

## Really Looking at Vision, Sight, and Seeing

Written by Alex Baer

Saturday, 01 December 2012 20:00 - Last Updated Saturday, 01 December 2012 21:36

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For such a visual world, we humans sure have problems distinguishing between and among vision, sight, and seeing.

Chip in some added challenges from interpretation, translation, or point of view, and coming to grips with the world around us becomes quite a balancing act. There's more to understanding what's going on than just taking a snapshot of the view.

Unlike cameras, humans try to make sense of what it all means, from the infamous Big Picture down to the smallest detail. When the light hits the medium in a camera, the camera's work is done. But, when light enters the human eye, the work has only just begun.

Some of our challenges in perception are primal and basic, and traceable down to our human hardware and wiring.

For example, we humans are scanners -- always rapidly gazing around us, looking for threats and rewards. We can't help it, we do it automatically -- it's built into us at a deep level. Then, there's the mechanism of selective perception, a referee and gatekeeper helping decide which scanned images need to get through to our higher minds for a more intensive look-see.

Without the gatekeeper, we drown in sensory information and all our scans, trying to follow up with everything, all at once -- and we have nowhere near the mind or memory capacity to keep up with such constant floods.

So, that traffic cop of selective perception helps us sift and sort scans that need to get through to the higher mind for analysis, performing for us a first-level sort.

Then, stimuli, especially visual information, take two varying paths in our minds. One route is shorter -- the one to an older portion of the mind that is a first-alert center for signs of danger. The other route is longer. It goes to our rational minds, bringing stimuli into sharper view, with added relevance and understanding.

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If you've ever jumped back from a garden hose in a dark shed, the example goes, the older part of your brain was just trying to keep you out of harm's way. In a bit, your rational mind will catch up, see what's happened, and likely make you feel a little silly for having jumped.

There's also the hardware of the eye -- rods and cones -- too, and the different jobs they do, from helping us see motion better in the dark, to providing greater detail in more light.

Meanwhile, persistence of vision helps us interpret and "see" motion. And so on.

There's a lot to it, the process of stimuli moving from constant, unconscious scanning to conscious, specific considerations -- memory is brought in to aid analysis and understanding, too, as we ransack our mental filing cabinets comparing *this* with *that*.

Like most technology, it's always seemed fairly amazing to me that any of this works at all, let alone that it works fairly well. As Arthur C. Clarke wrote, *Any sufficiently advanced technology is indistinguishable from magic*.

If we rest at this wide spot in the road, we'll soon need to thank evolution or heaven, depending on which side of the Scopes Trial any of us may be on -- so, let's not rest exactly here, but push on a bit more.

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If you really want to broaden the view, and your insights, there's knowing that different species learn in different ways -- dogs, for example, learn word associations of items by size and texture, whereas humans tend to word-associate items by shape.

This may be why we say, "Fetch the ball," and are puzzled when our dog brings back an apple.

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*Hey, it was the same size -- what's the big deal?*

Dogs have an excuse, at least. Not humans, though, who look without seeing, and who routinely misunderstand what is of any value and worth bringing back.

Whatever the reasons, we humans are quite expert at higher-level contradictions. As a handy example, consider this puzzler:

How do you explain a man or woman who goes to college, becoming exposed to knowledge and discoveries of all kinds -- including many notable achievements in science -- and who, after internalizing all this information, performing the required coursework, and is successfully graduated, will take his or her diploma, and look you right straight in the eye, calmly telling you evolution is a fantasy plot straight from hell?

- That science is bunk?
- That climate change is hokum?

This appears to be a growing norm in Congress. These are supposedly well-educated men and women, seated on science committees, giving advice and opinion, arguing and debating, creating our laws based on knowledge and values from our culture -- and who are all thoroughly mad, chasing bats round and round their belfries, when it comes to science.

It may be we get the government we deserve. That's certainly true if we agree we get the Representative and Senators we, The People, deserve, by voting in such nitwits to start.

If we are ignorant enough to put such people in positions of power and public office, then we certainly *do* get all the rabid, fuming, toxic, narcissistic, greedy, and noxious boneheads we deserve. You may have also noticed this is a clear majority of them, so far.

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Funny-peculiar thing? Some studies show that the greater the intelligence and education, the more biased some people are likely to be. They're also more likely to be less persuadable and less flexible -- and more certain they are right, despite being dead wrong.

Science is always being asked to bail us out of our human problems and dire straits. This trend exploded in the Industrial Revolution and has only skyrocketed ever since.

You may want to wonder, along with me, why it is we keep turning to science deniers to guide us, to lead us, and to make our laws -- and in an era where the answers science provides may be the only human hope left, like it or not.

