In a Patch of Fireweed

· BERND HEINRICH ·

A BIOLOGIST'S LIFE IN THE FIELD

In a Patch of Fireweed

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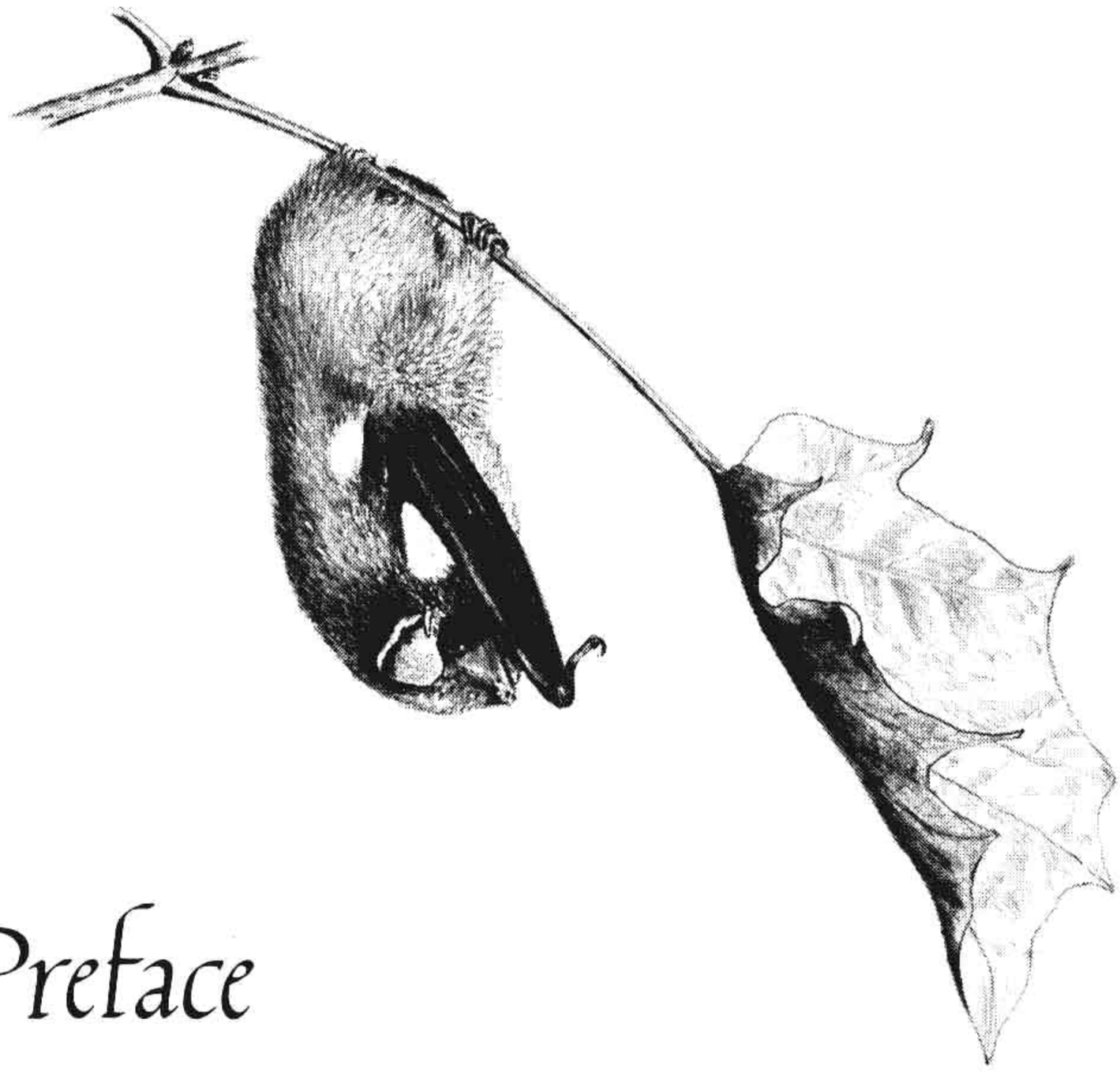
To my parents
and to my mentors—Phil, Dick, and Bart



