The Picaresque Life of the Man Who Modernized Neuroscience

Benjamin Ehrlich's "The Brain in Search of Itself" is a lovingly crafted biography of the Spanish scientist (and artist, and hypnotist) who showed us what our brains are made of.

By Benjamín Labatut
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THE BRAIN IN SEARCH OF ITSELF: Santiago Ramón y Cajal and the Story of the Neuron, by Benjamin Ehrlich

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"The devil child," his family called him.

There are streets named for him all across Spain. He spent decades staring down the barrel of a microscope, scrutinizing the tangled tissues of our nervous system. He was a peasant genius, born in a dirt-poor town in the Aragonese highlands; his father — himself a devil — had high hopes for him: When the boy was just 5 years old, his father dragged him into a small cave in the middle of a barren field, sat him down on a rock and tried to teach him arithmetic, geography and physics. But the boy was stubborn — a "wayward, unlikable creature," in his own words — completely uninterested in learning, mystified by nature and haunted by his own imagination.

Growing up, he reveled in wickedness: The mayor, the priest and a procession of neighbors would show up at his home demanding satisfaction for his misdeeds. The child was, as one of his teachers recalled, "inattentive, lazy, disobedient and annoying, a nightmare for his parents, teachers and patrons."

Another teacher predicted that he would end up in jail, "if they do not hang him first."

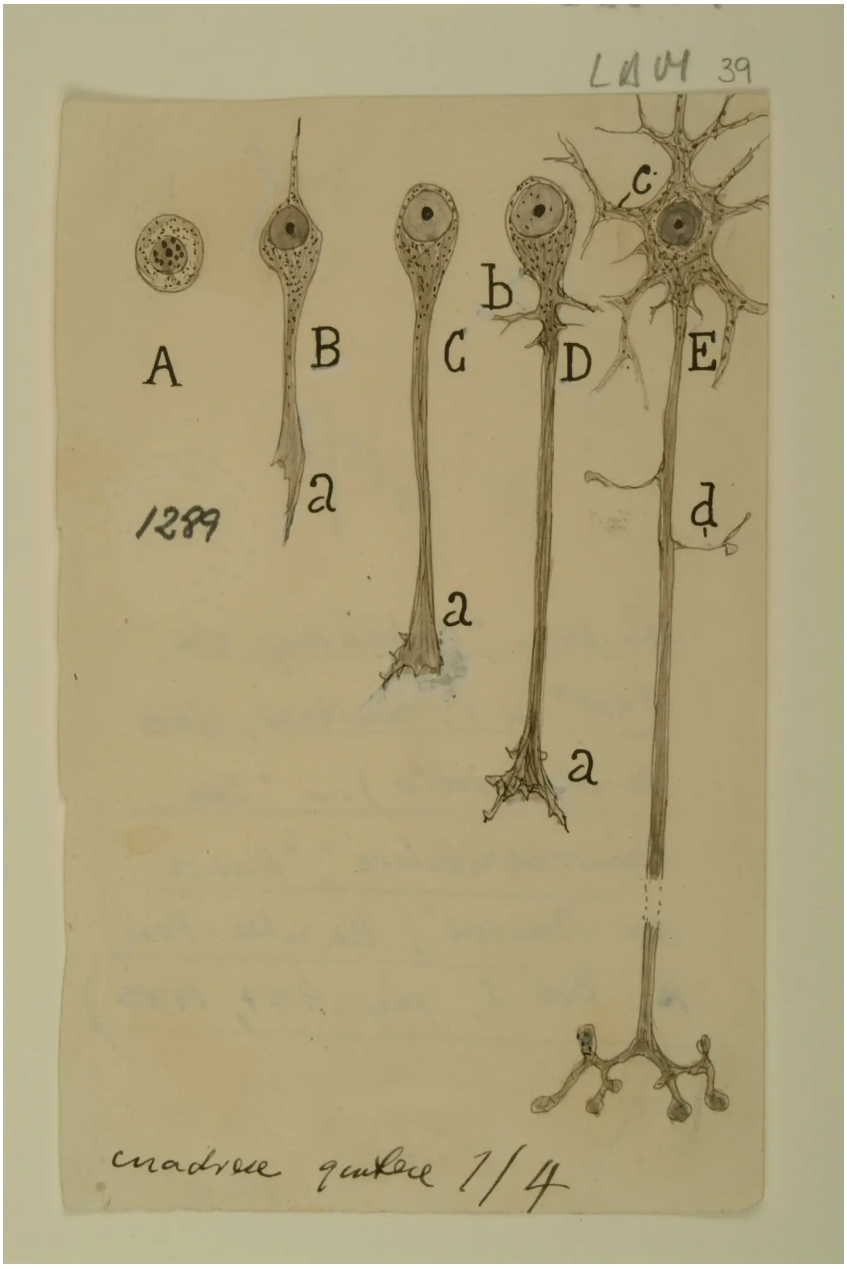
He won a Nobel Prize in 1906.

