

Chapter 2

Wartime Student Days

Admission to Cambridge University

My parents had emigrated from Austria to England while I was in the Swiss boarding school. However, when Hitler invaded Austria in 1938, I had to cut short my high school studies and return to my parents in England as quickly as possible, in fact the day after the “Anschluss” (the German annexation of Austria). The reason for the hurry was that my British Resident’s permit might be revoked because my Austrian passport was now invalid. I was 18 then and would have had another year at school in the usual system. Instead, I flew back in a state of great excitement from Zürich to London on a DC3. For me, it was a dramatic situation: I might not be allowed into England where my parents were, and on top of that, it was the first commercial flight I had taken. I was so excited I fell off the steps of the DC3 in Croydon (London) where my father awaited me. (A good thing they didn’t have 747s in those days!) Fortunately, I was allowed into England and soon applied to Trinity College, Cambridge, to study engineering or the Mechanical Sciences Tripos as they were pleased to call it. I had wanted to study physics, but my father felt unsure, despite my good school record, that I could make a living as a physicist. And he knew that I was good at practical things and so thought engineering was the right thing for me. I had to learn the specific subjects needed for the Cambridge entrance examination, like Latin, which I had not done at all, and English history. I did not have much trouble with the other subjects of the entrance examination. Mathematics, though different from what I had learned at school, I could learn easily, and mostly by myself.

Latin was another matter. I was quite good at learning it, but, of course, to make up for a 4- or 5-year high school Latin education in one year was not easy. With the Zuoz private lessons, I passed the Latin exam without really knowing any Latin. Another part of the exam was just fun for me. It was a foreign language, and as I was by then fluent in English, I made German my foreign language of choice. I remember walking out of the 3-h examination after 15 min, having completed it all, no doubt correctly. And I still remember the faces of all the other students shaking their heads and signaling to me they were sorry I had given up so quickly.

I was admitted to enter Trinity College, Cambridge, in September 1939, as a student in Mechanical Sciences. But on September 3, Britain and France declared war on Germany in response to Hitler's invasion of Poland. This was by no means unexpected by us: my father had told us already for some time that this was inevitable, despite Prime Minister Chamberlain's statement made almost a year earlier: "Peace in our Time." My father was really quite opposed to war; some might even have accused him of being an out and out pacifist. But then, of course, Hitler came along and eradicated pacifism the world over very quickly. But, if one needed a story to take one back to the pacifist sentiments of the World War I era, here is one he used to tell.

He had been drafted into the Austrian army and had become a lieutenant. One period of duty was on the Austrian front against the Italians, and he was an assistant in the army headquarters. Most of the time he would spend in a smoke-filled room, with a card table in the center. There was the general, the greatly admired Austrian commander of that front, with his senior staff. They were playing the Austrian card game of the times, Tarock, a point-scoring and trick-taking game. My father's duty was to bring the general messages from the telephone hanging on the wall. My father would pick up the phone and the message would be something like, "This is the commander of the so-and-so battalion at xyz. We are almost out of ammunition and now surrounded. Please advise us what to do." He would deliver this message in a whisper to the general. The great man would interrupt his card play almost irrespective of the point it had reached, put down his cigar, pull himself up, and bellow out at the top of his voice, "Halten bis zum letzten Mann" (Hold out to the last man). Then he would smile for a moment, basking in the admiration of his staff for being such an able and forceful commander, and he would quickly resume the interrupted game.

Despite such items as that in my education, and despite having gained admission to Cambridge, I applied to the Royal Air Force to become a fighter pilot. I thought this was the right thing to do in view of my intense hatred of the Nazis. My parents were upset because they suspected (correctly as it unfortunately turned out) that the life expectancy of fighter pilots was not good. I went through the medical and fitness examinations and various other tests and was declared suitable for acceptance. But then, the security services came out with the ruling that persons who had previously been Austrian citizens could not be accepted into the Royal Air Force. So I had to resign myself to entering the engineering course in Cambridge.

Those were not good times to start at the University. The courses were all shortened so as to make more manpower available for the war effort. The great departments such as the Cavendish physics laboratory were drained of talent. Much of the gentle lifestyle of Cambridge had been abandoned. Nevertheless, I came to like the undergraduate life. But so far as the teaching in engineering was concerned, I found this dull, and I much preferred to read exciting books in the sciences, such as Sir James Jeans' *The Mysterious Universe* and Sir Arthur Eddington's *Stars and Atoms* on astronomy, as well as books on embryology, books on biochemistry of living systems—all kinds of things quite unconnected with the studies I was supposed to pursue. As I found out later in life, these topics were the seeds of my future professional career.