Preface

I am a biologist, and research is a major part of my life. It can be tedious and difficult, but on the whole it is full of adventure and I love it. Often I have been frustrated with the journal articles that come out of the research because only the finished results are given. All the excitement of the process has been squeezed out so that the results will conform to certain expected standards necessary for clear and objective scientific communication. (I expect no less from other researchers who communicate to me through the journals.)

This book is not really for scholars, then. I am more concerned about conveying to a general audience what motivates someone to get into natural science. My hope is to capture here some of the feeling of science that I have had to leave out of my other writings: the sounds and sights, the endless chores and happy accidents, the obsessions, the wonder of it all.

The first three chapters describe personal experiences that helped to shape my later perceptions and work. My intention was not to write autobiography but to tell about the natural links forged between one's life and a life in science. Other chapters, on ant lions, wasps, and moths, provide results that will be written up for scientific journals. Finally, in the last chapter I talk about some possible directions for future research and how my involvement with biology has shaped my view of life.

The manuscript evolved not only from research but also from observations, thoughts, and ideas written down over the course of many years. I owe special thanks to William Patrick of Harvard University Press for encouraging me to try to combine such eclectic material into a single manuscript. Joyce Backman gave invaluable help to see it through. I am also grateful to my sister Ursula (Ulla) Wartowski and to my parents, Hildegard and Gerd Heinrich, for refreshing my memory with details I had forgotten or suppressed. My wife, Margaret, gave indispensable assistance in the field, encouragement, support, and always helpful criticism. Bert Hölldobler, Bill Jordan, Ernst Mayr, and David Stanley-Samuelson offered many useful suggestions on earlier versions of the manuscript. I also thank Ann Fortner, who patiently and accurately typed so many drafts.

Drawing is a way for me to get reacquainted with my feelings for the subject, and I include some sketches here not as scientific illustrations but as fond recollections.

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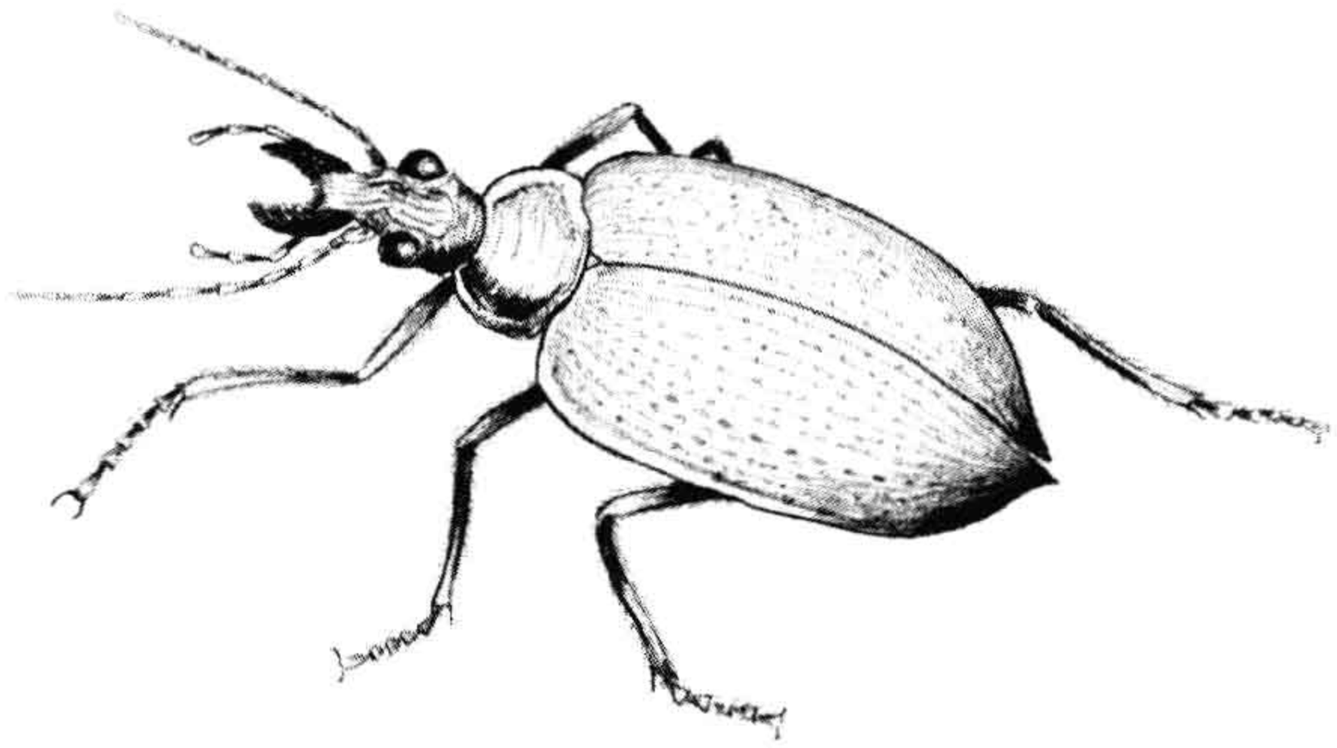

