From Scientist to Novelist

Joram Piatigorsky

Joram with science mentor Arthur Whitely at Friday Harbor on Puget Sound, while working on his novel.

Soon after becoming an emeritus scientist at the National Institutes of Health (NIH), I was browsing in the bookstore in Point Reyes, a cozy California nook an hour's drive from San Francisco. Marcel Proust's famous *In Search of Lost Time* caught my eye. I was intimidated by the mass of words; none of the six volumes was less than 600 pages. If weight was the issue, I understood why I didn't know anyone who had actually read Proust's entire novel. I picked up *Swann's Way*, the first volume, and read snippets at random. The extended sentences comprising long strings of phrases separated by commas fascinated me. Perfect, I thought, to improve my writing. Having retired from 50 years of science, I was struggling to convert from scientist to writer. I bought *Swann's Way*.

I had read several hundred pages when Proust's name came up in a fiction workshop I was taking at the Writer's Center in Bethesda. "The only way to stay awake reading Proust," said the instructor, "is while taking a bath in ice water." Everyone laughed, including me. However, I disagreed silently.

When I finished *Swan's Way* I craved another fix of Proust and bought the other five volumes of *In Search of Lost Time*, which took about a year to read. The flow and cadence of elegant prose begged to be read and reread. The streams of similes and metaphors transformed scenes into colorful images, as pictures emerge when pieces of a puzzle find their match. I was enmeshed in the story as well and felt a deep loss when Albertine unexpectedly died. Oh, how fiction had its own reality. Story and style worked together, each enhancing the other. I heard Proust telling me how much I needed to learn to become a writer.

I skimmed some pages of Proust's salon conversations that were insufferably long, but then I usually went back and read them more carefully. At times I felt a distant resonance with the scenes of elegant social gatherings and the gossip among the sophisticated guests that reminded me of my childhood trips to Paris to visit my maternal grandparents of the Rothschild banking dynasty. Although my summer trips were in the mid-twentieth century, my mother's family had been a part of Proust's aristocratic world of the late nineteenth- and early twentieth-century, and he mentioned some of my relatives of that era who attended the literary salons in his novel. *In Search of Lost Time*

thus awakened an ephemeral sensation associated with my French family, which made me a distant, if uninvited, member of Proust's world. I could even hear my mother's insistence within this deep layer of my self that I act with unimpeachable decorum because I'm a Jew, a Dreyfusian in Proust's society, who must remain above reproach as a shield against anti-Semitism.

At the time I read *In Search of Lost Time* I had written a few short stories and had started to write personal essays. However, I worried that I hadn't done anything interesting enough for my essays to attract an audience. My father's remarkable journey from the pogroms in pre-Bolshevik Russia to become an internationally famous cellist, and my mother's accomplishments in chess, tennis, and sculpture in the United States following her privileged, but emotionally-starved upbringing in the French Rothschild palaces, and then my parents' timely escape to America from Hitler and his crematoriums in 1939 five months before I was born, made compelling stories. Why, I wondered, would anyone want to read about me, a government scientist who had lived a conventional life in the peaceful United States?

Proust came unexpectedly to my rescue. His compelling novel was derived from his relatively uneventful and sickly life. He enhanced bland events where nothing of note actually happened into momentous occasions in his largely autobiographical novel. The experiences alone had minimal interest until filtered through his inner world. Marcel, Proust's fictional narrator, like Proust himself, roamed museums, vacationed by the seaside, visited friends, socialized, introspected and nurtured neurotic torments. He wasn't a hero or a victim. What Proust did was *expose* his internal conflicts and his aristocratic French society and dwell on his signature issues of homosexuality and anti-Semitism.

Perhaps not a perfect analogy, but imagine someone refusing to relinquish a doll through tempestuous adventures. Wouldn't the reasons for treasuring the doll be more compelling than the specific experiences? Writing didn't have to rely on elaborate plots, or harrowing escapes, or world-changing triumphs. Writing could be compelling by creating a universe – part truth, part fiction – by exposing oneself, turning inside out as it were, blurring boundaries between memory and imagination, reaching outward while peering inward and having the courage to be authentic.