Internment

On May 14, 1940, after just 7 months at the University, the disaster struck. The “phony war” was over, and the serious war had started. The Germans had begun the invasion of the Netherlands and Belgium and, almost immediately, France. The great “Maginot Line,” the heavy defense system the French had built along the Rhine, proved utterly useless. It had been designed by generals who did not think that any German administration could be so evil as to march through the Low Countries (as they had done in World War I), where there were no defenses, and occupy the Maginot line from the back.

I was interned by the British authorities together with all persons with German or Austrian passports or identity papers in that area because in view of an expected invasion, the county of Cambridgeshire was judged to be in a strategic position, on account of its many RAF bomber airfield. People in similar circumstances in other areas, who had been cleared by the authorities as we had, remained free. My parents in London, as I found after some weeks of internment, were indeed free.

I was interned for 9 months, and although some of the experiences were dreadful and some quite frightening, I remember much of it almost with pleasure and certainly without hard feelings against the authorities, even when they subjected us, I think sometimes quite needlessly, to great danger and to serious health hazards. All these internees had undergone individual investigations and had been cleared of any suspicion of being pro-Nazi. We had been told that this meant we would be safe from internment in the event of war. But the police chief of Cambridge thought it best to intern us nevertheless. We were told it would be only for a few days, and we would be regarded as friendly aliens and given the treatment appropriate to that status. What followed was quite a different story.

The passports and identity papers of the Cambridge internees were all sent unintentionally on a ship to Australia, which in fact was sunk, but the internees, myself included, were sent on another ship to Canada. Probably it was due to some minor mistake on the part of an official. It was fortunate for me that he did not make the mistake the other way around. It meant, however, that when we were in Canada, there was no way of deciding who was who by tracing back to the previous investigations securely. Anyone could have claimed to be anyone else, and so this made the process of disentangling the situation much harder and no doubt our stay much longer.

When our ship was preparing to leave Liverpool for Canada, some of the sailors told us they had just heard the news that the last ship full of internees to leave the port of Liverpool, that one bound for Australia, had been sunk by a U-boat in the Irish Sea with all lives lost. Still, we made it to Canada but in pretty dreadful living circumstances for 2 weeks. We were a group of 800, crowded into the hold of a merchant ship, sleeping in three layers: on the floor, on the tables, and in hammocks strung above. Sanitary facilities now had to serve 800 persons, having been designed for about 20 sailors. Dysentery quickly became rampant. Very fortunately, none

of the more serious diseases that are often promoted by such circumstances were present.

We were allowed out on deck only for short periods and then in shifts. The companion way to the deck had three single file fortifications spiked with barbed wire, evidently to defend against a mutiny at sea, a takeover of the ship by the internees. Of course, we all realized that it would also make any exit to the lifeboats extremely slow, if not impossible, and this was a consideration on everyone's mind.

Once in Canada, in a camp near the city of Quebec, things were better. We all recovered from the dysentery and slowly regained our original weight. The camp was pleasant with quite good facilities. Even the food was acceptable. The military commandant was friendly and knew that we should be treated as friendly aliens.

The good part of internment was the education. I feel sure that for me, at least, it was much superior to that which I was missing in Cambridge. Firstly, there was of course that hardening of personality that comes with facing such tough and serious conditions. If British education teaches one anything, it teaches one to try and believe that hardships are an essential component in the education of a young man. (Maybe so, but the pace-setting expensive British boarding schools have certainly been able to reduce greatly their heating and cooking bills as a result of this belief.)

But there was another side. It was that other scientists in the internment camp did their best to give science instruction. Hermann Bondi was the outstanding one so far as I was concerned. We had met on the first day of our internment, sleeping on the concrete floor of a disused ice cream factory near Cambridge, and with that beginning, we became friends for life. Like me, an Austrian from Vienna, he was the leading student in mathematics in Cambridge, and, as I found out later, greatly admired by the Cambridge mathematicians of the time. He taught me in easy conversation not only some details of mathematical techniques but also an overall attitude to reach for the important problems, to find quick and simple mental pathways to solve problems in physics, and to set one's aim at the highest level. He, with his brilliant undergraduate career behind him, found this natural. For me, at that stage, it was another matter.

There were a few other things I learned in internment that were more in the field of social studies. I saw how differently people behave when they are put in charge of a lot of other humans. For example, a representative elected by the internees on the ship that took us to Canada was beaten, on the instruction of the military commander in charge, when he explained that he was sent to discuss the bad circumstances, the dysentery in the big cargo holds of the ship. Again, in the second Canadian camp to which we were transferred, we had a problem with the commandant. He also knew perfectly well that we were all persons who had come to England to get away from Hitler. Nevertheless, he used every opportunity not only to be difficult but deliberately nasty. Some representatives from the camp were again beaten when they voiced complaints. I have a little story of an event that annoyed me particularly.

