



Intro to Naturalism

1. [Intro to Naturalism: Orientation](#)
2. [Knowing](#)
3. [The Territory](#)
4. [Interlude: On Realness](#)
5. [Observation](#)
6. [Direct Observation](#)
7. [Patient Observation](#)
8. [Naturalism](#)

Intro to Naturalism: Orientation

A note on how to approach this sequence:

If you were exactly like me, I would ask you to savor this sequence, not scarf it. I would ask you to approach each of these essays in an expansive, lingering, thoughtful sort of mood. I would ask you to read them a little bit at a time, perhaps from a comfortable chair with a warm drink beside you, and to take breaks to make dinner, sing in the car, talk to your friends, and sleep.

These essays are reflections on the central principles I have gradually excavated from my past ten years of intellectual labor. I am a very slow thinker myself; if you move too quickly, I expect we'll miss each other completely.

There's a certain kind of thing that happens when a person moves quickly, and relies a lot on their built-up structures—their familiar, tried-and-true habits of thought and perception. There is a *different* kind of thing that happens when a person can step back and bring those very structures into view, rather than standing atop them. I'm hoping for the latter.

But since you're *not* exactly like me, there might be a better way to approach this sequence, in your particular case, than the exact one I'd suggest to myself. I hope you'll take a moment to check.

What matters to me is not how fast you read, or how many sittings it takes; what matters is that you create for yourself enough space to explore, to observe the real world beyond all these words, to watch how your own thoughts and experiences unfold in dialog with mine. Any method that allows you to maintain that kind of space as you read is perfect, as far as I'm concerned.

"Naturalism" is a label for a conceptual framework, investigatory discipline, and semi-formalized way of looking at and learning about the world. I've been developing and teaching naturalism for the past couple of years, if you start counting on the day I chose the term, or since 2013, if you take a more historical perspective. I've made some [relevant content available](#), but I've had trouble writing a straightforward introductory post.

The reason for this, as far as I can tell, is that the naturalist perspective is suspicious of categories, projections, and preconceptions, and seeks to move closer toward (relatively) unfiltered, direct observations. It's specifically a frame-breaking and frame-escaping discipline, so it's hard to describe in frame-terms without being importantly misleading.

I ardently desire not to mislead anyone.

There's a saying I like a lot, which goes: "A man with one watch knows what time it is; a man with two is never sure."

(When I first heard this, I needed to pause for a moment, to let it sink in. It helped me to actually visualize wearing a watch on each wrist, then checking the time.)

The reason I like this saying is that it reminds me to be confused, in an appropriate fashion. "Confused" might even be too weak of a word—it's almost like it reminds me to be *scared*, in an appropriate fashion.

I mean, sure—for most things, I don't have to know what time it *actually* is, with sufficient precision that the off-ness of my watch makes a meaningful difference. The claim here is not that absolute clarity is required at all times.

But there is indeed an unfortunate property of having-a-watch, which is that it provides me with an *answer* to the question “what time is it?”

It provides that answer clearly, and specifically, and unambiguously. It provides that answer with *more confidence* than it ought to, like a calculation that doesn’t attend to significant digits. And if I’m not careful, then with my watch right in front of me, it’s very easy to *lose track* of the fact that I do not, in fact, know exactly what time it is. To forget that what I really know is what time it *almost* is.

This is what our concepts do for us. They are usually a strict upgrade over “entirely too much information for us to even begin to process or handle”; but if you lean on them too heavily, or too unthinkingly, they become actively misleading. Actively *harmful*, in cases where precision and accuracy genuinely matter, and being subtly wrong is disastrous.

And concepts *encourage* us to lean. They’re sturdy! Sensible! Comforting! They soothe confusion, make the world seem more predictable and comprehensible, give us the surface sensation of control (or at least understanding). It’s nice to have *answers*.

But the map is not the territory.

It’s easy to look up at the sky, and name the constellations, without losing track of your knowledge that there isn’t really a Great Bear up there. We know that the constellations aren’t “real,” that they’re just there to help us chunk and cluster and orient and discuss.



But constellations are an unusually transparent construction. In the set of fake concepts that we impose on messy reality, they're unusually candid about their fakeness. Their arbitrary nature is kind enough to be apparent and obvious.

Many concepts are much less wearing-their-fakeness-on-their-sleeve. Constellations don't bear all that much resemblance to actual stars, so it's easy to avoid getting confused. But a lot of concepts really look quite similar to the thing they're modeling, and are therefore much more seductive, mesmerizing, convincing, befuddling. Much more in-the-way, much more likely to distract, much harder to set aside and see past.

The concept Harry's mind had of the rubber eraser as a single object was *obvious nonsense*.

It was a map that didn't and *couldn't* match the territory.

Human beings modeled the world using stratified levels of organization, they had *separate thoughts* about how countries worked, how people worked, how organs worked, how cells worked, how molecules worked, how quarks worked.

When Harry's brain needed to think about the eraser, it would think about the rules that governed erasers, like "erasers can get rid of pencil-marks". Only if Harry's brain needed to predict what would happen on the lower chemical level, only then would Harry's brain start thinking - as though it were a separate fact - about rubber molecules.

But that was all in the *mind*.

Harry's mind might have separate *beliefs* about rules that governed erasers, but there was no *separate law of physics* that governed erasers.

Harry's mind modeled reality using multiple levels of organization, with different beliefs about each level. But that was all in the *map*, the true territory wasn't like that, *reality itself* had only a *single* level of organization, the quarks, it was a unified low-level process obeying mathematically simple rules.

It is *genuinely difficult* to notice that an eraser is something other than "an eraser"—to circumvent the well-intentioned shortcircuiting that our brains are so practiced at doing.

And to be clear: it's usually not necessary to notice that the mental category "eraser" is glossing over a bunch of detail. It usually does not matter; our concepts are ubiquitous in large part because they tend to be sufficient, adequate for our purposes.

But there are times when it's absolutely crucial to be un-hypnotized, when it's absolutely crucial to be aware of the difference between [what's happening] and [the layer of interpretation we've draped like a blanket over what's happening].

And there's something frightening (to me, at least) about the idea of such a crucial moment arising and people *not noticing it*, because they *aren't even aware that they're draping a blanket*. Or noticing that they need to set aside the blanket, but not knowing how to actually do so.

Which is why I've devoted so many of my resources to developing naturalism. It's an important facet of mature rationalist practice, and it's mostly missing from our collective toolkit.

Notice, though, that "naturalism" is *itself a concept*. It's a constellation painted somewhat arbitrarily over a multidimensional cluster of phenomena, pretending to be real. It's easy to say that X is a part of naturalism and Y is not, and to forget that there just *isn't any boundary* out there in the territory.



But in order to properly draw your attention to the cluster, I think I sort of have to paint those lines. Human brains (mine included) have a really hard time getting excited about vast collections of vaguely adjacent points; in order to produce something useful and comprehensible, I have to pretend that there's a Thing, there.

I think doing so is instrumentally useful, and I think that (when done honestly, as this intro sequence is attempting to do) it's not actually misleading, or self-undermining. This is a fundamental thesis of naturalism: that there are points, and there are paintings we superimpose upon them, and that *these things are different*. That the constellations are of a wholly different nature than the stars.

