

Interview with Benjamín Labatut

Could you summarize your book in two sentences?

This book is about what happens when we reach the edges of science; when we come face to face with what we cannot understand. It is about what occurs to the human mind when it pushes past the outer limits of thought, and what lies beyond those limits.

Why did you decide to write a book on European scientists of the 20th century?

It was not planned out beforehand. The book starts out with an essay which is 99% non-fiction, followed by two short stories and finally a novella. As the book progresses, the fictional content increases, but all the stories are based on hard facts.

Preussischblau simply traces the story of a particular molecule; hydrogen cyanide, which has been detected on the tail of Halley's comet, and is considered by some as a precursor for the amino acids that make up our DNA. By following that tiny –yet utterly deadly– molecule I found a thread that wove together science, art and history, assassinations and suicides, and that lead me to some of the greatest chemical discoveries, war crimes and massacres of the 20th Century.

With *Schwarzschild's Singularität*, I was listening to a talk on string theory and one of the presenters commented, in passing, that a German soldier on the Russian front of the First World War was the first person to solve Einstein's equations of the theory of general relativity, which are astoundingly hard. He did so while suffering a blistering skin disease and died soon after sending his results to Einstein. The strangest thing of all is that in his calculations there appeared, for the first time, a monster that was not to be recognized till decades later: the black hole.

Das Herz im Herzen was inspired by a news article about a Japanese mathematician who has created a fascinating proof that no one is able to understand. Mathematicians can't prove or disprove it. To this day it is still in that limbo. I fused that modern story with the biography of one of the great masters of mathematical abstraction, Alexander Grothendieck.

The final text, *Wenn wir aufhören, die Welt zu verstehen*, was born from the rivalry between two giants of physics. Erwin Schrödinger and Werner Heisenberg created, less than six months apart, two equivalent yet contradicting versions of quantum mechanics, mankind's best physical theory to date. But what really interested me was the conditions under which each one of them had their particular epiphany: Heisenberg spent a week on a deserted island, with a disfiguring attack of hay fever, reading Goethe. His theory was, like himself, cerebral, abstract, ugly and based on pure Math. Schrödinger, on the other hand, spent a week fucking in a ski resort in Arosa with one of his lover's, with her pearls inside his ears to concentrate. His theory is sensuous, beautiful and visual, like something born from the natural world. The fight between those two opposing ideas gave us the Uncertainty Principle and the Copenhagen Interpretation of quantum mechanics, two things that underline modern thinking, whether people realize it or not.

I think the book is not really so much a critique or denunciation of science in the 20th century as it is a study of certain kinds of ideas, those radical ones that point past what the human mind is built to comprehend. It is the story of characters that are pulled by something that lies just outside of their understanding, something—in the words of Alexander Grothendieck—large and yet very delicate at the same time.

Why did you choose to write a fictional instead of a non-fictional book about historic figures like Fritz Haber, Werner Heisenberg, Alexander Grothendieck & co.? Why now?

You simply cannot do justice to these stories without recurring to the mechanisms of fiction. That is particularly true of the ideas that inspire these stories, as they are highly abstract, difficult to comprehend and even to put into words. While the real-life events that inspired these texts are absolutely fascinating, there is a greater truth, a deeper level of reality, that non-fiction simply cannot reach. Facts are very limiting; they tell us nothing about what is going on inside the minds of these characters, and it is there, in their heads, that these, civilization-altering discoveries and ideas came to life.

All these stories have larger meanings. I am interested in both the concrete science, the real history that is there in the book, but also these larger meanings. Fiction makes the reader understand –intuitively, aesthetically– what neither he (nor I, quite frankly) can grasp intellectually, as you would need an advanced degree in physics, chemistry or mathematics to truly appreciate the beauty, the mystery and the horror of these subjects.

Also, while I am interested in science, I am doubly fascinated by the strange mechanisms of epiphany. Why and how does a singular idea develop? How does inspiration take form? These things cannot be studied through non-fiction. They can't even be tackled by science, because they are not regular occurrences; they are exceptions, singularities. Science has no mechanism to study what is unique, particular, what can happen once and once only. Literature –which is not bound by any set idea of the truth– can pry open that jar, flash a light into that particular void that we can never fully understand: the inside of someone else's mind.

For example, we know that Schrödinger spent a week in Arosa with a lover, but we do not know her name, her age, we really know absolutely nothing about her. That mysterious lady was there, at the birth of one of the most beautiful and powerful equations that mankind has ever created, but how can we ever know what inspired Schrödinger, what led him to that discovery, when we have no information about that week that changed modern physics.

Fiction fills that gap.

Having written *Das blinde Licht*, what do you think is the relationship between genius and madness?

Madness and genius rarely meet. One of the few things they have in common is the capacity to see patterns (real or imagined) that elude the rational, everyday mind. The madman sees a world that no other can see, while the genius sees a part of the world that can't be unseen by others, even though most –if not all– of us will resist that vision at first.