\* \* \* \* \*

*Vision* is a whole category of difference from looking or seeing, as far apart as apples and accordions. *Vision* contains hopes, dreams, possibilities, curiosity, and even goals. *Vision* is what made our country initially great. But, *Vision* seems much more confined and homebound these days, stalled and stuck in rickety realms where inventing the latest paper lariats, monetized lassos, and financial bear-traps to snooker suckers is of sole and prime importance.

We would do well to shake off such shabby targets of our attention and focus our energies into more productive corridors and channels. The future, after all, is where we all plan on spending a lot of our time. Paper money will do us no good when we have all run out of time.

We should be crash-diving into science, coast to coast, dumping and tossing out so-called leaders who prefer to look and not see -- those who would rather hitch their wagons to ancient superstitions than to the stars.

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We should be clogged with college-bound men and women, funded by government and industry, students craving more science, fascinated by the vision of a better future -- that place where we will, all of us, spend the rest of our lives.

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*Shift gears.* Imagine -- there's a U.S. spaceplane that combines elements of the shuttle: it has a cargo bay, looks like a sort-of plane, and is launched on a rocket. Other than that, no one seems to know what it's for or about. Another case of brain drain into more war toys, or something much more sublime? (No idea. Maybe they'll tell us later. *Sure.*)

*Shift again:* Now, imagine an industry where efficiency gains of one percent or so are really, *really* BIG deals. Now, go ahead and imagine being in a company that brings a five or ten percent efficiency gain to the table, all of a sudden, and blowing away all competition (and more than a few minds, most like).

Yes, the Catbird Seat: Currently occupied by Reaction Engines, Ltd., a small British company that has used science to solve seemingly insoluble problems of cooling compressed air fast enough that that incoming air won't *melt* the jet engines used on aircraft.

They used science -- *and vision* -- to solve the puzzle, taking air from 1,000 degrees Celsius to *minus* 150 degrees, and doing so in only *a hundredth of a second*

The future does not belong to science deniers -- it belongs to scientists, and to all people of vision.

We're not the only ones on the block -- and surely not the only *exceptional* ones -- no matter how much we want that to be true. In this increasingly competitive and shrinking world, we'd

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better start taking the time to look, and, better yet, taking the time to  
*see*

We'd better start honoring vision again.

We have nowhere else to look except ourselves.

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Are you looking AND seeing? This one comes with a video quiz:

<http://searchengineland.com/human-hardware-you're-looking-but-are-you-seeing-13909>

Persistent vision: [http://en.wikipedia.org/wiki/Persistence\\_of\\_vision](http://en.wikipedia.org/wiki/Persistence_of_vision)

Learning differently: <http://www.sciencedaily.com/releases/2012/11/121121210253.htm>

Heading up what you hate and don't believe in: <http://www.motherjones.com/blue-marble/2012/11/which-anti-science-rep-will-chair-science-committee>

A dozen scary *greatest hits* of science stupidity from supposedly well-educated people -- our lawmakers and leaders:

<http://io9.com/5954568/12-facepalm-moments-when-us-politicians-talked-about-science-and-technology>

Why do bright people believe such idiotic things? [http://www.alternet.org/story/154252/the\\_publican\\_brain%3A\\_why\\_even\\_educated\\_conservatives\\_deny\\_science\\_and\\_reality](http://www.alternet.org/story/154252/the_publican_brain%3A_why_even_educated_conservatives_deny_science_and_reality)

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There's a U.S. spaceplane -- but what is it for? <http://www.bbc.com/future/story/20121123-secrets-of-us-military-spaceplane>

Breakthrough vision, and engine:

<http://uk.reuters.com/article/2012/11/28/uk-science-spaceplane-idUKBRE8AR0R520121128>

### Today's mega-bonuses:

What does a stimulus avalanche or sensory overload feel like? A short, animated journey: <http://www.npr.org/blogs/krulwich/2012/11/15/165211290/mugged-by-sound-rescued-by-a-waitress>

When is seeing *not* looking? Some tricks of the eye and mind:

<http://www.npr.org/blogs/krulwich/2012/11/29/166150671/the-rubiks-cube-that-isnt>

And, still more mind-warping tricks: <http://www.youtube.com/watch?v=hAXm0dluyug>

And: <http://www.youtube.com/watch?v=vmkaVoLoFEU>

And: <http://www.youtube.com/watch?v=4q0zBWG-Sso>

And: <http://www.youtube.com/watch?v=zbislrtrfrgs>

And: <http://www.youtube.com/watch?v=U9PZizBDBZw>

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