L'enfant du paradis

Benno Müller-Hill

La Statue Intérieure. By François Jacob. Seuil/Éditions Odile Jacob, Paris: 1987. Pp.357. FF98.

FRANÇOIS Jacob is one of the great molecular biologists of our time. The Jacob-Monod theory of operon control is a milestone in the understanding of living systems; the paper describing it appeared in *Journal of Molecular Biology* in 1961, and was the starting point of many careers, my own included. When a man of Jacob's standing writes an autobiography, others can turn to it in the hope of finding the hidden springs of scientific productivity. *La Statue Intérieure*, however, is far more than the story of a voyage of discovery in science.

Jacob surprises the reader: he devotes the first third of his book to his childhood. And what a happy childhood it seems to have been. A loving and charming mother, adored by her son, and a respected father. A French-Jewish general as grandfather, who told his grandchild a few days before his death, "There is no God. You and your children are my only hope". A grandmother who braved the Gestapo by demanding to be respected as the widow of a general. And an uncle who bought various coloured inks to encourage the young François to enjoy writing. Then came the terror of school, and the first encounter with the bully shouting "dirty Jew" (François fought back); the last visit to the synagogue; and his first great love amidst the magnificent landscape of Normandy.

In 1936 Jacob began to study medicine. But with the German invasion of France, his world collapsed. The French upper class and the generals feared the Communists more than the Nazis, and within a few days France had capitulated. Jacob drove with three friends to the south west, and with one of them decided to join de Gaulle's Free French movement. They found a ship and left for Britain in the nick of time.

In England his military training was not in the artillery as he would have liked, following in his grandfather's footsteps, but as an army doctor. (In a revealing passage he tells of walking through London in his new uniform, and being accosted by a French whore; he joins her, and out of politeness accepts the money she gives him out of patriotism.) From England he was posted to Chad, in central Africa, where a small contingent of French soldiers under the command of de Gaulle was advancing through the desert towards the Mediterranean. Here an event occurred that was to haunt him for years. He was sent to bring medical help to

an outpost and, in the moonlight, came without warning upon an armed German soldier. Jacob pretended not to have seen him and continued walking. Why, in his recurring nightmare, did not the soldier use his submachine gun?

After the German defeat in Africa, Jacob was shipped back to England, and on to Normandy. At a critical moment he chose to stay with a wounded friend instead of saving himself. The friend died, and Jacob himself was severely wounded. He arrived in Paris in an ambulance, when he had expected to enter the city in triumph. It was weeks until his relatives found him.

For Jacob the early years after the war were awful. Many of the brothers in arms who had left France to fight against the Nazis had died, and his Jewish friends had disappeared without trace. His first love had become engaged to somebody else. Back at medical school, he found that many of the professors and students had continued normal university life during the war and now had the advantage; he was not only an invalid, but had also lost five years. In 1947 he finally got his medical degree but remained a lonely, lost man. He did some odd jobs, and worked for an unsuccessful pharmaceutical firm. He married, but more for the sake of having children than for love. And all the approaches of Communists, de Gaullists and Israelis failed to interest him. Their cause was not his cause.

Despite his lack of a scientific background, Jacob's ambition was to do research. The question was where? More or less by accident he went to the Pasteur Institute and asked André Lwoff for a job. Lwoff declined, not once but twice. Jacob tried for a third time, and his persistence was rewarded. At the age of 30 he began to learn about the biology of bacteriophage. And so, in the final third of his book, he turns to science.

Jacob gives an account of the pleasure of seeing the first clear plaque and recognizing it was a mutant. He describes how Elie Wollman had the idea of doing the interrupted mating experiment, on which they collaborated; Sol Spiegelman's setback in proposing an incorrect model for adaptation; and Leo Szillard's success in proposing a correct model without prior evidence. And then the breathtaking moment, when he went to the cinema with his wife, closed his eyes to shut out the boring scenes and suddenly realized that the key phenomena of phage lambda and the *lac* systems could be explained by a single theory. He told his wife — who failed to understand — and had no one else to share the revelation with. Lwoff and Monod were on holiday. When he was finally able to tell Monod, Monod was at first uninterested. But when they discussed it again the next day Monod caught fire with enthusiasm, proposing different

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Jacob — lust for new ideas and experiments.

phenotypes for operator and repressor mutants. Jacob realized that he already had an operator mutant in lambda, and then spent a month with Sydney Brenner at Caltech to isolate mRNA. Nothing worked until Brenner finally realized that they had omitted the magnesium from the experimental brew. Back they went to the laboratory, and to success.

A common pattern emerges from the book. Those who did excellent science were also personally courageous, many of them having risked their lives during the war. After that, science became not a career but the best possible way of living. What I liked about the book is that it makes perfectly clear who thought what and who did what. It reminds us that ideas have fathers, for all the intellectual promiscuity of modern times, and that two minds may be necessary in order to bring an idea to fruition. The book ends most appropriately with the author walking through the empty Luxembourg Gardens while thinking up another experiment.

La Statue Intérieure is a joy to read. It is soon to be published in English*, but I hope that it will be translated into many other languages and so have the widest possible audience. It will guide students to science and explain science to the layman. Although edged with darkness, it is filled with a transcendent love of life and lust for new ideas and experiments. And for those who read French, it is a wonderful exercise to read Jacob's elegant prose and a work that is literary as much as it is scientific. □

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* To be published in the United States next February by Basic Books.