Flight into the Forest

I remember the fresh green grass waving in the slight breeze under a brilliant blue sky, and in this grass stood a small bush with pale brown stems. On the stems were bright yellow flowers more beautiful than any I'd ever seen before. My urge to pick them was all-absorbing, and I forgot the black plume of smoke of an airplane falling from the skies, and I hardly heard the loud wailing of the sirens that slowly rose in pitch and then dropped, nor did I pay attention to the dull muffled thunder in the distance.

As I was reaching for the flowers, Mamusha yanked on my arm. "Komm, schnell, schnell!" There was a strange, serious look in her eyes. In an instant we'd entered through the steel door into a dark cavern underground where people sat like mummies along the cement walls. The thunder could still be heard. These are early memories, but they connect me even now to the present. I do not like forsythia.

I can recall very little of Borowke, our large farm in what is now Poland. I was only four years old when we left. But from the album of photographs we took with us and from the constant reminiscing of my parents, it must have been heaven on earth. There were wooded hills, ponds, marshes, and rolling meadows with horses, cows, and sheep.

We had been landed gentry. My grandfather was a successful physician in Berlin, my grandmother an accomplished painter who had

studied in Paris. My father was an amateur biologist who had spent several years on expeditions to the wilds of Burma, Celebes, and Halmahera to collect rare birds for the New York, Chicago, and Berlin natural history museums. Visitors from abroad came often to Borowke to enjoy the country air and to stay for as long as they liked in our large house surrounded by massive chestnut trees planted by my great-grandfather.

Then the dark cloud of war enveloped us all. The bucolic serenity, and our security, vanished like the sun, and we came to live at the edge of hunger. In the immediate sense this happened because we were caught between Communists, Nazis, and British and American bombers. But, as much as anything else, somewhere along the line it also came to be because of misunderstanding and mistaken ideas about the application of biological theories on the struggle for existence and the "natural" order of things.

