Learning to $\frac{\text{Look}}{\text{See}}$ Like a Scientist

Kartik Chandra – Vera List Prize, 2025

I.

The more you look, the more you see.

What an embarrassment, you could have told me, to be built this way. What an absolute farce. God must be a sloppy engineer — or is it really so hard to design an eye that serves up vision as cogent whole, a mind that apprehends its percept all at once? What is up with "noticing," anyway? Why must awareness trickle in bit by bit, like a child's guilty confession?

These are fair questions. But you stayed quiet; indulging me, instead, when I asked you to count the colors in the painting. Perhaps it was the decorum of the museum—and you were shifting your weight the whole time, it's true—but you counted them with me nonetheless: first the reds and yellows, then the greens and browns and whites, until we began at last to discover the blues in shadows we had sworn were gray; the pinks and shocking flecks of turquoise that completed the transmutations from paint to eye. The portrait fell apart for a moment, revealing itself to be a swirl of colored goo, exposing us as complicit in the perception—reception—conception—of meaning. *It takes time*, is what you said. *The more you look, the more you see*.

II.

I know one way to answer those questions, now. Four years into graduate school in cognitive science, I have learned enough to tell you about retinal foveation, about information-processing bottlenecks, about salience and visual search — about how the realities of physics and optics and biology forced God's hand, made him make us as we are. Sloppy? Far from it. I could even, with a straight face, tell you that there is a kind of wisdom to it: an intention to the invention of attention.

At least, I could have, for many, many years. But then, one morning in July, I caught myself counting colors again — and now I'm not so sure.

III.

The summer when it happened, I was in the Netherlands to present my research at a cognitive science conference. I had gotten there a day early to sightsee with my scientist colleagues, and we had all decided to spend the day together at the Mauritshuis, an art museum at the Hague. I was *thrilled*. The Mauritshuis houses many paintings I had studied and come to adore in school — paintings my college self had written about in essays and journals and love letters. Would this be tourism, or would it be pilgrimage? Whatever it was, it would be messy, raw, and emotional for me. The night before our outing, I stayed up late to leaf through the museum's collection online one last time. A little after midnight, I made myself close my computer and drifted gently off to sleep.

Of course, nothing is so simple in the light of day. I woke up the next morning with a pit in my stomach. As my colleagues and I boarded the train to the Hague, I began to worry that the outing was a big mistake. At the time I was a junior graduate student, at the conference to socialize myself into the discipline of cognitive science. The week would be a gauntlet of first impressions, and the *first* first impression would be the museum. "Messy, raw, emotional" would be completely out of line—is that really how I wanted to be known to the scientific community?

I contemplated the situation on the train, in the ticket queue, even on the stairs to the gallery. I considered how I might excuse myself. But before I knew it—and certainly before I had formulated a plan—I found myself face to face with the painting. It was my childhood favorite, Vermeer's *View of Delft*. I stood there awkwardly, unprepared for the encounter, acutely aware of all my colleagues crowded tightly around me. What was I supposed to do? I thought, then, of a passage from Proust — the passage about the aging writer Bergotte, who collapsed before this very painting a century ago, after weighing his life's work against a small patch of yellow wall painted on the far right of the canvas. Indecorous, yes—and I'm not saying I considered it—but then again: how much enchantment, how much trance, *is* permissible in polite company?



I said the passage quietly to myself. "He noticed for the first time some small figures in blue," wrote Proust, "that the sand was pink, and, finally, the precious substance of the tiny patch of yellow wall." Was he— *no*, could it be? Was Bergotte counting colors? I remembered how you and I used to count colors, all those years ago. What would you have said? Blue figures, pink sands, yellow wall. Blue, pink, yellow. *Blue, pink, yellow.* —It worked. It really did. For a moment, my body relaxed.

But then I said it again, that passage from Proust, and my breath caught on the words "for the first time." To love a painting your whole life, only to detect the pinkness of the sand in the moments before your death: I had never before registered Bergotte's second tragedy. Would that be me, too? To love this world my whole life, only to notice for the first time, in fading light, the pink beds of my own fingernails? It dawned on me how little I know about myself: about my body, about my mind. The more I look, the more I see — it cuts both ways, I realized, a lifetime for a thumb. Is it possible to ever really know oneself? Are we condemned to be our own strangers? The loneliness, the sorrow, the fear: it was overwhelming, even at age twenty-five. The tears broke through, they muddied my vision. I turned away from the painting and scurried blindly into the next room.

IV.

Never have I been so undignified in my movements. I stumbled unceremoniously into the next gallery, careened into the first painting, caught my balance just inches from the canvas. There

was a moment of confusion, then recognition: it was another painting I knew and loved, *The Goldfinch*, by Carel Fabritius. I wiped my eyes and gaped at the bird, shocked and embarrassed, as if I had fallen through the rafters at an old friend's wedding. The security guard flinched into action.

Not that the bird was ever really at risk, of course. The *Goldfinch* hangs there solidly, protected by its seemingly bulletproof black frame, by the alarmed sensors, by the insurance company, by the Dutch criminal justice system—

—but also, I suddenly realized, by Carel Fabritius himself. I don't mean, by this, the fine chain with which Fabritius bound the bird to its eternal brass perch. What I mean is the wall he painted behind (or rather, around) the bird. It is hard to tell in photographs of the painting, or even in person, but look at the canvas up close—close enough to worry a guard—and you might discover that the brushstrokes around the bird create a kind of dense, protective halo, a helmet—a second skull—or perhaps a force-field radiating powerfully from the walnut-sized brain within. It is as if time and space themselves conspire to warp and bend and safeguard the mind of one unsuspecting bird. (And who is to say they don't? Isn't it true that the *Goldfinch* was lost for almost two hundred years before re-emerging in the art world, a kind of second coming? Who else but Time and Space could pull that off?)