Doesn't mean we don't need the conceptual overlay. We just want to know, in any given moment, whether we're dealing more with paintings, or more with the things they're meant to depict.

The constellation I will paint in this sequence is a single sentence. It's a sentence I built one word at a time, sketched atop a cluster of five stars I've picked out from my view of the night sky.

The sentence is a summary of naturalism after-the-fact. It will do almost nothing to help you understand the stars themselves, the real thing that I try to do with my mind day in and day out.

But it may serve to guide your attention to those stars. It may prompt you to look more closely, for yourself, at the reality hidden behind the tidy painting.

The sentence, which I will discuss piece by piece throughout my introductory sequence, is this:

Knowing the territory takes patient and direct observation.

The sentence forms the outline of my sequence, more or less:

- Knowing
- The Territory
- Observation
- Patient Observation
- Direct Observation

My only goal in this sequence is to communicate what I mean by the sentence, "Knowing the territory takes patient and direct observation."

Here is what will happen in this sequence: I will pick out the concepts that seem central to my understanding of naturalism; I will name them with words; and I will do my best to tell you what I mean by those words.

That is all.

There are a few things you might expect from an introductory sequence that I will not even try to accomplish. I want to be clear about my intentions.

I will not try to argue for the truth of the proposition the sentence picks out. It's true, I think, that knowing the territory takes patient and direct observation. But I won't try to convince you of that here.

I won't tell you what would change my mind, or what I'd expect to see if I were wrong. I won't tell you how I think you could find out if I were correct, or if I were not. I will not present evidence. I will not engage with counterarguments.

Inasmuch as I'm making a claim, you're right to want that sort of thing from me. But I'll disappoint you, for now, on this front. I cannot do very much at once; for me, just saying what I mean without misleading anyone is quite enough to be getting on with.

I will not try to argue that naturalism is important, either. Or, at least, not directly or on purpose. I won't say much of anything about when it matters, or why. This is also a worthwhile topic, but it's beyond the scope of this sequence.

Finally I will not try to help you learn naturalism. I *do* have a sometimes effective curriculum at this point, and I've even published [a sort of proto-naturalism introductory course](#) that you can take at your own pace online; but I will not be presenting anything like that here.

What I *will* try to do is pick out the concepts that are central to naturalism, name them with words, and tell you what I mean by those words.

It will take me seven-and-a-half essays, the first of which you have nearly finished.



When we are done here, I will write more things. When I write those things, I will sometimes use the term “naturalism”. And if this sequence is successful, people who have read it will know what I’m talking about.

People who have not read this sequence will say “What is naturalism?”, and I will finally be able to answer their question to my satisfaction.

Knowing the territory takes patient and direct observation. Let us begin, then, with “knowing”.

Knowing

I'm going to draw some practical distinctions among types of knowledge, as an attempt to tap into your intuitions and avoid having to give some convoluted, ivory-tower definition of the word. I request that you try not to get distracted by where I've drawn my distinctions—the precise placement of the borders is not the point of the exercise. The point of the exercise is to shine your attention on the richness, depth, and complexity of your capacity to know—that the word "know" means more than one thing.

Let's begin with a little formative assessment.

- **Do you know what comes out of your kitchen faucet?**
- **Do you know what glaciers are made of?**
- **Do you know what those big white fluffy things in the sky are?**

If so, then you are *familiar* with water. When someone talks about it, you're not completely lost.

- **Do you know at what temperature water boils?**
- **Do you know the atomic composition of an ordinary water molecule?**
- **Do you know what percentage of your body's volume is water?**

If so, then you know some *facts* about water. Your concept of water contains (at minimum) a few isolated pieces of accurate information.

- **Do you know the way water sounds when it pours into a cup?**
- **Do you know how water feels when it runs over your skin?**
- **Do you know the look of a stream's surface as it glitters in the sun?**

If so, then you are able to *identify* water when you encounter it in real life. You have direct, experiential data. You are able to predict how various encounters with water will impact your senses, and you probably recognize water when those sensations occur (at least sometimes).

- **Do you know what happens if you leave a beer bottle in the freezer overnight?**
- **Do you know how a water mill grinds grain into flour?**
- **Do you know why it rains?**

If so, then you probably have at least one *model*/^[1] of water.

Whether or not that model is explicit, it includes enough structure that you can predict the behavior of water in various situations, even if those situations are outside of your own direct experience. Your model might be rudimentary, in which case the above questions probably produced hesitation or "sort of?" and you'd maybe only be able to produce a short

paragraph in response to each. Or your model might be rich and deep, in which case your “yes” was confident, and you could in principle write multiple essays on the subject.

- **Do you know how to swim?**
- **Do you know what to expect when applying watercolor paints to a wet canvas?**
- **Do you know how to make sea water safe to drink?**

If so, then you have some *practical mastery* of water. It’s not just that you recognize water, or that you know some things about it, or that you can predict its behavior—your models of water are *integrated* with your models of yourself and other parts of the world, accurately and deeply enough that when you personally interact with water in real life, things tend to go more or less as you intend (at least in certain kinds of situations).



Breaking the format of the pop quiz now, to ask a more difficult question:

Can you name other things you know as intimately and thoroughly as water? Is there some swath of the territory with which you have extensive familiarity, lots of factual knowledge, rich predictive and explanatory models, *and also* practical mastery in a wide variety of situations? In other words, where do you think you might have *deep mastery*?

One such domain that’s likely common: many people have this portfolio of knowledge when it comes to driving cars. The average American spends [a little under an hour a day in a car](#), so if you’re like the average American in this respect (and also you’re the one doing most of the driving for your household), then you’ve plausibly spent over three thousand hours behind the wheel in the past ten years. And if so, I expect you’ve deeply mastered driving^[2].

If you’ve deeply mastered driving, then you have extensive familiarity with all sorts of driving-related tasks and phenomena. You recognize left-turn-only lanes, brake pedals, stop

signs, curves in the road, the hazard lights button on your dashboard, erratic driving, potholes, high beams, deer, and so on.

You probably have tons of factual knowledge related to driving, as well, even if it's been many years since you've taken a written test. If an inquisitive fourteen-year-old were sitting in the passenger seat, you could produce all sorts of relevant bits of data, such as what speeds they should expect to drive on what kinds of roads, or what fluids they'll need to put into their car at what frequencies, or how many wheels most cars have, or what papers they'll need if they get pulled over or have a minor accident.

You probably also have rich, complex models of driving itself, organized to allow you to make reasonable predictions about driving-related situations and phenomena. If your car breaks down on the road, you might or might not know how to fix it, but I bet you at least pull over to the side, because you know how roads work, and you know implicitly that if you stay put, other cars will come up behind you at high speeds and possibly crash into you. If I offered you a large amount of money to fill a hundred pages on "how driving works," you could almost certainly do it, especially if I provided helpful prompts like "differences between driving in cities vs. driving in rural areas" or "things that other drivers frequently get wrong."