To the Communists at that time, the superficial order of the anthill was natural, and to achieve that specific automatic order through obedience they aimed to kill off people like us, the so-called intelligentsia, who were thought to have nothing to contribute. For their part, the Nazis turned to the highest scientific and philosophical authorities to sanctify their ideology. They leaned on Darwin and Nietzsche, like drunks leaning on lampposts, not for illumination but for support. The Nazis picked one specific human type out of the innumerable ones that nature had evolved through natural selection, and they proclaimed that only this one *was "fit" and entitled to life. We were worried, because my grandmother was Jewish. Papa revived some old contacts from his time as a pilot in World War I, and they helped him to enlist in the Luftwaffe. We hoped this would keep the Nazis from ferreting us out. It did.*

In hindsight, it seems that the difference between the life and death of millions hinged ultimately on an ignorance of biology or on distorted application of these ideas on how things ought to be. At that time, back in 1944, of course I thought none of this. I only reacted to immediate circumstances affecting my feelings of well-being. My parents thought more into the future, worrying about survival under conditions imposed

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on us by forces beyond our control. It was too late then to change circumstances, and one could only hope to live through them. Our next biggest fear was the Russian army.

We had been constantly reassured that there was no reason to fear a Russian invasion. But suddenly, one night, it was suggested that we evacuate. Many landowners stayed, believing that, since they had done no harm, no harm would come to them. It was a wrong assumption and, like many assumptions based only on hope and feelings, it would prove deadly to them.

I was excited to be going on a big trip, although I would miss George, a British prisoner of war who worked on our farm. He had helped my older sister with her English, and he told me about the gnomes that he said lived in the forest. Before we left he had taken me into a birch-alder bog, showing me little hillocks of moss they presumably hollowed out for living quarters. I had never seen any gnomes, but George assured me that they always hid in the daytime and would only dance about at night in the moonlight on top of a big mushroom. They were obviously not only small, unobtrusive, and mysterious, but also very clever to live in such total secrecy. I wondered if I would ever see them now that we were leaving Borowke.

It was snowing when we left. I was bundled up snugly against the cold, smiling and saying Auf Wiedersehen to farmhands who stayed. They seemed to hug a little harder than usual and to look into my eyes a few seconds longer. Then we left — into the night riding on a wagon with only some spare clothing, a little food, a clock of my great-grandfather's, and the album of photographs. The wheat fields, the gentle hills, my grandmother's paintings of flowers and butterflies, the horses and cows, the forests, all were left behind.

Leaving one's land is not an easy thing to do. The chaffinches who nested in the chestnut trees by our house escaped the winter by flying south for thousands of miles, but they were drawn north again in the spring to that tiny pinpoint on the map they knew so well, to their home. We knew we'd never return. We'd have to put down roots elsewhere, but that goal was not very high on our list of priorities right then.

Mamusha, my two sisters Marianne and Ulla, and I did not leave Borowke until we heard artillery and knew that the fighting was getting close. Our immediate goal was to try to reach an airbase in the north where Papa was stationed.

We made very slow progress. The roads were already jammed full of sleighs, wagons, horses, and endless streams of people carrying a few prized belongings, utensils, and food. The German army was retreating. Everyone was scouring the land for food like a hungry plague of migrating locusts. After a while we could hardly move forward at all on the roads clogged with fleeing humanity. Mamusha and Ulla (my older sister) were increasingly concerned about how to negotiate through this bedlam to make it north. We moved off the road and decided to hide in a farmhouse in a remote village in order to see what might develop. Mamusha and Ulla watched the highway, talked to the refugees, and gathered information about the Russians who were coming on as steadily as phalanxes of army ants marching in the jungle. A retreating Panzer division from Kurland was there, and the officers told us that it was impossible for us to remain, for the women, if caught by the Russians, would be raped and killed. They offered to take us with them, and we accepted. We rode for several weeks in a tank used for medical supplies, while the soldiers continued to fight and to hold off the fast-advancing Russians.

One evening we moved with the Kurlanders and their tanks into a deserted village. The soldiers slaughtered some pigs and started to cook them over open pits. Everyone had a chance to wash with warm water. That was already a big treat and, having been hungry for so long, we were all looking forward to having a good Schweinebraten as well. Then, as the aroma of roast pork saturated the air, an alarm sounded. The soldiers dashed for their tanks, and nobody stayed to enjoy the pork. Later we learned that, while we were leaving the village at one end, the Russians were moving into it at the other end, barely a kilometer away. It was they who undoubtedly enjoyed the Schweinebraten.