Genius is, to me, the more fascinating of the two. Because derangement (when it is permanent), is the most crippling thing imaginable, the worst reality that you can inhabit. But most people don't even come close to madness. People tend to be terribly sane. And yet madness is always close at hand. We can all fall down that rabbit hole. That is not the case with genius.

I find human exceptionality troubling. When human intelligence and creativity reaches the degree of genius, it almost feels like we are dealing with another species, a different kind of being. Their capacity to stray beyond shared paradigms, to go far and contradict accepted wisdom is extremely brave and dangerous. When you step past what is common, you are inevitably lead astray. And not everybody comes back.

I don't think that anyone wanders willingly to the edges of rationality, but I do believe that somewhere close to that line is where we find the solutions, ideas and novelties needed to broaden and refresh our worldview.

Save for Grothendieck, there is no one who suffers real madness in this book; on the contrary, they possess a special kind of lucidity, an extreme clarity of thought that can seem similar, or even identical, to madness, even though it is quite the opposite. The fact is, most people want to look away from the truth, but there are some who are incapable, and we owe them all a debt of gratitude.

Madness and mathematics, however, is a different thing. There, I definitely see a strong connection, but I have yet to figure out why.

Is there any character or anecdote in the book that you are especially fond of?

Quite a few.

There is Johann Conrad Dippel, a Pietist theologian, a philosopher, artist, doctor, alchemist and charlatan who was, according to his contemporaries »the wickedest of demons, bound by no principle, indeed, generally opposed to all of them«; he would rip animals apart and boil their extremities, he would run electricity through their limbs to try and reanimate them (he was born, after all, in the Frankenstein castle) and he unwittingly concocted up a potion that gave rise to Prussian blue, the first modern artificial pigment, which we can see in works as famous as Van Gogh's *Starry Night* and Hokusai's *Great Wave*, and that eventually lead to the discovery of hydrogen cyanide.

In terms of anecdotes, I believe that the suicides in Demin, at the tail end of the II World War are truly horrifying: whole families walking into rivers, tied around their waists, with children laden with rocks inside their schoolbags; mothers who poisoned their children, children who slaughtered their parents, all to escape the advance of the Red Army. These horrors are almost more than one can comprehend.

My personal favourite, however, is an obscure episode from the life of Alexander Grothendieck, a mathematical titan; everything he did seems otherworldly and larger than life, but the most interesting thing that I found during my research was a cryptic handwritten »list«, a sort of key of dreams, a shorthand of his path to enlightenment (or of his descent into madness, if you chose to see it that way). It endlessly fascinates me because it feels like finding a page torn from the secret diary of some figure like Francis of Assisi, or Aleister Crowley, or even of the Buddha: it sketches out his personal path, with confounding entries.

In your book you describe the dark side of scientific research. Is *Das blinde Licht* a book about the dialectics of scientific progress? Would mankind be better off without the discoveries of Haber, Schrödinger and his colleagues?

Mankind would be no better and no worse. Every discovery, every idea, every technology, every thought and action have both sinister and positive effects. That is simply the way the world works: you can feed millions, nay, billions of people with a discovery like Fritz Haber's extraction of nitrogen from the air, and in the following decades, we, those same human beings who were saved from famine have choked up the atmosphere and brought us all past the brink of catastrophic climate change. Schrödinger's wavefunction lies behind the technological marvels that we all use today, including the Internet, cell phones and computers, and yet we must make ever greater efforts to control our addiction and dependence upon them.

This duality is unavoidable, it is hardwired into the physical universe and the structure of the human experience. The truth is that we grope forwards, blindly. The role of science –like that of literature– is to shine a light. What that light shows, is a different matter. It can and will bring about new monsters; it can and will bring about new miracles. Because where there is light, there is always a corresponding shadow. There is no escaping this. As the light that we shine on the universe becomes ever greater, to the point where we can peer down to the very constituents of matter, unravel the geometry of spacetime and look back at the first glow of the cosmic microwave background, the shadows that we cast have become increasingly long.

Why should we read *Das blinde Licht*?

Because we have ceased to understand the world.

We are caught up in a turbulent, chaotic time. Everybody feels that reality is no longer comprehensible. Fact and fiction, what is real and unreal, seem harder

to distinguish and tell apart. But the edges of reality did not start to bleed merely in the last couple of years; they have been bleeding for over a century.

The origins of our current worldview –and our lack of understanding– can be traced back to a time that was different, and yet not vastly different from today. Roughly, the first thirty years of the past century. Right now, we all feel as if reality has become unhinged, but this is a process that began a long time ago.

I trace that moment back to when the physical sciences became aware of their own limitations, when we truly realized that the world was far, far stranger than we thought. It was a time when the first effects of what had seemed to be an unending series of scientific improvements became readily apparent.

But I do not offer answers in this book; on the contrary, the ideas that fascinate me are those that we simply cannot understand. Schwarzschild's black hole, quantum mechanics, Mochizuki's proof of the abc conjecture, these are all ideas that seem to be more than we can handle, and that had ravaging effects on the people who first approached them.

What we can know and what we can never know; I believe that thinking deeply about those two things is a necessity, more than ever before. I think we need to ponder such things if we are to survive the wilderness of the 21st Century.