And all of these different kinds of knowledge—facts, familiarity, implicit and practical models—they're all *seamlessly integrated* with an experienced driver's knowledge of themselves, and with their knowledge of adjacent domains like travel, geography, weather, car maintenance, the side effects of medication, etc. An experienced driver doesn't (usually) access their knowledge about driving via explicit lookup. They *can* do that, on request, but most of the time they simply *move through the world*. They use their turn signal reflexively in the middle of deep conversation with their passengers. When someone suddenly swerves into their lane, they decelerate without *deciding* to decelerate. They stop for gas on road trips. They notice when something about their car just *feels off*. And they acquired most of this knowledge *in the process* of developing the skills and habits required to safely operate the vehicle.

This is what I mean by "knowing," in the sentence "Knowing the territory takes patient and direct observation." By "knowing", I mean something like *deep mastery*.

[If you want extensive familiarity, accurate factual knowledge, richly detailed predictive models, *and* thorough practical mastery of some part of] the territory (that is, if you want deep mastery), then you will have to engage in patient and direct observation.



1. ^

There is a principled distinction to be made between models and theories. I'm not making it here.

2. ^

If you're doing just fine and enjoying this essay so far, **skip this footnote**. Otherwise, I have some bonus words that might possibly help.

It was around this point when some of my beta readers noticed their frustration with how slowly we were going. They found themselves falling out of the spacious, expansive mode I had hoped they would be in. I think this is fine to do, as long as you think falling out of that mode is a good idea.

But I note that there is another thing you could do, if you're frustrated or bored, which is to look at your own mind, notice the reactions that are happening, ask yourself what they're happening in response to, and thereby ease back into wondering.

Many of us have words for the kinds of distinctions I'm trying to draw here, such as "S1 vs S2", or "tacit vs explicit knowledge", or "declarative vs procedural knowledge". And the thing about those distinctions is that they are a) useful, and b) curiosity-stoppers. They tell us "don't worry, you already know this" so you can get back to building a tower of interconnected concepts. Which is a good thing, most of the time, but it is a bad thing some of the time, and I expect that many of my readers do not know how to tell the difference. (I often do not know how to tell the difference.)

That is (in part) why we are going slowly here, and feeling our way forward without much reliance on a large preexisting vocabulary. That large preexisting vocabulary is good, but it is not perfect. In order to see its flaws, you have to be able to stand outside of it somehow. I'm trying to help you step at least a little bit outside of it.

The Territory

Knowing the territory takes patient and direct observation.

I don't know if you've ever had the experience of hiking in the wilderness with a map and compass but no cell service. I recommend it, if you haven't.

I somehow did not quite all-the-way understand what a map even is until I was lost on my own under these circumstances. I knew in a "factual knowledge" sense that maps were drawings of the land, and I'd even used them as a kid and teenager to help my family navigate on road trips. But when I was lost in a national park, trying to find my way back to my car, I confronted the incompleteness of my knowledge of maps. There was a shift.

My map had trail lines drawn on it, with labels like "Canyon Trail". I'd pause my walking to look at the shape of "Canyon Trail", noting that it intersected "Overlook Trail" somewhere off to the left of where I was standing. Then I would walk again—attempting, I think, to "follow Canyon Trail to Overlook Trail".

I would move back and forth between walking and map consultation, making sure I remembered which way the trails were supposed to go, constantly placing and replacing myself within the borders of the lines drawn on the paper. The more distressed I felt about being lost, the more often I turned to the map, looking for something to hold on to.

The shift happened after... (this is sort of embarrassing, it's so simple. But it's true.) The shift happened after, having oriented myself toward "North", I happened to lower the map a little bit, probably out of exhaustion. I held it a bit below eye level, so that it was no longer taking up my whole field of vision.

I looked at the squiggly blue line on the map, and the close-together lines that I knew indicated steepness. And I saw to my left, because the map was not blocking my vision, a creek. Up ahead, I saw a steep hill.

I realized that the blue line was probably a drawing of *that creek*.

The contour lines were a drawing of *that hill*.

And then this wild rushing sensation began to wash over me. I was starting to get it. Slowly, I tilted the paper in my hands from a vertical position, partially blocking my view...

...to a horizontal position, parallel to the ground.

I held the map that way, looking out at the world the cartographer had tried to draw, and it was as though the territory rose up to meet the map, while the map spread itself across the surface of the territory. And I said to myself, "It's a picture!"

For the first time, I understood in a practical way that a map is meant to be a top-down picture of the real world.

Before I had this realization, I wasn't behaving as though I knew myself to be in the territory, using the map as a tool. I was acting as if I were traversing the map, using my body as a kind of clunky video game controller. I had been treating *the map* as the terrain I "really" had to navigate.

But once I stopped playing that game, and started actually traversing the forest I was in, things went very differently. I spent most of my time looking at creeks and trees and hills, making sure I knew how the real world around me was shaped. And from *that* perspective, I looked down at the map to help me predict what I'd see next.

And I found my car shortly thereafter.

There are ways to increase some kinds of knowledge that largely involve staring at maps. Perhaps your own map is not clearly labeled in places, or it's somehow inconsistent with itself, or it doesn't match the map of an expert.

This is why it's often valuable to clearly articulate your beliefs, even just to yourself. It's valuable to ask yourself what you expect, and to notice when you feel confused about that. It's valuable to ask other people what they think, or to read their books and blog posts, especially when you have reason to believe they know important things that you don't.

But the *main* thing a cartographer ought to be focused on, the vast majority of the time, is the world itself.

I started studying "[original seeing](#)", on purpose and by that name, in 2018. What stood out to me about my earliest exploratory experiments in original seeing is how *alien* the world is.

I don't mean that reality is weird or surprising. Nothing weird has ever happened, and all of that. What I mean is... well, I think I should actually grab [an Eliezer quote](#) here:

Human intuitions were produced by evolution and evolution is a hack. The same optimization process that built your retina backward and then routed the optic cable through your field of vision, also designed your visual system to process persistent objects bouncing around in 3 spatial dimensions because that's what it took to chase down tigers. But "tigers" are leaky surface generalizations - tigers came into existence gradually over evolutionary time, and they are not all absolutely similar to each other. When you go down to the fundamental level, the level on which the laws are stable, global, and exception-free, there aren't any tigers. In fact there aren't any persistent objects bouncing around in 3 spatial dimensions.

I started my earliest experimentation with some brute-force phenomenology. I picked up an object, set it on the table in front of me, and progressively stripped away layers of perception as I observed it. It was one of these things:



I wrote, "It's a SIM card ejection tool."

I wrote some things about its shape and color and so forth (it was round and metal, with a pointy bit on one end); and while I noted those perceptions, I tried to name some of the interpretations my mind seemed to be engaging in as I went.

As I identified the interpretations, I deliberately loosened my grip on them: “I notice that what I perceive as ‘shadows’ needn’t be places where the object blocks rays of light; the ‘object’ could be two-dimensional, drawn on a surface with the appropriate areas shaded around it.”

I noticed that I kept thinking in terms of what the object is *for*, so I loosened my grip on the utility of the object, mainly by naming many other possible uses. I imagined inserting the pointy part into soil to sow tiny snapdragon seeds, etching my name on a rock, and poking an air hole in the top of a plastic container so the liquid contents will pour out more smoothly. I’ve actually ended up keeping this SIM card tool on a keychain, not so I can eject SIM trays from phones, but because it’s a great stim; I can tap it like the tip of a pencil, but without leaving dots of graphite on my finger.