I had no experience in creating a fictional universe. In high school I read relatively little and wrote even less. I remember struggling to write an essay – a frightening experience – every two weeks for the required freshman course at Harvard. Nonetheless I savored the literature courses I took in college. I was in awe of Shakespeare's tragedies and Cervantes' *Don Quixote* and Lord Byron's *Don Juan*, but biology glowed as the greatest attraction for me. Literature didn't equal the sophistication of chemistry or the miracle of an embryo developing a brain capable of generating a thought or an emotion.

Although I set my sights on becoming a scientist, I vacillated between yearnings for two worlds – science and literature. I felt a partial misfit, an imposter, in each area. I thought too subjectively for the rarefied sciences and too objectively for the humanities, as if I were squeezed between the two domains. And when I was a professional research scientist, I read about science rather than fiction or essays. Yet, throughout my career I would ask myself, "Who am I, a scientist or a frustrated writer – an artist – searching for an identity?"

I remember a few years ago, walking along a tree-lined road on a sunny fall day with a friend. "Just look at the colors of these leaves and the remarkable, twisted shapes of the branches!" he exclaimed. And then he added, "Oh, you're a scientist. You wouldn't understand."

What? He must be kidding; but no, he wasn't.

"Whatever he thinks is irrelevant," I said to myself, trying to cool my anger. Nevertheless, I wondered if there was a germ of truth to his opinion and why it would matter if he considered me a dry scientist incapable of artistic feelings. What mattered, I thought, was my feeling lonely and not understood in the outskirts of art. Whatever the truth, I still found the colors of the leaves and the twisted shapes of the branches extraordinary. I also knew that my life's canvas needed fresh paint to complete the image.

I was 56 years old and in the midst of my scientific career when I first experimented with writing fiction. My wife Lona and I were in Bar Harbor, Maine, on vacation. We had hiked along a forested path and rested at a quiet spot with a scenic view overlooking a bay. Lona removed a pad of paper and pastel crayons from her backpack to sketch the scene. I leaned against a nearby tree hoping to open a new chapter in my life by writing a story or an essay. The problem was that I had no idea what to write about. My childhood? Science? Being on vacation?

"Just write! Anything!" I demanded, but still no idea came to mind. Opportunity swallowed my thoughts; the blank page threatened my imagination. Was I just attracted to the *idea* of writing? And then I noticed that the thoughts jumping in and out of my mind did not have equal weights. Some slid past as if escaping scrutiny, while others lingered, tempting me to explore their content. Each thought had a separate chemistry for me, as each window in a house exposes a different view, or each acquaintance suggests a different relationship.

Sitting in blissful silence on soft, prickly pine needles, surrounded by the sweet smell of cedar and warmed by the afternoon sun, I watched assorted insects go about their business and recalled a similar difficulty in choosing a research project at the dawn of my graduate research at Caltech. Some topics (i.e., developmental biology) pricked my curiosity more than others (i.e., population genetics) even within the same general area, but none stood out, nor would I have known how to go about doing the research if it had. I remembered thinking that it would make more sense to be driven to the laboratory to solve a burning issue, rather than to search for a problem to take me to the laboratory. The latter seemed backwards, as if the child were rearing the parent. My PhD thesis mentor, Albert Tyler, suggested that I consider doing research on the activation of protein synthesis upon fertilization of sea urchin eggs, a "hot" topic under investigation in his laboratory. Tyler, renowned for his studies on fertilization, set me on my way.

Now, some 33 years later in the forest overlooking the sea, I was ruminating on ideas for a story, as I had for a science project. However, unlike my student days, I had neither the luxury of a mentor advising me nor the benefit of building on current knowledge. Creating a fictional world – a personal expression – seemed as challenging as exploring Nature.