To tame him, his father — a barber-surgeon — would whip him till he bled, beat him with a club or pull on his flesh with heated tongs. "What a great alarm for the soul, and an instigator of energy, is pain!" the boy would later conclude. "Pain is a necessary stimulant to creativity." But in the hellscape of his youth, he tried to flee from his home; he hid until his father found him, tied him up and marched him through town to shame him.

Around that time, the boy developed an uncontrollable urge to draw — constantly,

maniacally — on every available surface, not just on textbooks or scraps of paper, but even on walls and doors. When he did, the world rolled back and disappeared. He would become so utterly enthralled that once, many years later, when he was invited to Cambridge University to receive an honorary degree, he stood in the middle of a crowded street, sketching a facade, and would not move, to the consternation of passers-by. At some point, the police were called.

He dreamed of becoming the next Titian or Velázquez, but his father wanted him to be a doctor. After his father threw his drawings into the fire, the boy started hiding them in fields; he improvised art supplies, making crude brushes with wadded-up paper and milking pigments from cigarette wrappers. It was this artistic fervor that slowly and painfully led him to medicine, then to microscopy and histology; beginning with the cadavers that his father dissected before him (and that the son drew in exquisite, morbid detail), he became engrossed first with the interior of the body, and then the world of cells, making his way toward the organ to which his name is forever tied: the brain. Because that devil-child was Santiago Ramón y Cajal, about whom Benjamin Ehrlich has written a passionate and meticulous biography, “The Brain in Search of Itself.”



Phases of development of the neuron. “More than a hundred years after his Nobel Prize,” writes Benjamin Ehrlich, “we are indebted to Cajal for our knowledge of what the nervous system looks like.” Cajal Institute, Cajal Legacy, Spanish National Research Council (CSIC), Madrid, Spain

A Spanish national treasure, Cajal is one of the most important scientists of all time, considered the father of modern neuroscience after proving that the brain was not made up of a fully continuous labyrinth of fibers — as was thought during the 19th century — but rather by individual cells that we now call neurons, those “mysterious butterflies of the soul,” in his words, “whose beating of wings may one day reveal to us the secrets of the mind.”

His life was one of obsession and hyperbole. The Spanish savant’s real achievements mirror the self-aggrandizing claims that he made about himself: He wrote that, when he played the flute, other children followed him as though he were the Pied Piper; later, when the news broke of his Nobel, he was swarmed by admirers, some of whom

followed him home and stood below his window, chanting his name. According to his brother, he was driven by a “blind desire to overcome, to be first in everything without making amends for anything in order to achieve it.” Ehrlich writes that Cajal “claimed to have once spent 20 hours straight at his microscope, traveling one millionth of a meter at a time.” He was an extremely passionate man (“I have a brain that is enslaved to my heart”) who carved his name into history through sheer force of will, but he was also beset by melancholy and illness, and suffered because of his unquenchable desire to see the new; everything else in his life came second.

Ehrlich might share at least some of his subject’s obsessive nature. Almost all he has published so far pertains to Cajal: a full translation into English of the Spaniard’s dream journal and several articles. After a decade’s dedication to this man, Ehrlich has profound sympathy and great insight into the workings of his mind. This comes across clearly in “The Brain in Search of Itself,” a deeply researched, well-written and lovingly crafted biography. But the strength of the book lies less in the writing than in the life of its protagonist, filled with picaresque adventures. As a boy, he learned how to make gunpowder, built a makeshift cannon and fired it at his neighbor’s house; he served as a military physician in Cuba, where he contracted malaria and, during a guerrilla attack, became delirious and shot his Remington out the window of the infirmary; he was a cobbler’s apprentice, a bodybuilder (who “strutted through the streets,” Ehrlich writes, “toting an iron bar instead of a walking stick, which he dragged along the pavement”), a hypnotist, a chess player, a photographer, a hypochondriac, a writer, a juvenile delinquent, an insomniac and a veritable magician with the microscope. Every time that Cajal’s voice takes the foreground, the book comes alive and reads much like a novel.

