

THE FOUR-BLADED CEILING FAN

Lessons in conspicuity from the living room couch

by John Schubert

I was recently slouching on my living room sofa staring at the ceiling when I was startled to see that the ceiling fan had shrunk from five blades to four. Except it hadn't. It still had five blades, and all five were within my field of view. But one of the blades was bathed in light from the fan's ceiling light. And the light made it disappear. That got me thinking: Wow! That should

be a lesson for bicyclists!

When, where, and how can you disappear from another road user's vision? I counted several ways. One is illustrated by the ceiling fan example (think: glare from headlights or the sun). Other ways you can disappear have nothing to do with glare but they're also important.

What can you do about it? Plenty. By being aware of these situations, you can render them harmless. By being aware of optical limitations and human perception, you can think in terms of what others see, why they might not see you, and what you can do to better protect yourself. Think of the following paragraphs not as fear-mongering, but rather as problem solving.

Most, but not all, of these situations involve a motorist not seeing a bicyclist. But bicyclists can fail to see each other. And bicyclists can fail to see pedestrians or road obstructions.

Let's start with the ceiling fan example. The bright light from the ceiling light eclipsed the fan blade, which is known as disability glare, and is brilliantly described this way by Wikipedia:



"Disability glare is often caused by the inter-reflection of light within the eyeball, reducing the contrast between task and glare source to the point where the task cannot be distinguished." To this I add: the inter-reflection can be augmented by inter-reflection in eyeglass lenses and dirty windshields. (The photographers among you are doubtless grumbling that "glare" is a vague word that should be replaced by the more precise "halation" in this context. Okay.)

Now put yourself in an automobile at night, driving down a two-lane road, straight at the headlights of an oncoming car. An unlit bicyclist, pedestrian,

or dead skunk may be ahead of you, presumably illuminated by your own headlights, but glare from the oncoming headlights renders it invisible.

I know of no research that has attempted to test this situation and measure what countermeasures would be effective, so I am left with educated speculation. Obviously, bright flashing taillights jump to the top of the list. How bright? I expect that an extreme glare situation would be covered by a light such as the Planet Bike Superflash with that awesome red strobe.

A glare situation like this is unlikely to be terribly dangerous for a bicycle with any decently working taillight. The glare source normally moves out of the way soon, and an overtaking motorist will perceive the working taillight in time. But a brighter light might get perceived 100 feet sooner.

Daytime glare is another problem. The classic example occurs in morning or evening, when the sun is low on the horizon and, inevitably, some streets point straight into the sun. The late, great cycling writer Fred DeLong (1915-1995) doggedly wrote about this three decades ago after a driver with the sun in her eyes failed to see him at an intersection and collided with him, which broke his hip. I once had a similar experience 200 yards from home, only this time I was the one driving the car. I spied the bicyclist in time to avoid turning across her path but not in time to avoid a well-deserved dirty look.

Because the sun's position changes daily, the low-sun phenomenon only occurs for a few minutes each day and only on a given street for a few days out of each year.

Here's a list of measures to take when the sun is low in the sky and shining into the eyes of motorists you may

encounter: 1) Position yourself outside of the glare area. This might mean avoiding a particular street or a particular intersection during the low-sun minutes — but, of course, that isn't always feasible. In my neighborhood, it could mean a detour of four or five miles and 500 or more feet of climbing. 2) Ride so that being seen doesn't matter. I almost didn't mention this possibility because it invites questionable compensatory behaviors, such as sidewalk riding or extreme gutter-bunny riding, both of which can invite other accident causes. For example, if you were to ride in the gutter or on the sidewalk for fear of overtaking traffic, you make yourself less conspicuous to traffic entering the roadway from an intersection ahead of you. 3) Test for the other person's reactions. Wave your arms or sound your bell and look for a response. Use hand gestures, but please, keep them polite!

The next non-seeing condition is one I frequently experience at night: not-terribly-conspicuous targets outside of my headlight beams, and outside of my foveal vision, sometimes don't get noticed until they're quite close. Typically, this

means pedestrians at the edge of the roadway. The few square millimeters of reflective trim on their running shoes do not reliably attract my attention.

The daytime version of this is familiar to anyone who's ever been overtaken by a motorist who immediately begins a right-hook turn: You are in plain view but you aren't really comprehended.

The reason why is simple enough. One can't pay attention to everything in one's visual field at once, and we all have to ignore irrelevant things to focus on the relevant ones. In the driving environment, both daytime and nighttime, we constantly reject and ignore visual input that we don't need to drive safely. (The messup in this logic occurs when an overtaking motorist puts bikes in the "stationary object" category before right-hooking you.) At night, the mental attention required to study the area illuminated by one's headlights is pretty much all-consuming, so an unlit pedestrian on the shoulder doesn't trigger the brain. (A passenger in the car is likely to notice the unlit peripheral-vision target before the driver does.)

So how does a bicyclist cope with

this? In most traffic situations, you want to get into the other road user's foveal vision and be conspicuous. The movement of pedaling increases your conspicuity. At night, lights and reflectors help (assuming the reflectors are in a position to work correctly — if you're not familiar with the times reflectors don't work, Google my name and click "I'm feeling lucky" to learn about that problem).

At night, it's easy to make the mistake of seeing headlights and assuming that they illuminate you. But they only illuminate a narrow slice of the road ahead, and glare may hinder even that. Headlights look like eyes, and we have a natural tendency to think they are all-seeing. But it's much better to think of them as very limited in what they show the driver.

Always think, "What is that other road user seeing? What might he not see?" Always think that way. It will help you be seen further in advance. And that's a prescription for safer, lower-stress cycling. **AC**

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