I loosened my grip on several preconceptions about how the object behaves, mainly by making and testing concrete predictions, some of which turned out to be wrong. For example, I expected it to taste sharp and “metallic”, but in fact I described the flavor of the surface as “calm, cool, perhaps lightly florid”.

By the time I’d had my fill of this proto-exercise, my relationship to the object had changed substantially. I wrote:

My perceptions that seem related to the object feel very distinct from whatever is out there impinging on my senses. ... I was going to simply look at a SIM card tool, and now I want to wrap my soul around this little region of reality, a region that it feels disrespectful to call a ‘SIM card tool’. Why does it feel disrespectful? Because ‘SIM card tool’ is how I use it, and my mind is trained on the distance between how I relate to my perceptions of it, and what it is.

There aren’t any tigers, and there aren’t any SIM card tools, either. It now feels... almost *disgusting*, to me, to lose sight of that. Disgusting like thinking of trees only as “lumber”, and cutting down entire rainforests as a result.

Which doesn’t mean it’s useless to conceptualize tigers and so forth. It absolutely is useful and correct. The purpose of cartography is to draw cartoon pictures that are relatively useful to travelers, and certain features of the cartoon pictures need to correspond to the real-world not-actually-“tigers” to be useful. There exist for-real regions (or properties, or patterns) of the territory itself that it *makes sense* to call “tigers”, as long as that concept is doing the right stuff, such as paying rent in anticipated experiences.

But ever since I began my study of original seeing—ever since observing the so-called “SIM card tool”—it has felt a little different for me to use the word “territory”.

I think that before, when I said “the territory”, I must have accidentally meant something like “the much bigger map; the thing I’m drawing a map of, which is basically like my map but a lot more complex”.

Now I mean something like, “The thing that is made of something other than my own perceptions and interpretations. The thing that resists my expectations, according to its own rules. The thing that does not care what I think, or what I have happened to imagine.”

In the sentence, “Knowing the territory takes patient and direct observation,” what I mean by “territory” is “the thing that is made of something other than my own perceptions and interpretations”.

Knowing [the thing that is made of something other than your own perceptions and interpretations] takes patient and direct observation.

Next, there will be a short interlude on realness, and what it feels like to lower the map. Then I'll talk about *observation* of the territory.

Interlude: On Realness

I have a final line of thought on “the territory” that’s a lot less tidy than what you’ve read so far. Everything else in this sequence is a distillation, an attempt to communicate large principles that I’ve brought into sharp focus over time. In this interlude, I’ll be doing something different.

Here, I’ll be sharing a thread of investigation that’s still very much open for me. I’m not entirely sure what it’s about, but I think it has something to do with what it *feels* like to lower the map.

If you’re so inclined, I invite you to approach this as a fellow naturalist/investigator/curious kitten. I invite you to puzzle with me over how you might tell when you’re heavily map-focused, and when you’re not. What does it feel like to lower the map, to have it knocked forcefully from your hands, or to suddenly encounter something that’s *not* mostly made of your own perceptions and interpretations? And how does that sort of thing happen?

It is very interesting to me that it’s possible for some things to feel especially real.

One morning in college, I was half-sleeping through a poetry lecture in a dim classroom, when I looked out the window and saw a tree branch covered in spider silk. The silk shimmered in the sunlight. Strands of it hung from the branch and wafted in the breeze, and as they moved, the sunlight seemed to drip down the strands in waves.

It caught me. I don’t remember anything about the lecture, but I’ll never forget the silk. Seeing it felt a lot like waking up from a dream. That tree seemed more real than anything in the classroom, and more real than anything else in my life from the previous month.



I've puzzled over this perception of "realness" off and on for years. I've collected a lot of reference experiences that are rich in this property, and I've tried to compare them to each other.

Here are a few quick examples:

- A person said, "I'll be real with you," and then began to say things that did in fact seem more "real". My brain says they "stopped lying", but I think it's more complicated than that.
- Reciting the sentence "I have seen the smoke rising from the pipes of lonely men in shirtsleeves leaning out of windows" (and also much of the rest of "The Love Song Of J. Alfred Prufrock")
- I was out for a walk in the early morning when I saw a patch of moss covered in dew.
- The main character Max in the Dave Eggers novel *The Wild Things* feels more real to me than any other character I've encountered in fiction.
- Once I was struggling with an essay, and had a feeling that I couldn't stop saying "fake" things. So I decided to message a friend in text chat to tell him what I wanted to say in the essay. Talking directly to him, it was much easier for me to say "real" things instead.
- To'ak's "Rain Harvest 2018" chocolate bar.
- (This one's from my mom, a memory from when she was 6 or 7. She shared it when I asked whether some of her experiences seem more "real" than others.) "I was standing on a brick wall in my front yard with my arms held out and my face into the wind. That is all. The feel of the wind, the presence of it all around me."
- A few moments when I decided to stop [something? "trying for fake"?] and started "trying for real" instead.

My current best guess about what these experiences have in common is the absence of a strong map-focus, perhaps combined with engagement.

This is especially clear in the essay example. One of the hardest things for me about writing an essay that's meant to be read by many other people is that I know many other people may read it. Indeed, one of the hardest things for me about writing a letter to a single other person is that I know another person may read it. It's much harder than journaling.

In journaling, I say whatever I'm thinking, usually in whatever way it first occurs to me to do so. When I try to improve on the way that first occurred to me, I check alternatives against my sense of what seems right and good.

When I write to other people, though, I also check alternatives against my expectations about what their minds will do when they read it, what they'll think I thought when I wrote it, and whether the world seems to them the way it seems to me. In other words, I'm less focused on whatever it is I'm trying to talk about, and more focused on maps (and maps of maps, and maps of maps of maps).

The more people there are, and the more I care about how they'll respond to what I say, the deeper and more salient these layers of anticipated interpretation become.

Sometimes I completely lose track of both "what I want to say" and "what seems right and good".

And when I manage to get back on track—often by talking to one particular friend, or by “journaling” in another tab instead of “essaying”—it feels just like lowering the map. It feels like looking to the left and seeing an actual creek, looking ahead and seeing a hill that I could climb with my feet if I wanted. It feels like waking up from a dream.

I think all the other experiences on the list involve something that prompts a similar map-lowering motion.

Observation

Knowing the territory takes patient and direct observation.

Imagine that you meet someone you're attracted to at a party. At one point, they smile at you, and you notice. You're pretty sure they like you, but you really want to know whether they *like* you like you.

You don't act on this in any particular way, but you do spend the whole next week thinking about it. You think about other people who have been into you, and about people who have not, and the differences between them. You muse about what sort of taste in romantic partners you imagine the person might have. By the end of the week, you're weighing your virtues and vices, trying to decide whether you're even worthy of love.

(If this seems alien to you, I hope it is at least true to your experiences of *some humans*.)

In the moment when you noticed you were attracted to the person, you made an observation. In the moment when you noticed their smile, you made another. In the moment when you noticed your curiosity, you made another.