As I pondered different possibilities for a short story, I thought of how science had unfolded in my life. My passion developed gradually. The confusion of trying to make sense of data from flawed experiments at first challenged me and, despite its frustration, increased my interest and involvement in science. Perhaps, then, experimenting with words and ideas might liberate stories in the way that trial and error had inspired me in science. Maybe the pen would move the story, not the other way around.

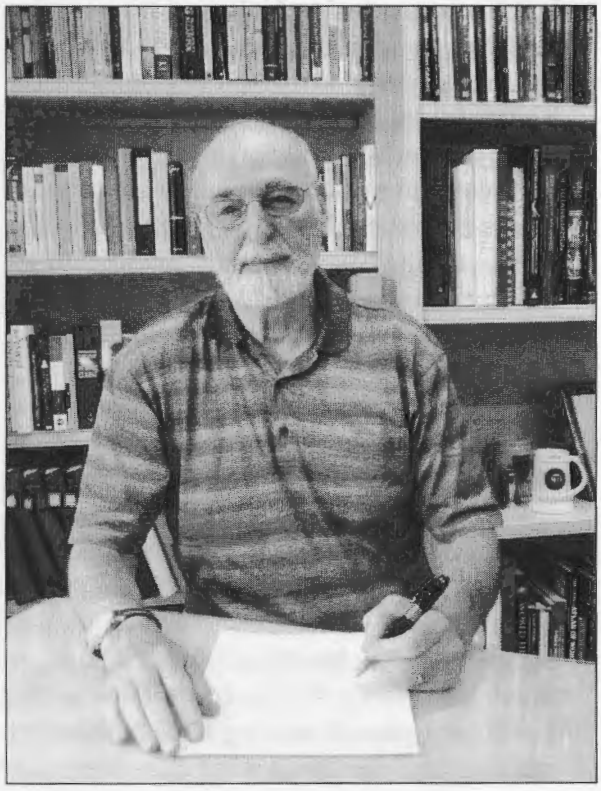
"Just write something. Anything," I repeated to myself, both frustrated and worried that I had nothing to say.

My mind drifted to my growing interest in collecting Inuit sculptures. I had never been to the Arctic, but my imagination had. I started writing about an American teenager visiting an Inuit teenager

called Ayelkeet (a name I snatched from nowhere) in northern Canada. The two boys went hunting for caribou. Each sentence I wrote prompted the next. The story progressed as if removing layers from covered treasure. Imaginary scenes of sunlit snow glittered like jewels. The plot didn't matter; there hardly was one. Ayelkeet sneaked out of my soul onto the page, ink flowing in his veins. How liberating to give birth to personalities hiding within me! I was doodling with words in order to create a paper world for me to inhabit.

After a couple of hours, the red sun was perched on the horizon and I had written three pages. The boys, proud and ecstatic, had killed a caribou in the tundra. Elated, I wanted to write other stories, but I foresaw the common conundrum of not having enough time to write when not on vacation. Science gobbled time without mercy. I decided to confine future writing to cracks of time in my life as a scientist – perhaps a few hours on an airplane on my way to a conference, or before guests arrive for dinner on a weekend. I would seize whatever opportunities I could to write.

The author happily at work.