After this and other close encounters, our adventures with the Panzer unit ended. They had to stay and fight. Civilians were in the way, and we

would have to make it by ourselves. They had only one option — at least we still had the freedom of trying to beat the odds. So again we struck out on our own. Eventually we managed to reach Papa's base. But when we got there, he was gone.

He had waited. Steady streams of people had flowed north on the highways for days, passing the airbase. It had become clear to him then that the Russians were advancing rapidly, pushing the civilian population ahead of them. We did not come, and there was no word from us. Having expected to see us long ago, he had traveled in desperation to Berlin to our alternate place for contacts. Fortunately, however, we waited and eventually he did come back to find us.

Where should we go next, and how? Because Mamusha and Ulla had befriended the base commandant, Papa was given permission to escort us out of the danger zone by taking us, and some other refugees, on an old wood-burning truck that was being sent to the airbase in Stolp, to drop off antiaircraft equipment. But before we reached Stolp, we learned that the Russians had penetrated, cutting off all roads to the west. We were completely encircled, and the whole area was now aptly called "Der Kessel" (the Kettle). Escape by land was quite impossible, and the Russians were closing in from all sides. Might there still be a chance to escape by air?

A unit of the German army, including our friends with the Panzers, was continuing to fight east of us. The Junkers that flew supplies to these surrounded and doomed troops stopped in Stolp, and then again flew out of the Kettle. We could try to get into one of those planes, to get out — to anywhere; women and children had priority, aside from military cargo. But the airport was soon to be abandoned and blown up. When the shooting was getting so close that it could be heard in the distance, we managed to get into one of the last planes scheduled to leave. The tankmaster of the airport didn't want to give our pilot fuel — he wanted to save it for the few remaining fighter planes that had not yet been shot down. Papa (who was a teetotaler) bribed him with a bottle of liquor specifically carried for such emergencies. There is a market for mind-altering drugs in bad times, and we got our fuel. Then one of the

propellers broke as the engine was being started. Calls were made quickly to Berlin. An official answered that a propeller could be provided, but only if his girlfriend, who happened to be at Stolp, could also be taken out on the plane. It was a deal. The next day the propeller arrived.

Next, one of the two engines wouldn't start. Papa talked the Junkers pilot into trying to fly with just one engine. As we were rolling down the runway, the plane swerved to one side. Something was wrong with the steering mechanism as well. That left us little choice. It was snowing hard as we left the plane and trudged toward the woods to await our fate with the Russian army. Just as we were leaving, the pilot called us back: "Komm schnell—Ich hab's gefunden—Ich hab's gefunden!" (Come quick, I have found it, I have found it!). The pilot had found a minor cable malfunction that he could fix and we took off, just in the nick of time, too, because the demolition squad was ready to ignite the bombs that were already set to destroy the airstrip. Apparently the bribed tankmaster had provided only the bare minimum of fuel, and our pilot wanted to land on an airfield halfway to our destination, hoping to get more fuel. He and Papa talked it over and decided we might have just barely enough after all. It was a good decision because, when we flew over the airport where we were thinking of landing, we saw black puffs of exploding flack—they were shooting at us! The airport was already in the hands of the Russians.

We made it to the airport at Demine and stayed there a few days. We were trying to find a means to get to Schwerin, where Papa was to report for duty commanding the defense of the airbase there. He bribed the woman in charge of the train station, and she let us board a cattle car. After one day and one night we reached Schwerin. We had only a loaf of bread to eat on that train. It was very good bread, and we were not displeased. (Usually, only when reality does not meet expectations does unhappiness settle in.)