But as soon as you vanished into your own musings, you were no longer making observations. You were no longer *collecting data*. Instead, you were interpolating, extrapolating, filling in the gaps with stories and guesses, processing and reprocessing. Everything that followed, in the week after the party, took place inside your map—analysis, interpretation, reasoning, reflection.

In Arthur Conan Doyle's "A Scandal in Bohemia," Sherlock Holmes lectures Watson on the difference between *seeing* and *observing*:

"You see, but you do not observe. The distinction is clear. For example, you have frequently seen the steps which lead up from the hall to this room."

"Frequently."

"How often?"

"Well, some hundreds of times."

"Then how many are there?"

"How many? I don't know."

"Quite so! You have not observed. And yet you have seen. That is just my point. Now, I know that there are seventeen steps, because I have both seen and observed."

I don't know how many steps there are on the staircase up to my own living room, either. Setting aside the question of prioritization, and whether I *should* be turning my attention there—what is it, exactly, that Watson and I are doing with the steps?

My guess is that we've taken some initial impressions—a few moments of impact from the external world—and used those points to draw a constellation. Every time we walk up the steps, we do almost all of our processing *on the constellation*, rather than on the points of light in the sky.

Most of our “seeing” the stairs is happening inside of our maps. We observe just enough to recognize that we’re about to encounter the well-understood “stairs” entity, and then we superimpose our “stairs” concept over whatever sensations are happening to us, and *stop paying attention*. To the extent that our brains record anything, it’s that we “climbed up the stairs,” rather than that we felt some number of impacts under each of our feet, while the muscles in our legs contracted and our heart rate climbed slightly, etc.



Imagine that you *do* end up asking the cute person from the party to meet you for coffee, but when the day comes, you're extremely distracted by a disaster at work, one you'll have to return to as soon as the date is over. Despite a whole hour of conversation, you leave feeling like you've learned almost nothing about them.

Crucial data was all around you, but while you *saw* it, you failed to *observe* any of it.

It is hardest to make fresh observations about things you have seen many times. The stairs, long-held beliefs, attitudes you were raised with. The more often you superimpose your drawing of a constellation over points of light in the sky, the more opaque your drawing becomes.

It probably doesn't really matter that I have seen-but-failed-to-observe my stairs. I never miss a step, and I'm not in a murder mystery whose solution might depend on how many steps there are.

It certainly *does* matter, though, if I have seen-but-failed-to-observe the way I make requests of my child, especially if I haven't even noticed the distinction. If I believe I've observed when I've really only seen, I'm much less likely to start paying attention, or to hypothesize that I may have gotten something wrong. If we're going to be close for a long time, we need to be able to communicate with *each other*, not just with the cartoon drawings we habitually plaster over each other's faces.

It also matters if I've seen-but-failed-to-observe the factors that cause me to continue on my current career path, what I count as evidence, or my default response when my expectations are violated.

Seeing-but-not-observing is a failure to make contact with a bit of territory that is right in front of you. It is standing at the bank of a river while staring at the part of your map labeled "river". Often that's good enough; but sometimes the river is flooded when you need to cross, and then you really have to lower your map and *make contact* with crucial data. You have to look at the world itself, or else you'll drown.

In the sentence "Knowing the territory takes patient and direct observation," this is what I mean by "observation." I mean *actual contact with the territory*. Looking at the stars themselves, instead of letting the constellation fill your mind as your eyes glaze over.

Knowing the territory takes patient and direct *contact with the territory*.

In the next two essays, I'll talk about two ways of being in contact with the territory: directly, and patiently.

Direct Observation

Knowing the territory takes patient and direct observation.

My dad's a retired science teacher, so my little brother and I began playing the "I'm not touching you!" game unusually early.

In case you're not familiar with "I'm not touching you!", here's how it works.

Step 1: Ask your parents (or the internet or whatever) why you don't fall through the floor.

Step 2: Learn about electrostatic repulsion, and conclude that things never "really touch".

Step 3: Poke your sibling.

Step 4: When they say "Stop touching me!", insist that "I'm not touching you!"

Step 5: Find out whether your parents consider "technically correct" to be an adequate defense. (They don't.)

It is true that things do not touch in the way we naively imagine. Their component atoms' electrons repel each other. "Perfectly direct contact" does not ordinarily happen.

Nonetheless, there is a big difference between the "not touching" that's happening when you poke your sibling, and the "not touching" that's happening when you point at your sibling from three meters away.

Similarly, there is no unmediated subjective experience of the territory. When you poke your little brother's arm, your brain does *something* with those nerve signals to turn them into phenomena, into the subjective experience of tactile sensations. The sensations are not the nerve signals. There is always *processing distance* between your subjective experiences and whatever is happening to your sense organs.

However, some processing distances are smaller than others.

Consider the processing distance between [the electrostatic repulsion at your fingertip] and [your plan to test how upset you can make your brother before your parents intervene]. Although your plan exists mostly inside your head, it definitely has something to do with that electrostatic repulsion, in about the same way that a pointing finger has something to do with whatever it's pointing at. A plan is made of anticipations, imaginings, desires, and so forth; yet it isn't *completely* out of contact with the territory.

But consider the distance between [the electrostatic repulsion at your fingertip] and [the immediate tactile sensations of your finger]. The subjective sensations still exist only inside your head, but the processing distance is much smaller. Those sensations put you in *closer contact* with the underlying reality of electrostatic repulsion. Compared to imaginings or desires, they are much more tightly entangled with what's happening *out there*.

Here's how I think *contact with the territory* works.

For me to make contact with my brother's arm, there are three conditions that must be met, three entities that must coincide.

- *Presence*. An arm must be present. There must be a region of territory available to be contacted. I can't make much contact with my brother's arm if he's in another city.
- *Personhood*. There must be a contactor, a mind participating in the experience of contact, a place where attending occurs. I can't make contact in the relevant sense if I'm under general anesthesia, even if my brother's arm happens to brush my finger while I'm under.
- *Sensation*. There must be an experience of pressure on the skin of my hand as it presses up against my brother's arm. There has to be some kind of sensation I might become aware of. I can't make contact if I've lost all the nerves in my fingers to frostbite.

Presence, personhood, and sensation. Lose any of the three of these, and there's no longer contact in the sense I mean.

But note that each of these conditions can obtain to a greater or lesser extent, depending on the situation. It isn't all or nothing.

In the context of studying arms, a memory of an arm involves greater *presence* than does the description of a fictional arm in a novel. A photograph has more presence than a memory.

Presence of arms: actual arm > photograph of an arm > memory of an arm > fictional description of an arm

Personhood is similarly variable. A person's body can be physically present while their mind is otherwise occupied. They can selectively disengage parts of themselves when encountering a topic they'd prefer not to think about, letting experiences "bounce off" or relegating them to a "sandbox" for safety. It's possible to *limit* the mental space in which attending occurs, without eliminating it entirely—or to expand that space beyond what's available by default. This is what phrases like "showing up", "checking out", and "[blankface](#)" refer to.

Finally, just as a sighted person can wear sunglasses or even a blindfold, sensation isn't all or nothing. It's possible to be more or less numb to sensations at the point of contact, even when all your nerves are in working order.