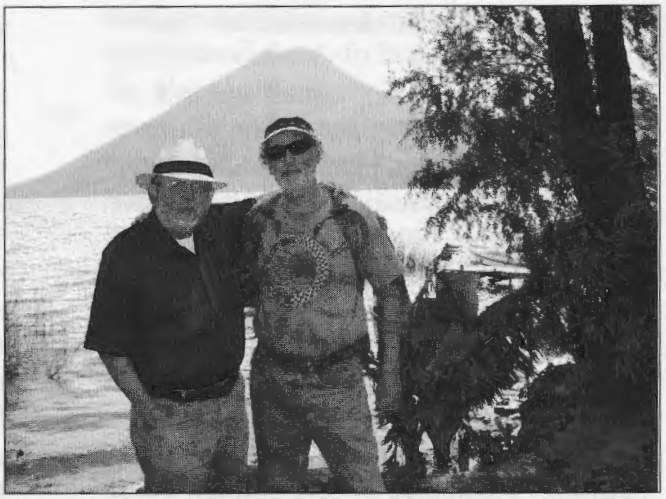


I became a short – very short – narrative specialist, limiting each story to what I could accomplish in a single sitting. My stories were neither polished nor publishable, but pages accumulated as I explored my thoughts. I discovered that the frustration of stories that didn't work matched the frustration of confusing data from failed experiments. Also, my stories, as my research projects, concluded prematurely, since there were always more thoughts to develop in my stories, as there were more experiments to perform in my research. Yet, the writing seed had been planted. Every sentence that successfully expressed my thoughts or feelings urged me on, as fresh data did in my scientific research.

I was in writing kindergarten and took evening workshops in fiction at The Writer's Center in Bethesda. As my writing developed, the differences between science and writing became more evident. "Right" or "wrong" was meaningless in writing, while it was everything in science. What I might consider an excellent passage in a story, a fellow writer might earmark for deletion, and vice-versa. There were no clear directions for revising a short story, yet revision seemed always necessary. Revision in science targeted specific points requiring more information, usually another experiment. Writing abandoned me groping in the dark, searching for inspired ideas on how to improve my stories.

Each workshop in which I participated at the Writer's Center was invaluable in helping me step into the community of writers. Although writing is a solitary activity, it thrives on communication, on exposure and on critiques. The challenge was to navigate through the morass of opinions. Robert (Bob) Bausch's workshop that I took for several years struck a responsive chord in me. The participants critiqued each other's short sto-

ries and dissected published stories of well-known authors. I went to Guatemala with Bob, where Joyce Maynard had organized a two-week workshop and became part of a small network of writers – an informal club that Bob called "his gang." I learned the extent to which writing was an emotional experience outside the bounds of science. A writer became a messenger from the heart. Omission could be as important as inclusion, and implication as vivid as explanation. Space needed to be left open for the reader to enter and become part of the story.



Joram with Bob Bausch taking a writer's workshop in San Marco, Guatemala.

Once in a workshop Bob got up after a discussion of my story that he particularly liked, walked around the table to where I sat and kissed my forehead, just like that, in front of everyone. I blushed. He liked my story! My story. My writing. Another time he showered deserved praise on a participant's story, and she shed tears of joy, of being understood perhaps. She had written a story that worked, that reached others. Oh, my. That's what it was all about.

My science colleagues asked me how I could switch from science to fiction and back again, as if the two activities were so different that the same person couldn't do both. My answer was usually, "I don't know. I just sit at my desk and start writing and within a few minutes that's the world I'm in."

I was often asked whether I had a plot in mind or knew the ending when I started to write a short story.

I said no, I didn't know the plot or the ending. I generally began a story with a blurred idea. For example, I started writing one story about a character whose favorite activity was standing in line. I had no clue how it would play out. In retrospect, I realize that was not unlike how I started a science project. I may have had expectations for experimental results, but I was often fooled. Science didn't compromise, and neither did many of my characters, even though they were fiction. In contrast to science, however, I didn't need to qualify every speculation with caveats. Initially, I believe that I considered writing as a foil or rebellion to the exactness of science. I envisioned writing as an opportunity to invent and flounder in anti-science, and to seek alternative truths.

As time progressed I started writing longer stories, many of which wandered beyond the boundaries of my experiences. One story was about a man who didn't realize he was dead, and a sequel was about a man who thought he was dead but wasn't. In another story, I traveled with my pen to a distant planet populated by clouds with human qualities that communicated with words I invented. In still a different story, I questioned whether an ugly person could be elected President of the United States. I thought that could never happen in our democracy, until my protagonist – a repulsive, deformed, very smart woman lawyer – campaigned on the platform of barring mirrors. People had to look at each other rather than at themselves – an idea that evolved as I was writing the story – and she was elected. What a wonderful surprise!

