Enchanted, she fulfilled this request. Our home was open to visitors and friends and on New Year's Eve or my parents' birthdays a great many gathered there. The merrymaking was endless. We put on theatrical performances, composed humorous verse and epigrams or birthday and New Year greetings, and we sang romantic ballads of our own making. This, moreover, was in the period from 1946 to 1966 when there was still a long way to go before the Communist regime was abandoned.

Father's sudden and untimely death was due, in part, to 7 years and 6 months spent in prison and in the camps. In part, it was the result of his ceaseless, intense work as a scientist. After he died, Mama devoted all her efforts to bringing up two granddaughters and a grandson. She outlived her husband by 15 years but could never reconcile herself to his demise and slowly faded away. Mama's own father, Pyotr Kisselev was a very well-known Moscow surgeon who died early, before I was born. From her tales I heard of his difficult character and this, probably, to some extent passed down to his daughter. When both parents are very strong characters, the family life cannot be a simple, straightforward matter. Yet it was thanks to this strength and staunch endurance that my parents survived, preserving their family and raising children during the most terrible years in the 20th century history of Russia (Figure 3).

Fate of the Family During the War, 1941–1945

When Hitler invaded the USSR early on the morning of 22 June 1941, Mama was working at the Central Institute for Epidemiology and Microbiology. There, before his arrest, Father had headed a laboratory. We lived in an apartment building owned by the

Fig. 3. *Lev Zilber and Valeria Kisseleva at the celebration of Zilber's 70th anniversary birthday at Gamaleya Institute in Moscow (March 28, 1964).*

institute and my family continues to live there today, almost 70 years later. In the Soviet terminology of the time Mama was an FMTM, namely a Family Member of a Traitor to the Motherland. It was courageous of Lev Yankelevich, director of the institute, to give her a job and our family is eternally grateful to him. Had mother not found employment, her two under-age children, aged 6 months and 5 years, would have simply starved to death.

Rumors quickly spread: the Germans were about to carry out a terrible bombing campaign against Moscow (as it turned out that was not the case). Mama decided to send us away with our nanny to friends living at a dacha. It was approximately 60 kilometers west of Moscow, not far from the small town of New Jerusalem. On Saturday evenings she brought us food from the city and on Sunday she returned to work, taking the local train. We had not the slightest idea where the fighting was. Black loudspeakers hung in public places – it was strictly forbidden to possess your own wireless receiver – and they spoke of battles near Brest, on the Soviet Union's western border. In fact, the Germans were moving rapidly towards Moscow.

By the middle of October, it became impossible to conceal that the Germans were not far away and panic broke out in the Soviet capital, with mass flight to the east and the south. That Saturday Mama, as usual, brought food from Moscow but she could not

return. Local trains and buses were canceled. The radio endlessly reported that all approaches to Moscow had been mined and called on the population to stay put.

Quite by chance, on the Sunday when they closed all routes back to Moscow, Mama's younger sister Anastasia came to the dacha. (At home we called her Naka, a short name I invented since her full name was too hard for a little boy to pronounce.) Naka wanted to help mother with the children and had also brought some necessities. My aunt worked as a maintenance engineer at the electric lamp factory in Moscow. Her failure to turn up for work could be regarded, under wartime conditions, as desertion and lead to her arrest. Luckily, she managed to ring through to the factory administration and explained what had happened.

The Germans appeared but did not do us any harm. We were saved by two fortunate coincidences. During their childhood Mama and her younger brother Andrei had spent the years 1910–1912 in Zurich. There they lived in a pension and learned to speak German fluently. They were addressed only in German, naturally, and were not allowed to talk Russian, even among themselves. (Both retained knowledge of the language until they died.) When Mama answered the officer in a ''most superior'' German he was astounded. ''Is madam German?'' he immediately asked. ''No,'' Mama calmly replied, ''I am Russian.'' On hearing perfect German from a Russian woman the soldiers behaved in an entirely civilized fashion and quickly left. This gave Mama time to recover and gather her wits about her.

More terrifying was that many who lived nearby knew Mother's husband to be Jewish. Had anyone dropped a hint to the Germans, my brother and I – and, probably, Mama and Naka as well – would have received one-way tickets to a certain death. No one said a thing. No informers were to be found there; we escaped that fate. It helped, of course, that we bore a profoundly Russian surname. (It derives from an old and popular dish, formerly served as a dessert in Russian villages: *kisel* is made of starch, boiled with berries or fruit juice, and is a favorite with tiny children.) My brother and I were entered in Mama's identity document and there was no mention of Father's name there. There were no photographs of Father at home though I knew that Mama hid a very small photo of him somewhere and kept it with her throughout the war.

The frosts were bitterly cold and the oil in the German tanks froze. The dacha was heated with logs and with firewood that we gathered in the surrounding woods. The German soldiers felt the cold terribly since their leather boots and clothing were not intended for daytime temperatures of about minus 30–35 °C and they went from one house to another, confiscating sheepskin coats and warm felt boots from the inhabitants. Round their heads they wrapped knitted hoods so that only their noses and eyes were visible. I well remember that they presented quite a sorry spectacle.

The German forces had come to a halt although they could already see Moscow through their powerful artillery binoculars. They had been stopped by the winter cold, Russia's main ally, and by the army divisions from Siberia that had managed, at the very last moment, to place themselves between the invaders and the city. When the counter-attack began, a German officer appeared and told Mama that we must be ready within 2 hours. We should take the minimum necessary and would be evacuated with the retreating German forces.