Numbness often happens when top-down processes overwrite bottom-up processes, as in the Ponzo illusion:



If the top blue line looks longer to you at first, it's probably because you're interpreting the visual sensations through an expectation that things near the bottom of the image are

“closer”, while things near the top are “farther away”. If the top line were farther away, then it would have to be longer than the bottom line to produce the visual stimuli you encounter.

This interpretation probably happens so quickly that your raw visual sensations are overwritten by it. To see the blue lines as the same length, if you even can, you have to deliberately back up and peel off a thick layer of perceptual interpretation, excavating sensations that correspond more directly to the lines themselves.

But if you do peel back that interpretive layer, then you increase sensation at the point of contact with this image. It’s like removing your gloves and actually touching the snow. You are feeling more of the image itself, rather than feeling your own processing systems.

There is a gradient from “seeing” (in the Holmesian sense) to “observation”, and it is identical to the gradient from low to high contact with the territory. Dial up presence, personhood, or sensation, and contact with the territory gets more direct, more naked. Gloves off, touching the snow. Dial them way down, and you’re floating miles above the real world.

(The “how” is tricky. That’s a whole different sequence. But even before figuring out how to do it, it’s worth considering that there may exist the possibility of movement toward more direct contact. It can help a lot to merely be aware that your experiences exist somewhere along the gradient from low to high contact with the territory.)

In the sentence “Knowing the territory takes patient and direct observation”, this is what I mean by “direct”. I mean showing up as a whole person, in the presence of real-world data, and getting your preconceptions out of the way so you can be sensitive to what is there.

Knowing the territory takes patient and *naked* observation.

Patient Observation

Knowing the territory takes patient and direct observation.

When a person first begins to study naturalism with me, I say to them almost nothing that I've written in this sequence.

That might very well be a mistake; I might get better results if I knew some short combination of words that would cause them to correctly understand, intellectually, what we are doing and why, before we started.

But in fact I bank on the person's trust in me a bit, and begin by helping them establish consistent habits of observation.

If they're interested in studying confusion, I ask them to tap their leg every time they notice they're confused. I ask them to keep a log book in which they record a few words about their experiences of confusion each day. I ask them to make predictions about what it will be like to notice confusion—what kind of situation will be happening and how they will know in the moment that they are confused—and to compare their observations to their predictions.

And then, throughout what has so far proven to be about a three month program, I never shift our focus away from consistent habits of observation. It's not just where I start. It's the entire curriculum.

From a practical perspective, this dogged persistence is the foundation of naturalism. "Direct observation of the territory", without patience, gets you something like a bag of tricks. Valuable tricks, but still tricks. Isolated mental motions made when they are convenient and enjoyable, not when they are most needed.

With patience, though, you get a life-long practice of epistemic rationality.

So the whole naturalism program, from start to finish, consists of the establishment, improvement, and maintenance of consistent habits of observation. Consistent and ceaseless, without any sense that "and then we'll be done observing and get back to normal". When my students and I meet, we are constantly talking about what daily practice looked like over the past week, what was too heavy to implement as a regular routine, and how they personally can slow down enough to thoroughly observe. We continue in this way until they no longer seem to need me to ask those questions for them. The program is meant to introduce a new normal.

The rest of what I talk about in this sequence is sprinkled in, sure. It's implicit in the questions I ask, the approaches I encourage, and "my whole vibe". Like a catalyst, or like spices, those other parts are crucial to the recipe. But patience is the engine that makes all of it go. None of what I've written here gets off the ground unless it is practiced as an ongoing discipline.

I suspect that the thing I'm calling "patience" really is a single core capacity, or a single virtue; but it can express itself in multiple patterns of behavior. I'd like to talk about three patient behavior patterns: **tenacity, openness, and thoroughness**.

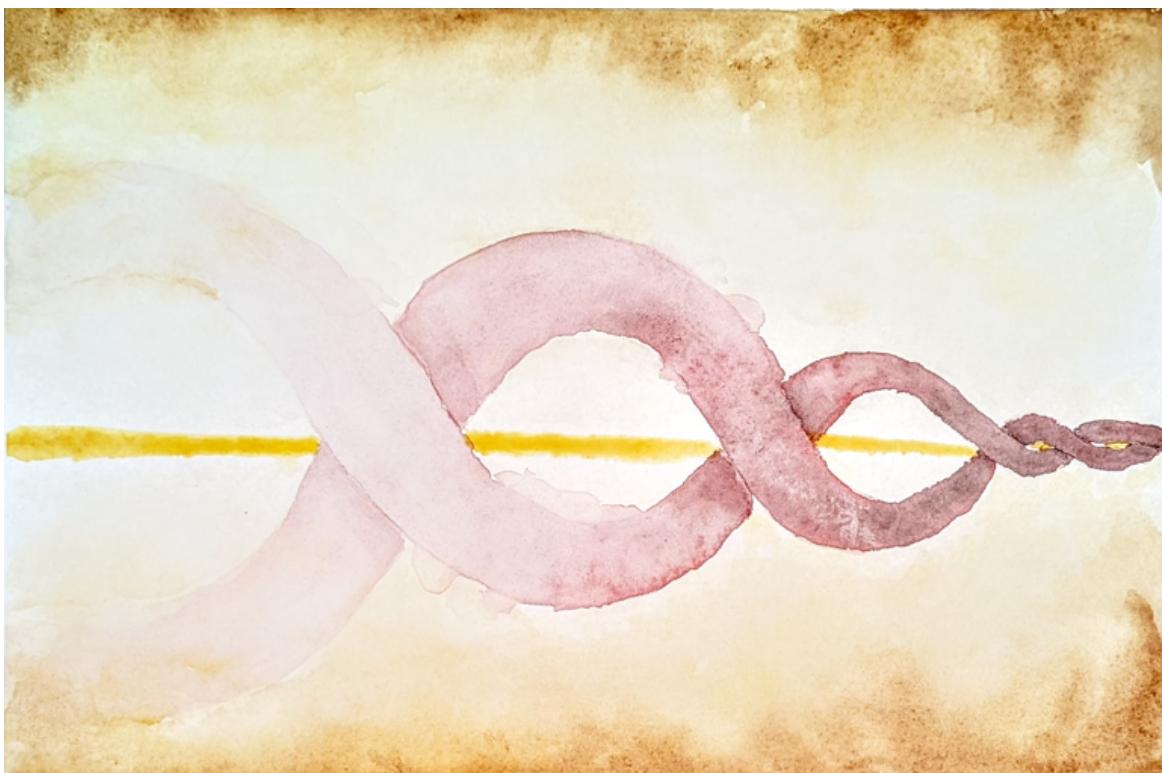
In my mind, the paradigmatic example of **tenacity** is marathon training. Not marathon racing, but the training program a runner goes through to prepare for their first marathon.

After an initial adjustment period, training for endurance athletics is mainly difficult because it requires commitment to the maintenance of a routine, not because it requires intense exertion. Most of the time you're not running anywhere near as fast as you can, and at least until race day, you're not running as far as you can either. On any given day, you're running a comfortable-for-you amount—but you're doing it day after day after day, without fail, for months at a time. The distance running motto is “small, consistent efforts”.

The facet of patience I'm calling tenacity is the ability to exert small, consistent efforts.