I regarded science and fiction as two forms of expression tugging at each other

because the common denominator – me – wouldn't go away.

"How can that be?" asked a friend. "Science is factual, not a story, and your stories certainly aren't fact or reality."

"Really?" I muttered, thinking of how I could respond.

"Absolutely," she continued. "DNA is a double helix. How's that fiction or a narrative?"

She had a valid point, so I needed to defend my position. "Science strives for a temporary truth within a narrative medium," I said on a poorly defined quest for what I meant.

I sensed that she wasn't going to agree with any argument I made, so I tried to convince myself rather than her. I argued that science is part truth, part narration – a merger of two worlds – like good literature. Why, I asked, would a scientific theory generally need to be modified when new data became available, if our current view of Nature wasn't partially speculative to produce a consistent narrative? Why also, I asked, would I be apprehensive when reading an article in my research field written by another scientist, if I had published the final word on the subject? Research interpretations are fragile and tentatively woven together as the story progresses, some characters missing, others brought in that may not belong. The story is constantly changing.

Consider DNA genes – the templates for embryonic development and at the heart of evolution – that my skeptical friend brought up. I wrote a 27-page chapter ("The Elusive Concept of a Gene") in my book *Gene Sharing and Evolution* (2007) to touch upon the changing views of a gene throughout history. These holy grails of biology went from being miniscule humans (an homunculus) within spermatozoa in the seventeenth century, to being an undefined state or condition that specifies particular cellular properties, to being imaginary cellular particles that are partitioned during embryonic development. Later, with more concrete data available, a gene was defined as a continuous stretch of DNA nucleotides that encodes a particular protein, until it was shown that most genes were more complex, with its DNA sequence interrupted numerous times with stretches of nucleotides (known as introns) that had no known function. In short, genes were both continuous and stitched together. Genes in pieces! How remarkable! Then, the early dogma that one gene encoded a single protein with one function changed, thanks to the presence of introns, to a single gene being able to produce a group of related proteins with multiple functions. The story goes on. Genes were considered chemically invariant, but soon thereafter it was shown that the DNA could be chemically modified with functional consequences. Moreover, many genes didn't code for proteins and had other functions that were still being explored. Lumping all the genes we know about together accounts for less than half of our genome – the bulk of our DNA. We're still speculating on the functions of most of our DNA.

Enough said. Few scientists today would agree with a single definition for a gene. I would not. What's "true?" How will a gene be defined in the future? How will the gene narrative change? For the story to conclude, it would require that we know everything about our DNA and genes – no more speculation would be necessary. That thought borders on fantasy. At best, we might be forced to admit that we can't imagine what we don't know and still need to learn, which doesn't mean that the story is complete.

"Okay, it's an evolving truth," my friend conceded. "But I still have trouble relating science to fiction."

Rather than trying to define fiction as narrative, I changed tactics and asked her to venture on an imaginary trip to Egypt where she would take photographs – collect data like a science experiment – in order to give a travelogue to her friends. But, how would she choose what to photo-

graph or how would she interpret the photographs conceptually? Did she have a story in mind that she illustrated with photos, and how would she modify that story as different images accumulated? Did she presume to know what the people in the streets were thinking, or what personal problems they had, or whether they considered themselves privileged or victims? Would she have any realistic notion of what the slaves who built the pyramids endured or what their life was really like? She could make educated guesses that made sense within her perspective, but she would still be speculating. Her evolving story would be limited to *her* truth about Egypt; it would not be identical to the story of someone else that took different photographs or interpreted them on the basis of having had different experiences. There is never only one truth. Writers – alias tourists – and scientists both draw incomplete conclusions from incomplete and different sets of data, filling in along the way, combining facts with fiction, creating a narrative for consistency.