In Schwerin, Papa was instructed to give young boys—the new draftees—lessons in National Socialism. He protested that he had no lessons himself, so how could he instruct? The SS officer in charge of political orientation told him that this could be easily remedied and sent

him — even though the collapse of the Third Reich was obviously imminent — to take a course at Oranienburg near Berlin. He was there with other Luftwaffe people, and to a man they all had the same low opinion of the matter. At the end of the course each man was required to give a speech. Papa's was on his experience of catching rare birds in the jungles of Celebes. He said it was a big hit with the officers.

While Papa was being indoctrinated, we stayed at the airport in Schwerin, where there were almost daily bombing raids by American B-17s. It was here, on the meadow close to the airport barracks, where I saw the black plume of smoke and the forsythia that I didn't have time to pick because we had to run to the bomb shelter.

After Papa returned, he was assigned to oversee some guard dogs and some young recruits to defend the airport. The troopers scouted daily and reported to him. Then, on May 2, we heard that Hitler had killed himself, and the following morning the patrols told Papa that enemy tanks were coming — they would be here in about half an hour. The Russians and the Americans were thought to be equally close and we didn't know which would arrive first. Papa quickly persuaded the quartermaster to open up the supplies and to let everyone take what they needed. Then he jumped on his bicycle and went to hide in the woods. As usual, my parents had anticipated events, and it had been worked out beforehand that Papa would hide under a certain pile of brush in a clearing in the forest. Ulla and Mamusha were to bring him food for several days, until the next step could be taken.

While Papa had been at the airport, we lived in the hayloft of a barn in the nearby village of Sülzdorf. Now, when he was hiding in the forest, we could hear the artillery duels. The shooting was getting closer all the time. We hid in the cellar of the farmer's house, wondering who would get here first, the Americans or the Russians. Suddenly the guns stopped; the silence was shattering. Ulla, consumed by curiosity, sneaked into the barn to look out a tiny window onto the street. What she saw almost took her breath away: a tank with a big white star painted on it. She knew the insignia of the Russians was a star, and she was frightened. Trying to figure out where to hide next, she heard in English, "Hey, come out,

come out, you bastards!" She said later that no words had ever sounded sweeter to her ears. (Ulla had learned English in high school and George had helped a little to enlarge her vocabulary, but she had not learned that the color *of the insignia made all the difference.) She raced back yelling "Die Amerikaner sind hier—die Amerikaner sind hier!" and then ran out, practicing her English, "Welcome to Sülzdorf!"*

Meanwhile Papa was lying on the damp earth under the brush when a great commotion broke out—artillery fire, infantrymen running by, and tanks rumbling past, crashing over the fir trees. Then it was quiet again. Later other men arrived, speaking German. It was apparent that these were SS men, the dread internal police of the Nazis, who were probably getting ready to surrender as a group or to metamorphose into civilians by changing clothes. They would likely shoot Papa if they found him because they would not want witnesses. On the other hand, if they were following Hitler's orders and not surrendering, they would certainly shoot him as a deserter. The SS men started a fire, taking wood from the very pile under which Papa lay. But their lunch break was cut short when they heard the sound of tanks, and they felt compelled to disappear in some hurry. In their great rush they left behind many supplies, including a large crate of butter, a typewriter, and a big box full of Iron Crosses (military decorations). These later turned out to be excellent items of barter for food with the occupying Americans, and the typewriter ultimately came with us to America.

The German army was disbanded, and the countryside was strewn with supplies. Horses ran loose, and Ulla captured three of them. She also found saddles and harnesses. Ulla, who had always loved riding in Borowke, was in her element. She even gave the American GIs riding lessons, and they soon were calling her "Blondie." The GIs were from a unit that named themselves the Grasshoppers. One day a Grasshopper lieutenant came with a German car and several cans of gasoline to the hayloft where we were living. He said to Ulla, "Blondie, please take your family and move west. Don't stop till you cross the Kaiser Wilhelm Canal." "Why?" Ulla wanted to know. "Trust me," the Grasshopper lieutenant said, "it will be better for you." Ulla asked him why he should

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