Little Fyodor, Fedya, was a baby in arms, not yet 11 months old. We took bags of meal with us (Mother's milk had dried up long before), and put on all our warm garments. I insisted we take my beloved cat and he was placed in a basket, tied up with a rag: with one hand I clutched the basket, with the other I held on to my Aunt Naka. We were loaded onto an enormous truck, like a Studebaker with a canvas top. The vehicle was crammed with empty tank-fuel barrels. The Germans did not abandon these containers, even in retreat, and they sat us on top of them. It was awful. The frost was so severe that if you touched the barrel your skin immediately froze to it. ''Leave the metal alone,'' Mama kept warning us: ''don't touch it.'' When the truck set off the barrels began to rattle. We were mercilessly tossed about on the cratered roads that had been of poor quality before the bombs started falling. On one of these potholes the cat jumped from the basket and out of the truck. He did not want to remain in captivity.

We were driven westward with those barrels, all the way to Smolensk. There they put us up in the railway station, which had been bombed earlier by the Germans. No roof was left and we sat, squeezing together, on the oak benches in the former waiting room, trying to preserve what little warmth we could. Fedya, starved and chilled through, had stopped howling. He only made a

quiet whimpering. A slender, blond-headed German lieutenant passed by. Mama said something quietly to him in German. He stopped, looked at us, said something in reply and went away. After a while Mama left, leaving Naka to look after me and Fedya. Some time later she reappeared, concealing a loaf of bread wrapped in cellophane. Later I learned that the officer told Mama where he would hide us some bread from his own ration. Mama had gone to fetch it. Once again her excellent knowledge of the language had saved us. At the station the Germans were handing out boiling water and that also helped. It was frightfully cold, about –40 °C. Above our heads the pure stars burned brightly, shining through the shattered roof.

When we had been driven as far as Polotsk (today it's in Belarus) Mama was taken on at the army hospital. As well as knowing German she had received a medical education. Though it did not qualify her as a doctor, it was more than sufficient for her employment as a nurse. The German military doctors were well-disposed towards her and would call her Frau Valeria. There was no call for an electrical engineer at the hospital, my Aunt Naka's occupation, so she was given the job of stoking the furnace and washing the dishes. They were both very fortunate to get such work. Mama had access to the doctors and to medicine while Naka in the kitchen kept warm and well-fed and could bring some food home for my brother and me. We lived in a one-storey wooden house on the outskirts of Polotsk. Its previous inhabitants had died or had gone into hiding or, perhaps, they had fled from the Germans. All day long Fedya was in my care and so, at the age of 6–7, I found myself playing the role of a very juvenile father. Naka was then 27, unmarried and a most attractive woman: she was a classic Russian beauty, with large eyes, rosy cheeks, and regular features. Mama was terrified that the soldiers, as they got better, would begin casting eyes her way. Rubbing soot on Naka's cheeks, spoiling her hair-do and dressing her badly, Mama did all she could to make her sister unattractive. She ordered her not to leave the kitchen and let the soldiers see her. It all helped.

Let me recall two episodes that remain fixed in my mind from our time in Polotsk. Fedya hardly grew. He was ''pint-sized,'' very small and thin, and due to a lack of any vitamins and to under-nourishment he acquired impetigo. It is a little-known illness these days. The face becomes covered with a crust, peeling in scabs and only the eyes remain unaffected. An unbearable itching

opens the way for secondary infection. Especially for the mother, the child's appearance is terribly distressing. ''Frau Valeria'' described Fedya's condition at the hospital. A German doctor came and examined my brother. He wrote out a prescription for medicines that Mama was then issued at the hospital. She was given vitamins and allowed to take certain foods from the kitchen. Fedya quickly began to recover. The traces of impetigo would remain on his face, however, for years to come.

There were many partisan units around Polotsk and at night, from our house, we could see the flickering of fires in the forest. After dark the Germans did not walk about the town and most certainly did not risk venturing beyond its limits. Then Polotsk would be plunged into utter darkness so as not to offer any target for attack by Soviet planes. During such a pitch-black night two people came to our house. They knew where Mama worked. They said they needed medicaments for wounded partisans and asked her to get them from the hospital. It was a very dangerous situation. German motorcycle patrols rode around the outskirts of the town and might notice the appearance of these outsiders. We would all be shot for having links with the partisans. If it was noticed at the hospital that medicaments had gone missing, the Germans would know who was responsible and we would also suffer the ultimate punishment. Even if Mama managed to take what was needed undetected, a second visit from the partisans would be no less dangerous than the first.

The visitors were unshaven, dirty and thin, as mother later described. How she could see this I do not know. The partisans asked her not to light a candle and their conversation took place in the dark. I could only hear quiet male voices and Mama's yet quieter replies.

After the war I learned that Mama had somehow managed to take much that the partisans requested and pass it to them: gauze, bandages, iodine, streptocide, and more besides. She was told that the partisans' commander had ordered, in gratitude, that the whole family be transferred to the partisan camp and then to the ''mainland.'' (The partisans had quite regular links by air to the military command in the unoccupied territory or ''mainland''.) After agonizing uncertainty, Mama turned this offer down. She never gave me the reasons for her decision. However, I think, as the wife of a ''Traitor to the Motherland,'' a woman who was now working for the Germans – it did not matter