"So," I told my friend, "neither science nor stories of any genre – biographies, historical novels and, of course, fiction – escape our imagination. Data, referenced documents and memories – the facts of science and literature – are sprinkled with fiction to create believable narratives."

That unpredicted research observations are viewed skeptically is consistent with the conservative nature of science. However, I was surprised when critiques of my short stories included, "That couldn't have happened," or "That's not believable," or "That's too coincidental," even if the story borrowed largely from events that *had* happened! I asked Bob Bausch why true happenings in life might not be accepted as plausible in fiction.

"Because," he said, "a writer must account for the causes of events in a story."

"Just like a scientist must find causes for phenomena," I added.

Bob continued. "Correct. All events in real life have causes, whether or not we understand them. In fiction there's nothing else but the story. The author is responsible for everything. Fiction can't conjure inconsistent happenings – events that pop-up at the convenience of the writer – to solve problems."

I understood. A writer can't invent an event too coincidental to solve a dilemma in fiction, as a scientist can't fabricate data to satisfy a theory. Fiction and science require some connection with previous experience in order to succeed.

After retiring from science I focused on expanding my short novella, *Jellyfish Have Eyes*, which was languishing in my computer. I went to the Helen R. Whiteley Center – a place for scholars of different persuasions to do creative work of their choice – at the University of Washington campus in Friday Harbor on Puget Sound. Friday Harbor was familiar territory since I'd spent a summer there during my graduate school days doing research in Arthur Whiteley's laboratory. He created the Whiteley Center in the memory of his wife Helen, an excellent scientist. Arthur was 94 years old and still active when I returned to Friday Harbor for three weeks to work on my novel. From the beginning of my novel, then, science and writing were fused in my mind.

In *Jellyfish Have Eyes* I combined scientific facts with fiction to explore the narrative nature of science. Jellyfish really do have eyes (a little known fact), and I had gone to the mangrove swamps in La Parguera, Puerto Rico, to collect jellyfish and investigate their eyes, as did Ricardo Sztein, the protagonist in the novel. Ricardo speculated that jellyfish interact with one another and could visualize evolution, both traits clearly beyond what was known in science at that time. To make Ricardo's story credible within the novel, I made his speculations based on observations that seemed reasonable within his fictional universe, merging science with fiction. Thus, my novel was grounded in

reality and enhanced by fiction.

In writing *Jellyfish Have Eyes* I needed to deal with the difference between my experience as a scientist striving for meaningful conclusions and my lack of experience as a novelist floundering with conflicts and ambiguity. Unlike a scientist who poses direct questions about Nature, a writer must "hook" the reader with literary skill and develop life-like characters by congealing memories and imagination. "Is it worth it?" always hovered over my writing. A scientist can promise a better world; a writer relies on faith that the work will have value.

All creative efforts need a market. No one writes to collect rejections. I never trusted the sincerity of those who claim to not care a wit about having their hard-earned masterpieces recognized. Among the most challenging obstacles I faced in switching from science to writing was finding a publisher and then marketing the completed novel. Good grief! I had written virtually hundreds of scientific articles, chapters and reviews, including a book on evolution, confident that solid work would find a publisher and then attract a relevant audience, which it did. However, for unknown writers like myself, the glamour of publishing glitters like gold, but that temptation is a fool's paradise. I was often asked whom I considered the audience for my novel *Jellyfish Have Eyes*. I'd hoped there would be a general interest in the story, a wide audience with differing viewpoints.

I was spoiled as a scientist. After I gave a series of lectures at Penn State University, a colleague there suggested to Michael Fisher, an editor at Harvard University Press, that I write a book on my lectures. Michael came to my office at NIH to explore the possibility and offered me a contract soon thereafter. I asked for a delay because I didn't want to be obligated to publish until I felt confident that I had a worthwhile book in hand. When I envisioned the book more clearly, I signed a contract and publication followed. Academic books stand on their contributions to the field, not on their popularity.