There were some 800 people in the camp. There was no shower and no warm water. Standing in front of a small wash basin with cold water and trying to wash down one's body was obviously rather unpleasant. Maybe some of the inmates

avoided doing it, and that also was unpleasant. I had represented myself as a carpenter, and because I could read architectural plans, I was made carpenter foreman of a team of inmates who were to build new facilities for the camp (actually not for our benefit, but for use as an army camp at a later date). In the course of this work, I picked up some scraps of wood and galvanized iron sheet, and out of these, I constructed a small but adequate bathtub. The construction did not involve a single piece other than what was taken from the building scrap heap. The tub could be filled from a hose with cold water, and from another hose, steam from a locomotive boiler was available and could be used to heat it, indeed in a few seconds. The moment the bathtub was constructed, it was, of course, in the greatest demand. I immediately arranged for people to enter their names for a quarter of an hour each, all around the clock, so as to get the maximum benefit out of this overdue item of sanitary equipment. It was immediately booked up for several days ahead. This usage went on for a week, and then suddenly, I was called to see the commandant. I was a bit frightened, knowing that he previously had had people beaten. I assumed it was with respect to the tub, but I did not know.

When I was led into the commandant's office, he shouted at me, "So you are the one who made that bathtub!" I said meekly, "Yes Sir." "You were not sent into internment camp to recline in bathtubs, were you?" he said. I said, "No sir." He said, "I have given instructions to have the bathtub taken out immediately." Luckily, I was not beaten, but I was certainly very annoyed. The guards who took me back into the camp then picked up the bathtub and deposited it just exactly on the outside of the fence so that we could see it all the time. This commandant came to be so hated by the occupants of the camp that when the news broke that he had died (of stomach ulcers, in fact), the 800 members of the camp, I think to the last man, cheered loudly. Hatred was by then so deep. These circumstances seem, in ordinary life, almost incomprehensible. But having seen them makes clear that atrocities can be committed, such as those committed by the hordes of Hitler or of Stalin, by persons who would seem normal in other walks of life.

Beware of humans when they are put in charge of other humans. Natural selection, over the millennia of tribal human society, has no doubt encoded some elements of social behavior patterns into our genes. But will this cover the case when one man is put in command of the lives of hundreds, or thousands, or indeed millions of others? How can it? There could not possibly have been enough cases of that sort for natural selection to develop an appropriate response.

Back to Cambridge

The release from internment after 9 months happened when a benevolent man from the Home Office in London came over to sort things out. Of course, since we had no identity papers, he had to trust each person that he was who he said he was. He believed them when they explained what they had been doing, when they had come

to England, and all of that. He drew up lists, which were really only priority lists of the sequence of release, but I think in the end, he had everybody released.

I was on the first ship to return, and it was quite a different matter from the trip going over. It was a Belgian passenger ship with cabins for two or three people, with toilet facilities, with a dining room (somewhat wave-battered by a previous storm, and partly boarded up), but all quite comfortable. However, the trip itself seemed very hazardous. As we were leaving Halifax, Nova Scotia, we saw a Tribal class destroyer of the Royal Canadian Navy getting ready to move out. The sailors on our ship told us that we would assemble with many other ships outside the port and travel across as a large HX convoy of about 50 ships, with the escort destroyer following us, but out of visible range. The reason for this was that at that time, one of the German pocket battleships had managed to get out into the Atlantic and had sunk other convoys, lock, stock, and barrel. Not a nice prospect, to be traveling out into the ocean as a bait!

Luckily, the German battleship either did not find us or it discovered that we were being shadowed by an escort. At any rate, we saw nothing of it. But we had another exciting and somewhat terrifying episode. The captain of our ship had told us to be on deck as much as possible, and on deck to spend our time searching over the ocean for U-boat periscopes. Of course, we all had a great deal of motivation to do this very diligently, and then one day, it happened. Between us and the next nearest ship, right in the middle of our convoy, we saw first the slicing through the water of a small object, and then the majestic rise of a submarine with the water flowing off first its conning tower and then its hull. Here it was in a few seconds—a large submarine.

Our ship had a small gun placed on its deck at the back, and the sailors manning this gun immediately started to move it. But before they could shoot, a flashing light signal came from the top of the conning tower. Fortunately, it was the identification signal that the submarine was one of ours. What a relief when this was announced over the loudspeakers! I feel sure that the submarine was there due to a navigational error. No submarine would want to surface in the middle of a zigzagging convoy. Presumably, the submarine had been following us in the hope of trapping the German battleship.

There was another skirmish, apparently with genuine U-boats, as we were approaching the Irish Sea. We saw the depth charges being dropped by British coastal command planes, but we were never told of the result. We arrived safely in Liverpool, and I traveled back to Cambridge in mid-January 1941, to resume my undergraduate studies. I had lost the major part of 1 year of the 3 year Mechanical Sciences course, which, due to wartime conditions, had already been shortened to 3 years from the original four. I was allowed to continue as if nothing had happened, and I managed to get through and obtain my degree.

Taking the Back off the Watch

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