The reason tenacity is foundational to naturalism is that it's required for any kind of maintenance. Knowledge of the territory requires not just contact with the territory, but *maintenance* of that contact. Bumping up against the world and bouncing right back off again is not enough; you have to reliably *return* after you bounce.

We are bound to see things as we are, rather than as *they* are; but we are not bound to always see them as we were when we first encountered them. It is possible to observe again, and again, and again; if you do that with naked directness, and with the relentlessness of marathon training, your perceptual systems will inevitably adjust to perceive reality more accurately over time.



The next facet of patience I'd like to talk about is “**openness**”, in the sense of “non-closure”.

When someone comes to me for advice on a long-standing adaptive challenge, the most common recommendation I give is, “Stop trying to solve this problem for a while. Start investigating the underlying territory instead.”

I recently chatted with someone who was worried that she might be a narcissist, and wanted to know what to do about it. She gave me permission to share these (anonymized) excerpts from our conversation.

Logan: my first thought is that this sounds like a situation where you'd do well to put "what should i do about it?" on hold for a good three months, and focus instead on "what is actually happening? how can i tell? what is it like? what is my brain doing by default in various situations, and which situations are the ones i care about here? which phenomena and mental motions seem important for understanding what's happening here?"

Crystal: That seems smart. But, seems better to know I am a narcissist than to be uncertain about it for three months... more comfortable I mean

Logan: i imagine that you have a question like "am i a narcissist?" in your head, and it's really salient because things you care about depend on the answer to it, and it's uncomfortable to not know the answer because you'd ideally orient to the two different worlds differently, and when you don't know which you're in you don't know how to orient. is that right?

Crystal: Yeah

Here, Crystal is demonstrating a *need for closure*. She is uncomfortable (understandably!) with being uncertain. She would like to make plans for the future. Those plans may be substantially different in worlds where she believes the answer to the question "am I a narcissist?" is "yes" than in the world where it's "no." She wants to know what to work on, in herself and in her relationships. She wants to know what to expect.

So when I recommend to her that she deliberately *hang out* in uncertainty while she gradually increases her contact with the territory, it feels bad to her.

Back to the conversation, jumping ahead a bit:

Logan: i tend to operate under the conjecture that when there is a thing that's been a problem for most of a person's life, that person's way of conceptualizing the problem is very likely to be incorrect or incomplete in ways that make investigation that's not driven by the concept more productive than investigation that *is* driven by the concept.

Crystal: The concept being "narcissism"?

Logan: yeah.

Crystal: How is it driven by the concept or not? What does that mean?

Logan: investigation that's driven by the concept looks like: how would i know if i'm a narcissist? what things are evidence for or against? where would i look for evidence of narcissism? what would disconfirming evidence look like? what are alternative hypotheses? how might i test them?

Crystal: > investigation that's driven by the concept looks like: how would i know ...

That sounds like me

Logan: investigation that's *not* driven by the concept might look like: what does it feel like to be worried about whether i'm a narcissist? what seems to be at stake? if i go through the week and write down times when something related to the-thing-i-care-about-here happened, what do i end up writing? what was happening around me and in my head during those times? which of the things happening in my experience seems most closely tied to the-thing-i-care-about-here? how can i tell when that thing is happening in my head? if i watch for times when that thing is happening in my head and write down instances, what do i write?

in other words, it's possible to gain a lot of information about what's actually going on without having pre-decided most of what's going on. my suspicion is that this is a time when it makes sense to not pre-decide most of what's going on before you try to really seriously get in contact with the relevant region of territory

I often call the latter type of investigation—the kind that's *not* driven by the concept—"exploratory investigation". I've never used a word for the former type, but here I'm inclined to dub it "certainty seeking".

Certainty seeking is often the right approach. It's the right approach when you have good reason to think you mostly understand the situation and just need to fill in some details, or to determine the truth values of a couple central propositions. In that case, a more exploratory investigation style would be needlessly inefficient.

But people very often fall into certainty seeking when they are *impatient*. They already have a sketch, and for one reason or another, they just want to fill in the details and be done. They're willing to shift a line here or there, but mainly they're motivated to *complete the drawing*. "All I want to know is, is this narcissism or isn't it? Yes or no?!"

A person in the grips of this impatient mode is not so much trying to learn the shape of reality, as to crystalize a satisfying concept so they can relax into certainty.

There are advantages and disadvantages to both approaches, of course. My point is that nearly all truth-seeking benefits from a *combined* approach to investigation. You need to be able to move back and forth. Impatience tends to crowd out direct exploration, and ensures that you'll mainly find whatever you have already decided to look for.

Openness, in the sense I mean, is the ability to observe *without desperation for an answer*.

But, what is it to observe without desperation? I've told you what this facet of patience *lacks*, but what does it *consist of*?

Today I saw a raven do a barrel roll^[1].

I'd heard that ravens could turn over in the air, and even do backflips occasionally, and I'd seen pictures of ravens upside down. But when I saw this one do a barrel roll right in front of me—well, above me, I suppose—I felt... "surprise" is too simple. I felt glued to the ground, knocked sideways, and opened up all at once. I felt awe. I shouted up to the raven, "You just did a barrel roll! What?! That was awesome! You are awesome!"

Before I saw the raven, I was out on a walk through the country, down a dirt road with a few houses and lots of trees. Earlier on my walk, I took a picture of some kind of insect nest, or perhaps a fungus, on the underside of a leaf. I peered through a hedge to see if I could work out what kind of crop my secretive neighbors were growing. I smelled some little pink flowers on a tree and found that their scent was a lot like caramel and roses mixed with grass. I pet a dog and asked her if she could smell my cat (which she probably could, but she wasn't feeling chatty). I learned that the acorn hats have dried out enough to go "crunch" underfoot.

My state of mind was one of open, gentle exploration. And it's from that state of mind that the raven was able to move me in the way it did.

I can imagine an alternate walk in which I was trying to determine whether or not my local ravens can do aerial acrobatics. I think there would have been some frustration with the many ravens I saw along the way who were not even flying, let alone flying upside down. (I wouldn't have observed any leaf bottoms at all.) And I think that seeing the barrel roll would still have been very cool, but it also would have felt a lot more like relief and completion; like the end of something, rather than the beginning. Like closing, more than like opening.

But more importantly, I never would have set out on such a walk in the first place. It simply would never have occurred to me. I saw a raven do a barrel roll because I was *there* when it happened. I was in the right place, and I was open.

Openness feels like being there for whatever happens. Being *down*.

It's almost-but-not-quite the opposite of purposefulness. It's the canvas on which purposes get painted. A central strategy of naturalism is to put most of your purposefulness points into choosing where to bring your canvas. If that canvas is already full, then there's nowhere for new and surprising things to land.

Openness feels like putting myself in the middle of something *alive*, looking around, and letting whatever I observe move me however it does.

The final facet of patience I'd like to discuss is **thoroughness**.

When I think of thoroughness, I imagine holding a puzzle box as I turn it around and around, trying to visually examine it from all angles. No matter how accurate and precise my observations of the box from one particular angle, it is only possible to see at most three faces of a cube from any single vantage point. To know the whole surface of a cube, I either have to move the cube, or I have to move myself.