After several years of concentrated writing and more drafts of my novel than I care to remember, I still had no prospects for a publisher. Michael Fisher recommended a literary agent in California from whom he had purchased a book for publication by Harvard University Press. The agent agreed to take me on if I would be willing to make revisions. After a year of working with her, she called.

"It's just about impossible for an unknown writer to publish a novel today," she said. "I can't get books that I love (implication: more than mine) accepted for publication. I can't help you. Good luck."

Oops! What do I do now? What happened to the red carpet treatment of my past life as a scientist?

I queried 128 agents online from a recommended source. Only nineteen replied; eighteen were form rejections. One wanted to see 50 pages; a week later she rejected the manuscript. "Disappointing," she said, and then gave a few particulars that were helpful because I thought she was wrong. I needed to listen with a porous, but thick skin.

At lunch a few days later when I whined to a friend about my miserable fate with the agent, he said, "*Jellyfish Have Eyes* is a smart book. What do you expect?"

"What do you mean?" At least I was pleased that he didn't think it was a dumb book.

"There isn't much of an audience for it," he said.

"Oh."

My novel was "smart," so no one wanted to read it. Was this praise or the opposite?

I figured that the book wasn't good enough (is any book good enough?), so I worked with two editors: Barbara Esstman, an excellent writer and editor whose workshop on writing novels I had taken at the Writer's Center, and later, Jesse Cole-

man, a New York editor who was especially helpful in line editing. The book improved as I continued to learn the art of writing. I deleted many of my favorite digressions from the story, and threw out most of the first hundred pages, keeping only a few phrases here and there as backstory. I dumped the last chapter as well.

Two more years of revisions went by. Carolyn Feigelson, a long-time friend, brought me a novel published by International Psychoanalytic Books (IPBooks), a small press started a couple of years earlier by her colleague, Arnold Richards. She suggested that I submit my book there. While originally publishing just a few books on psychoanalysis, IPBooks was starting to publish novels. I hesitated, thinking that my novel would be lost in foreign territory, but nonetheless submitted it. I heard nothing from them for eight months. I resisted self-publishing fearing that a self-published book would not be taken seriously.

Wait! I was a retired scientist and unknown writer with a foreign name difficult to pronounce. Naturally no one would take me for a serious author. A number of people had told me that would happen, and those that didn't probably were too polite to say so. What was I thinking? I needed to get a realistic grip on my identity.

I made an appointment with an editor of Writer's Digest University in New York, to look into the possibility of self-publishing.

I arrived ten minutes early for a 2 o'-clock appointment. My mobile phone buzzed announcing a new email as I waited. I checked, as I compulsively do, fantasizing some wonderful news. Arnold Richards of IPBooks! The email was short and sweet: "We want to publish your novel." I kept my self-publishing appointment, of course, I was there, but I felt a lot more confident. The next day I visited Arnold. He seemed to be doing a dozen things at the same time.

"I was skeptical at first about your novel," he said between telephone calls, "but my wife loved it."

I immediately took a liking to her.

"But could you shorten it by 80 pages?"

"No problem," I said. The version I had submitted had been edited after I had sent it to him and was already reduced by . . . 80 pages! Sometimes there is a god.

