Poolside with David Hockney, Richard Feynman, a pair of Twins and some Bugs

So I woke up this morning and over there to the side of my bedroom was the poster with that David Hockney painting I've always loved though perhaps, it occurred to me, never *really* looked at before—you know how it can get to be with the things one surrounds oneself with everyday As you can see, it's one of his pool paintings, which as a group played all sorts of changes on themes of surface and transparency and presence and awareness and memory (the wet paint on canvas,

drying, summoning forth what it is to like to call back up the fading memory of what it was like to soak in the water that balmy distant afternoon, one's shoulders spread against the poolside rim, gazing out, observing the dance of light on the surface of the water, and through that surface to the depths beneath, the way that gaze too mirrors what happens as we focus on the slathered pigments on the canvas surface and through them, past them, to the imputed image beyond: the pool the patio, the sandals, the steps, the towel, the palms—all of them, all of it, just so many pigments in play and yet so much more).

It occurred to me how I also loved this particular image because of its presence on that poster—from one of my favorite museums in the world, Louisiana: the way one bores through the poster to the painting and onward into the scene and then beneath the shallow waves (the play of all those surfaces), and then the second set of double disjunctions provoked by that headline "Louisiana," which initially (mis)places the image to New Orleans, say, whereas the headline refers rather to that other Louisiana, the one in Denmark (which those incongruous Danish words beneath the main headline confirm), whereas the image itself is so obviously of a pool in my own homestate of California, my own heart's true home. Talk about memory. Except that now that I got out of bed to look at the caption, it turned out that it was instead, according to the rest of its "Pool and Steps" title in "Le Nid du Duc," which would be (what? where? Google please!) the name of the late film director Tony Richardson's old estate in the hills above St Tropez, France.

And those aren't the only of the painting's supple confusions. Because where are we exactly? As I say, at first we seem to be floating up to our chests in the water with our arms spread along the far poolside rim behind us (lolling, we can almost feel the cool of the water, the blithe of the air), but then again, maybe not: the vantage seems a tiny bit high for that. Those sandals in the distance are presumably ours, as is the towel on the first ramp level. The steps rise and bend and rise further to an upper terrace, maybe that's where everyone else is. We would appear at any rate to be by ourselves, except again there too, maybe not, if those two palm trees are standing in for anything. Though, come to think of it, *what is the deal with those palm trees?* Or rather with the space beyond them. Is that sky or is that wall?

Deliciously hard to tell, except of course that in fact it is neither. It is paint on canvas. Or rather ink on poster.

Perhaps the reason the poster caught my attention this morning is that I've recently been thinking about Richard Feynman, the incomparable Cal Tech physicist, and his own meditations, specifically on what it is like to look out at the world from the side of a pool. Back in 1983, the BBC broadcast a series of shorts entitled "Fun to Imagine," based on conversations their producer Christopher Sykes held with the good professor, really not much more than him seated on a comfy couch and explaining stuff. In this instance (Episode 8 in the series, all of them available on YouTube), Feynman was actually trying to explain how light itself works, and beyond that the sheer marvel of any sort of vision.

And he launched out with a nice California analogy of his own. "I'm sitting next to a swimmingpool and somebody dives in," he says,

> and before that, lots of other people have dived into the pool, so there's a very great choppiness of all these waves all over the water. And that gets me to wondering whether some sort of insect or something with sufficient cleverness sitting in a corner of the pool and just being disturbed by the waves, by the nature of the irregularities and bumping of the waves, could figure out who jumped in where and when and what's happening all over the pool.

Because that's what we're doing, Feynman goes on to insist, when we're looking at something:

> The light that comes at us is waves, just like in the swimming pool, except in three dimensions instead of in the two dimensions of the pool surface. They're going in all directions. And we have an eighth of an inch black hole into which these things go, which is particularly sensitive to the parts of the waves that are coming in from a particular direction. The eye's not particularly sensitive when the waves are coming in at the wrong angle, which we say is from the corner of our eye. If we want to get more information from the corner of our eye, we swivel this ball about so that the hole moves from place to place.

It's quite astonishing, he goes on to note, how easily we figure everything out.

> Granted, the waves in the water are a little bit more complicated. It would have been harder for the bug than for us. But it's the same idea: to figure out what the thing is that we're looking at, at a distance. And it's kind of incredible, because when I'm looking at you, someone standing to my left could see somebody who's standing at my right. That is, the light could be

> going right across this way—the waves are going every which way—right left up down perpendicular and so forth—it's just a complete network. Now it's easy to think of them as arrows passing each other, but that's not the way it is, because all it is *actually* is this entire field that's vibrating—it's called the electric field but we don't have to bother with what it is— it's just like the water height, going up and down—so there's some quantity shaking about in a combination of motions that's unbelievably elaborate and complicated and yet whose net result is to produce an influence which makes me see you, at the same time completely undisturbed by the other influences that are allowing this other guy over to my left to see the one to my right.

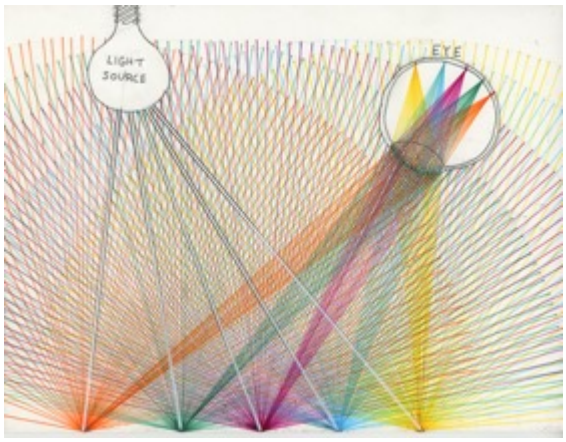
And he goes on like that, evoking "this tremendous mess of waves all over in space: all the light bouncing around the room and going from one thing to the other." And it's even more complicated than that, because on top of the light waves there are longer (heat) waves and shorter (radio) waves, and they are all there, and from this virtually infinite criss-crossing welter the eye is still somehow able to draw out only those waves that specifically allow us to see the world before us. Those particular sandals over there. And those two damn palms.