If the puzzle box is sitting on your desk, and you glance over at it several times as you go about your day, you'll most likely catch it from a few different angles by accident. So tenacity and openness together naturally result in some amount of thoroughness.

This is the principle behind what Anna Salamon has called "the 50/50 rule". According to (my own interpretation of) the 50/50 rule, 50% of the intellectual progress you make on something will happen while you are deliberately trying to make progress on that thing in particular. The other 50% will happen while you are engaged with other things: riding the bus, playing with your kids, designing a board game, identifying a bird.

It's important to spend a lot of your time doing things *other* than focusing on your Main Project. This is not *just* because your brain needs to "rest"; it is also important to do other things because you will see different faces of the puzzle box while you are dancing at a salsa club than while you are staring at a white board.

It is possible to find additional vantage points on purpose, and I call this capacity "perceptual dexterity".

When I look at the pen that is on my desk right now, I see a pen. That is, when I direct my gaze and attention toward the part of my visual field where light is reflecting off the surface of the pen, my concept of "pen" is active.

When I see the pen as a pen, certain parts of my experience stand out to me, while others are discarded. My attention lands on the button at the top, which I could push to extrude the nib. It lands on the thin cylindrical shape, and I can feel myself preparing to orient my hand to that shape in a way that would allow me to hold the pen for writing.

But the reflection of the clip in the shiny metal surface of the cylinder *doesn't* occur to me, when I see the pen as a pen. To notice that reflection, I have to see the pen a little differently than I would by default. I have to rotate to a slightly different vantage point—to rotate my *mind* into a slightly different configuration, one that processes information a bit differently.

I don't have to primarily activate my "pen" concept just because I happen to be looking at a pen. I can choose to rotate my mind however I want, and *then* look at the thing in front of me.

If I rotate my mind toward “goose”, what first stands out to me is the hole in the front, which seems to break an otherwise aerodynamic nose. Maybe the air would get stuck in there, if this pen had wings and tried to fly.

If I rotate toward “aggression”, the first thing that stands out is the place where the clip is attached to the body of the pen, as I evaluate its thickness and wonder how much force it would take to snap the clip off and leave a sharp edge.

When I’m chewing on a problem and feeling a little stuck, one of the first things I do is ask myself, “If this were a boat, what sort of boat would it be?” There’s nothing special about boats for problem solving, but answering this question forces me to rotate my mind into a configuration that is probably quite different from whatever I was stuck in before. If this pen were a boat, it would be a sleek but sturdy racing boat with a silver sail and an athletic captain steering.

The more perceptually dexterous you are, the less constrained you are to see only what you saw in your very first glance. You are not trapped in your most familiar perspective.

Thoroughness is what results from the successful exercise of perceptual dexterity. It is observation that continues well beyond familiarity, traversing many vantage points to triangulate reality.

The thing that tenacity, openness, and thoroughness have in common is what I mean by “patience”. It’s the opposite of “rushing”, the opposite of “just wanting to be done”, or the opposite of “jumping to conclusions”. Patience is taking the time to discover the real shape of the world.

By “patient observation”, then, I mean observation that is tenacious, open, and thorough. Knowing the territory requires direct observation that *takes its time* to discover the shape of the world.

1. ^

It was technically an aileron roll.

Naturalism

According to me, this sequence has been pretty darn abstract.

That was kind of on purpose. It's the opposite of what I like to do, of what I think I'm good at. I much prefer to engage with an actual specific *thing*, and to share the details of my experience as I go. This big picture stuff is really not my jam.

But I've been trying to paint a really big picture anyway, to describe an entire perspective on investigation, and rationality, and maybe life. I hope it's been much easier to read than it was for me to write. And I hope that if, at some future point, I dive into the little details of particular exercises and techniques, you'll be able to contextualize them as more than just trinkets, or rituals that are tedious to little purpose.

But I'm so tired of it. I'm exhausted by all this abstraction. I want to touch the ground. I want to show you what it actually looks like to live a life full of patient and direct observation.

I can tell you that there's a magnifying glass in my pocket, which I use regularly. I can tell you that I turned the soles of my bare feet toward the sky last week, so that I could feel the snow falling on them. I can tell you that when I put "it seems to me" at the front of so many of my sentences, it's not false humility, or insecurity, or a verbal tic. (It's a deliberate reflection on the distance between what exists in reality, and the constellations I've sketched on my map.)

I can tell you dozens of facts like these, about my experience of myself and of the world. Hundreds. But none of those means much. Not on its own.

The problem is, this whole thing is founded on patience, which is difficult to demonstrate in an essay. It's hard to show you all at once the myriad ways a thousand tiny moments add up to one big thing that matters.

Still, they do add up to something.

What they add up to is that I am a naturalist. I was raised to be a naturalist, and it worked. I was raised to be someone who *yearns* to know the territory through patient and direct observation. My childhood memories are full of mushroom hunting, finding newts under logs, following game trails, reading the geological histories in the rock layers whenever we traveled, and sketching the paths of Jupiter's moons with a red flashlight beside my telescope.



My upbringing emphasized that the world is an infinity of wonders; unfathomably many in a single handful of dirt. It taught me that knowledge is power. It taught me that although school and books and the edifice of scientific inquiry can help you orient and make sense of your observations, there is exactly *one* key in the whole universe that can unlock the power of knowledge—and that key is your eagerness to go out into the world, day after day, and look with your own eyes at what is in front of you.

There isn't space in a concluding essay to properly describe the habits comprising this way of life, or their result. But if I've communicated even half of what I hoped to in this sequence, you may now be in a good position to find out for yourself.

Think of some problem you have, something you want to get a better handle on or otherwise figure out. Maybe it's something to do with your career path, a place where you're stuck in your research, or the way you spend time with your kids. Anything where you're yearning for deeper, more masterful knowledge than you have right now.

(There can be a lot of inertia in the flow from paragraph to paragraph. Here is a place to pause. Even if you're not up for a thought experiment right now, I request that you count to twelve before reading on, just in case something comes to you by accident as soon as I've stopped shouting words into your head.)

Now imagine that there's no internet, and not a single expert available to advise you. Your only books are the ones you write. Your only resources are your body, your mind, and the world itself.

If I wanted to know morel mushrooms, I would look for them beneath an old hardwood tree in a Midwestern forest in spring. I'd go there right about the time the mayapples are in bloom. I

would look at the ground, in damp places where the autumn leaves have partially decomposed. That is the natural habitat of morels.

What is the natural habitat of the thing that interests you? Where could you go to observe it directly? How could you invite it to impinge on your experience? And what, if anything, is in the way of you being *open* to it when it does?

If you're not sure of its natural habitat, then what's your best guess, and how could you tell when you're getting warmer? What might tip you off that some tendril of the thing's reality has just brushed your mind? How might you recognize if *now* is the time to pay attention, and to make a new guess about where to look next?

And what could you do to observe it over time, to see beyond your very first impression? What little habits might you adopt, like an athlete who always takes the stairs, to ensure that you make frequent contact with this patch of territory in daily life? How might you record your observations, and notice patterns that aren't apparent in any single moment?

If you wanted to increase your contact with the world, what is the very first thing you would change?

Knowing the territory takes patient and direct observation.

This is what I mean by "naturalism".