I kept thinking about that bird's head during the cognitive science conference that week. I have come to see in its expression the confusion of being something divine. What Fabritius painted was the state of being human: the state of knowing that, but not why, your mind is something sacred, the astonishment at the miracle of your own finite being. *What is man that thou art mindful of him?* Isn't that the fundamental problem of cognitive science?



The gods must laugh, I think, to see us cognitive scientists at work: to see us bumbling our way through the mystery. What an odd way to spend a lifetime: figuring out what exactly one is. But

that is what we do. We experiment on each other, we scan our babies' brains, we poke at our eyes, we build supercomputers, we administer shocks, we argue endlessly about our own capacities and limitations. We travel all the way to Rotterdam to exchange our little scraps of progress. There is so much to discover, so little we have found. We will never apprehend the entirety of it. And yet, we keep searching, because—(*ah*, but there it is again)—the more we look, the more we see.

V.

On the train back to Rotterdam from the Mauritshuis, I sat by the window and watched the landscape pass me by. The museum had exhausted me. I tuned out of the conversation and began daydreaming. On my mind was a novel I had read long ago: *Blameless in Abaddon*, by James Morrow, which happens to take place at The Hague. In the novel, jurist Martin Candle travels to the International Court of Justice to prosecute God for the crime of creating Evil. His—God's—enormous body falls to Earth in a coma, is arrested by United Nations peacekeeping forces, and is towed unceremoniously into Dutch waters as the prosecution and defense build their cases.

As part of the discovery process, Martin Candle pays a visit to God's brain. He enters through the optic nerve—"as large as the Lincoln tunnel," writes Morrow—and makes his way chapter by chapter through the holy landscape: rivers of blood, flood plains, deserts.

I looked through the train's window and tried to conceive of the land as a brain. It was plausible in my imagination: neuroanatomy writ large, gyri and sulci as rolling hills, the railway tracks axons carrying heavy trains of thought. I willed it on the scene I saw, the way one wills faces onto Rubin's black vase. I looked and I looked. It really could have worked. But the flat Dutch earth didn't yield to my fantasy. I got off at Rotterdam Centraal and walked quietly back to my lodgings.

That night, as I lay in bed, I tried another tack. Could I imagine my own brain the size of Rotterdam? What would that feel like? I imagined an infinite retina, a limitless optic nerve, a primary visual cortex the size of a neighborhood. There would be no need for foveation, no need for attention, with such an unbounded brain. The visual world would present itself all at once, in every glance and glimpse, perceptual experience devoid of temporality. You could never look harder, never look longer, never await a revelation. All at once: is this how gods see? The thought kept me up late.

VI.

What does it mean to be a cognitive scientist — no, really, to *be* one? I wonder from time to time how much my colleagues think about having—being—their own object of study. A professor in my department once taught neuroanatomy, the parts of the brain, by shaving her head and drawing on her scalp. I once caught my advisor biking to work without a helmet. On late nights I rub my eyes, my palms feeling the mystery as if touching a sacred stone.

I had taken the scenic route to the conference that summer. A week before the Hague, I was in Paris, fresh off an overnight flight from Boston. It happened to be the Fourteenth of July— Bastille Day—which meant the Louvre was free to enter and dramatically less crowded than usual. I spent the entire day there with some dear friends.

A few minutes before closing-time I wandered into an empty room and spotted another old friend: the painting on the cover of my high school's Dover Thrift Edition of *Hamlet*, made (I now

know) by Eugene Delacroix in 1839. The painting depicts a moment in Act V, Scene 1: a gravedigger holds up Yorick's skull for poor Hamlet to inspect. At age 17 I was so taken by my book's cover that I performed this scene for my high school senior project. I practiced with navel oranges until, on the day of my performance, my teacher graciously let me borrow a plastic replica skull he kept on his desk.



Perhaps it was in that high school class, holding that replica

skull, that I first started looking like a cognitive scientist. Perhaps it was Prince Hamlet's ekphrasis of

the human mind that made me as I am now. How noble in reason — how infinite in faculties — in form and moving how express and admirable — how could he not inspire you to study the mind?

I used to wonder in high school what Hamlet was studying at Wittenberg when his life unraveled. I would like to think, now, that he studied cognitive science: that the book he is reading in Act 2 is *Gödel, Escher, Bach*, that the madness he feigns is informed by the literature he has studied, that his reflections on human thought and decision-making — or, to call it what it is, our "godlike reason" (4.4.40) — come from earnest inquiry into the marvels of human rationality. That the *Mousetrap* was nothing less than a psychological experiment: a test of a hypothesis, confirmed by the scientific method. I would like to think that Hamlet looked and saw like a cognitive scientist.

I would like to think all of this, because I have come to believe that there is another meaning to our line about looking and seeing. *This* meaning

occurred to me all at once, at the moment I saw the halo around Fabritius' bird — though since then, I have started seeing haloes around all heads:



around Vermeer's viewers-of-Delft, too, and even around Yorick's dead skull. Look closely: do you see them — faint ripples in canvas and reality? I hope you do. I wish I could show you.

The meaning, I think, is this:

VII.

What does a cognitive scientist look like? It's not the lab coats or the tweed jackets that distinguish us—no, nor the sneakers and jeans, either. If you ask me, I would say there is only one way to tell. It's the wide eyes: the astonishment at meeting a mind, the enchantment of thought about thought, that gives us away. That's what we look like; that's how we look; that's what makes us us. It's as simple as that: we see haloes around all heads.

The wider the eyes, the brighter the haloes.

The more we look, the more we see.