Of course, as Feynman concedes, at some level we all of us knew all of this all along. But, as he concludes, "you've got to stop and think about it to really get the pleasure about the complexity—the *inconceivable* nature of nature."

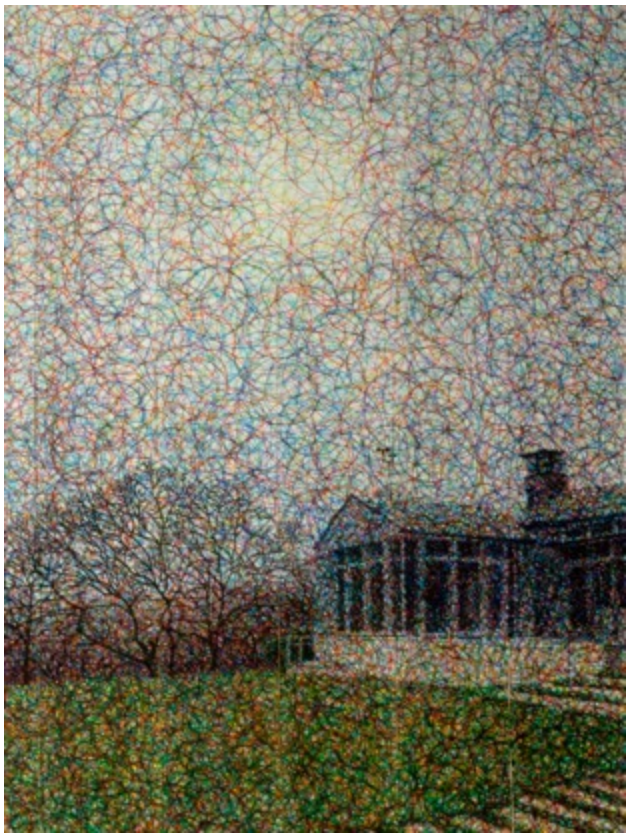
Now, I'd first heard that explanation of Feyman's around the time it was originally broadcast—it's pretty easy to see why it stayed with me—but, as I say, I recently had specific occasion to summon it back to mind when I was curating a show at the National Museum of Mathematics in New York City given over to a consideration of the art and ideas of a remarkable pair of young identical twin artists, Ryan and Trevor Oakes. Because completely independently, without ever having heard Feynman, they'd come up with a remarkably similar conception of what they themselves were up to.

One of the main things that makes the Twins singularly interesting is the way

the two of them have been locked in intense conversation about what it is like to see with two eyes pretty much since their earliest toddlerhood. They have become convinced that a sequence, as it were, of compounding spheres characterizes the travel of light from its source to the eye at every point of its journey. Thus light leaves the sun (or any other light source) in a spheroid explosion of virtually an infinite number of individual light rays, each one of which upon hitting any surface ricochets out in another hemisphere of expanding light rays, the rays all bounding through and past each other in a tremendous criss-crossing mess, until the human eye ingathers one ray each from all of those ricocheting explosions in its own



(inverse) spheroid capture. The Twins's name for this phenomenon is "light foam," and in their most recent work, they have been trying to evoke the wildly various "light foam" suffusing the atmosphere in the world before them by coiling threaded lines of overlapping colors into an ever denser mesh, often capturing the full spectrum of the world's colors by simply mixing ink from four or five such colored pens. See, for example, this detail from their vantage of the backyard of a patron's Martha's Vineyard home:



The result has reminded some people of Seurat's experiments with pointillism, to which the Twins have responded, "Yes, except that Seurat painted that way at a time when people imagined atoms to be stacks of irreducibly tiny little marblelike pellets, whereas we are working at a time when such atoms are instead understood to consist in even more tiny subatomic nuclei surrounded by gaping voids of empty space, with light only showing us the electrons swirling at incredible speeds far on the outskirts of those otherwise mostly hollow atoms."

So, anyway—and now, finally, we're getting to the reason I was wanting to tell you this whole story—this morning, after gazing upon the Hockney image at some length and tying it back to my recent considerations of Feynman and his poolside spider and the Twins and their light foam mesh, I slap on my robe and go out to retrieve the morning's *New York Times*, bringing it back to the breakfast nook,

where I start leafing through its pages, presently coming upon the following item in the Observatory sidebar of that morning's Science Times section, under the headline "Spiders' Webs Hum with Information":

> Like strings on a guitar, spider silks can vibrate along a wide range of frequencies, transmitting information about prey, other spiders and even the condition of the web itself, researchers say.
>
> Spiders have bad eyesight and are known to rely on the vibrations of their webs to alert them to the presence of captives. To discover more about the vibrations, British scientists fired lasers and bullets at individual spider strings and used ultra-high-speed cameras to record the results. They found that the strings vibrated across a wider range of harmonics compared with other materials, and that the type of vibration varied with the type of impact and the quality of the individual silk.

> The vibrations help a spider determine what sort of prey has landed in its web, the researchers concluded. Spiders can also produce different kinds of silk depending on their needs, essentially "tuning" their webs to the environment and hunting conditions. Their study was published in the

journal *Advanced Materials*.

Aye, I found myself thrumming, reading the news bulletin, if only Feynman had lived to hear it! On the other hand, gorgeous web mind that he obviously always possessed, he probably already knew it all implicitly.