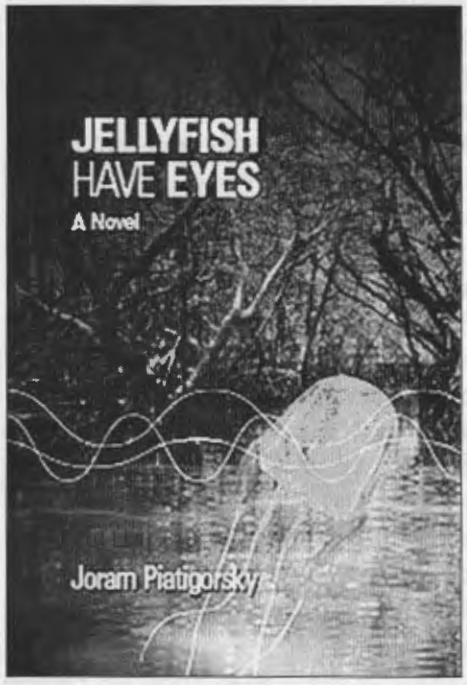
IPBooks published my novel in 2014, fifteen years and some 28 revisions after the first novella draft. In retrospect, I believe that IPBooks was a reasonable publisher for my book. Much of the novel concerns Ricardo's introspection and conflicts. I had focused on other themes of the book, such as academic freedom and the role of government funding research, in my mind. It's easy to misjudge. I remember teaching a course on developmental biology at NIH that I considered my specialty. To my surprise, I realized that my research had as much, if not more, to do with evolution than development. Now we know that evolution and development are intertwined in a field called "evo-devo." What may appear unrelated at first glance, like science and writing, may have more in common than originally believed. One of the surprises of writing is the emergence of camouflaged truths that nestle between the lines.

Since I have closed my research laboratory, writing has infiltrated my daily life. I continually find myself translating what I see or hear into a possible yarn or thought that I might use for a story or essay. This "mind invasion" by free association conflicts with fully absorbing the environment. Even when conversing or watching a movie, I often start composing a script in my mind. Perhaps that explains in part why my writing leans towards fantasy rather than detailed reporting.

I cannot tell you why I write any more that I can answer why certain music gives me chills, or why I'm attracted to one piece of art more than another. I sense that these preferences are linked to those

that draw me to some topics of science and not to others, as if both writing and science have a common, creative platform, at least for me, and represent alternate forms of self-expression leading to alternate truths.

Finally, scientists speak an incomprehensible language designed for their peers. While this shared language binds fellow scientists, it isolates them from non-scientists. I had hoped that writing would help connect me more closely with the non-scientific – the "real" – world. I felt the gap narrow when my nephew Eric said that reading my novel showed him that I was not only a "mysterious scientist." In my experience, however, most read their own story, not the one written by the author, and the gap between reader and writer remains, or even widens. One scientist, in his late seventies, told me after reading *Jellyfish Have Eyes* that he thought Ricardo should have retired in his seventies rather than become "a useless waste." Where did that come from? Not me. At least the book stimulated some thoughts for him. A retired businessman interpreted my novel as if he were a CEO of a corporation, twisting my intent of stressing academic freedom. More irritating is when someone ignores my writing, even after I'd given him or her a copy. Perhaps they disliked it so much they opted for silence or didn't think that it was important enough to read. Probably they just hadn't had time to read it, and certainly the book wouldn't have the same importance to them as it did to me.



Front cover of Jellyfish Have Eyes.

Never mind. I love to write, as I love science. I believe that having struggled with the narrative nature of science enhanced my writing fiction. More surprising was that the fewer constraints of fiction did not reduce, but increased the need for disciplined thought, which extended to my science. Consequently, the greater freedom to consider alternative points of view in writing allowed me to think more widely about science without the fear of being mentally sloppy, as well as to appreciate speculation in science.

I quote Jonah Lehrer from a remarkable set of essays, *Proust Was a Neuroscientist* (Houghton Mifflin, 2007). He wrote beautifully in the Prelude about the complementary nature of art and science: "Science needs art to frame the mystery, but art needs science so that not everything is a mystery. Neither truth alone is our solution, for our reality exists in plural...The experiment and the poem complete each other. The mind is made whole."

I consider myself a writer now, not because I am starting to publish outside of science, but because I care so much about what I write, how it's phrased, and whether it succeeds in expressing what's in my mind, a most challenging task. As a scientist, I have lived with an analogous difficulty of touching the core of Nature. Perhaps that's the price of striving for creativity, whether directed outwardly in science or inwardly by writing. We cannot escape ourselves. At times I even share the frustration of one of my favorite writers, Franz Kafka, who ended his great novel, *The Castle*, in the middle of a