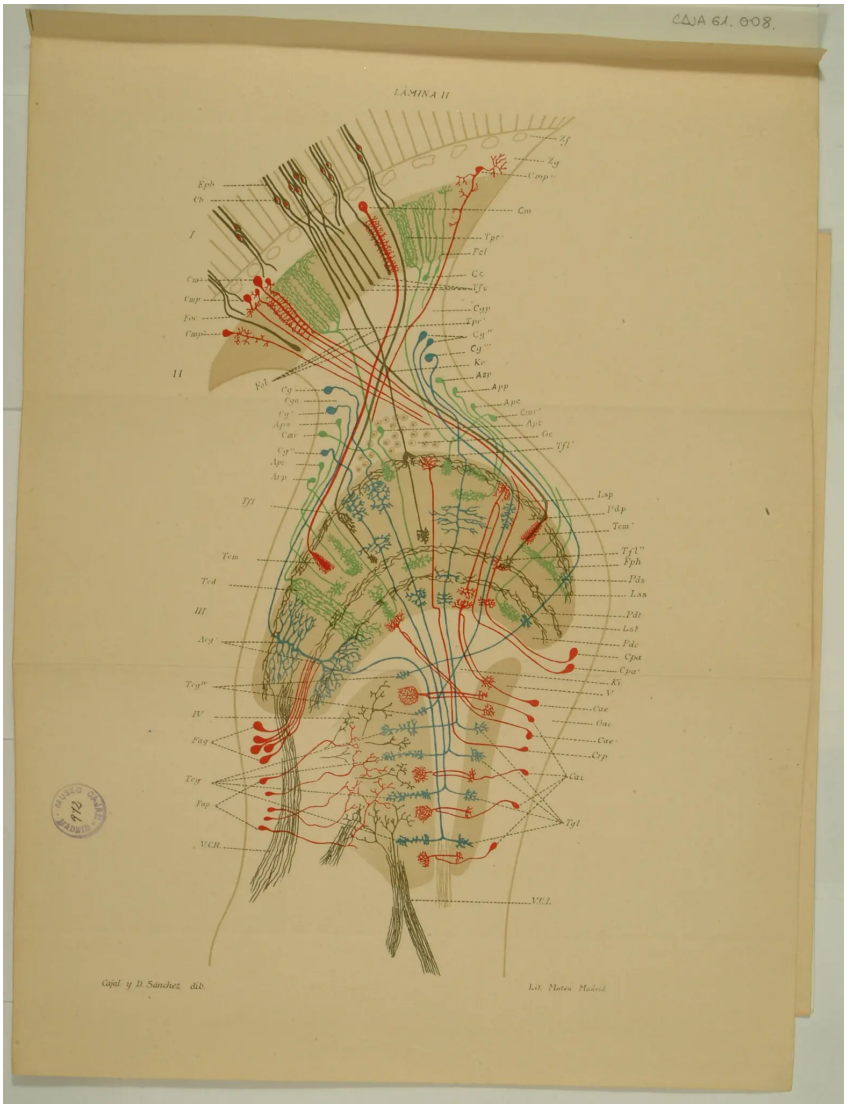


Diagram of the retina and visual centers of a blue fly. “Only true artists are attracted to science,” Cajal said. Cajal Institute, Cajal Legacy, Spanish National Research Council (CSIC), Madrid, Spain

But it suffers from the constraints of genre: It is, like so many biographies, crammed with information that not many casual or literary readers will appreciate. It gets bogged down in overly detailed political anecdotes, descriptions of everyday life in 19th-century Spain, and burdensome exposition of histological techniques. Ehrlich goes to great lengths to give a full and exacting portrait of a fascinating scientist, and while he delivers thought-provoking metaphors, unforgettable scenes and many beautifully worded phrases, to find these pearls one must also endure the rigors of academia and of strict biography, which seemingly dictate that we must follow a person from birth all the way to death.

But a full life is filled with tedium, ordinary occurrences and minutiae that fiction can expunge, to reach a deeper stratum of truth. Ehrlich is aware of this, and effectively applies “literary and narrative treatments” to reveal the mysteries that facts can obscure. And yet one of the great strengths of his book (the gathering, as he writes, of “every trace of him, every sliver of his life and scrap of his work, every piece of information about his science, his country and his world”) may not resonate with a

wide audience, though it will undoubtedly give pleasure to readers who relish this sort of writing, and who are drawn to devoted and punctilious works of history.

Benjamín Labatut is the author, most recently, of “When We Cease to Understand the World,” one of the Book Review’s 10 Best Books of 2021.

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