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By Virginia Postrel

March 18 (Bloomberg) -- An ad from 1957 shows a family playing dominoes in a bubble-top car as it cruises down an six-lane divided highway, its steering wheel pointedly unattended. "One day your car may speed along an electric super-highway, its speed and steering automatically controlled by electronic devices embedded in the road," reads the copy.

"Highways will be made safe -- by electricity! No traffic jams ... no collisions ... no driver fatigue."

Now it finally seems to be happening. Google Inc.'s self-driving cars have covered more than 300,000 miles, most recently wowing the Texas Transportation Forum with a demonstration on the streets of Austin. "The remarkable thing was that it was a little unremarkable," Coby Chase, director of the Texas Department of Transportation's government and public affairs division, told the Dallas Morning News after his ride.

Googlers aren't the only ones working on self-driving cars.

Brad Templeton, an Internet pioneer and robocar advocate, counts 27 commercial and university projects, not including unmanned military vehicles. (Templeton consults for Google but doesn't speak for the company.) The 2014 Mercedes-Benz S Class, for instance, will include an autopilot feature for stop-and-go traffic.

Truly Autonomous

With its aim of a fully autonomous car, however, Google's program is particularly audacious. And it illustrates how Silicon Valley, rather than traditional automotive centers, is increasingly shaping the future of cars. No wonder Road & Track magazine recently gave its entire 65-year archive not to some place in Michigan but to the two-year-old Revs Program at Stanford University, which sponsors interdisciplinary courses and research on the automobile "as a technological and aesthetic artifact and cultural symbol."

One reason for Silicon Valley's ascendancy is the extraordinary quality of today's cars. Pretty much everybody makes reliable cars that drive well. So the main competitive differences don't come from mechanical engineering but from software.

"How the interior feels, how your iPhone integrates, etc...these all matter more than whether your car has 6 or 8 gears in the transmission," writes Diego Rodriguez, a partner at the design consulting firm IDEO and a founding professor at Stanford's Hasso Plattner Institute of Design (better known as the d.school), in an e-mail. Even in a hard-core driver's car like the new Porsche 911 GT3, he notes, "the entire experience is mediated by computers."

A car enthusiast with a blog called Unabashed Gearhead Gnarlyness, Rodriguez argues that Silicon Valley's designers and engineers "know how to knit together everything from new battery technologies to network protocols to very nuanced elements of onscreen aesthetics. Getting the cockpit of the car to produce a wonderful experience is a similar challenge to making an operating system for a computer really sing."

But Silicon Valley has more going for it than simple technological know-how. If in 10 or 15 years you have an invisible robot chauffeur whisking you to your destination, it will be because the area's distinctive culture made the idea work.

That culture includes, first and most obviously, the ambitious optimism that encourages experiments like Google's.

Reilly P. Brennan, the executive director of the Revs program, observes that "there's an almost complete lack of skepticism in the Bay Area, which is very refreshing." In his native Detroit, he says, there was always "a feeling that somebody around the corner was going to take something you had." Disruptive change was threatening. In Silicon Valley, it's glamorous.

Saving Lives

"Everyone here gave up a life somewhere else, and moved here to do something big," says Templeton, a native of Ontario.

"There's a hunger for that." He promotes robocars, he says, because "it's hard to name things where the numbers and the consequences are bigger." By avoiding accidents and all the costs they entail, he argues, self-driving cars could save "millions of lives and trillions of dollars."

Addressing business people attending a recent weeklong program at Singularity University, a think tank devoted to "accelerating change," Templeton imagines a future of on-demand robotaxis replacing personal automobiles. Today's parking lots, he suggests, could become tomorrow's parkland. Fuel consumption would plummet, as people used tiny, single-person vehicles for most trips and electric cars for short hops, saving the gas-guzzlers for special occasions. Robocars, he declares, represent "a way that programmers can save the world."

It's classic Silicon Valley big-think speculation, with a flattering dose of technological boosterism. But along with the vivid scenarios that capture technologists' imaginations comes the understanding that it's all just guesses -- and that future progress will grow from learning how such visions go wrong.

"Even if you fail at your ambitious thing, it's very hard to fail completely," Google Chief Executive Officer Larry Page says in Steven Levy's excellent book on the company, "In the Plex."

"That's the thing that people don't get."

Templeton doesn't have to be right about the endpoint, in other words, and neither do the innovators working on self-driving cars. Maybe instead of small utilitarian vehicles, successful robocars will be super-luxurious on-demand limos.

Maybe the earliest market will be rental cars for travelers.

Maybe people will want to give up driving but not car ownership.

The only way to find out is to try and see what works.

Trial-and-error experimentation is more likely if you don't have to overhaul the entire transportation system every time you need to make a tweak. Self-driving cars running on existing roads without central control represent a dramatic change from 20th-century visions.

Dumb Streets

"When a hundred thousand automobiles speed along the elevated highways of the City of the Future," declared a 1930 ad, "engineers predict that the whole traffic system will operate as a single unit -- under the control of one man's hand.

The future of mechanism, they say, lies inevitably along the path of simplified and centralized control." The illustration showed a stylized male figure looking over a vast network of crowded highways, his hand perched on a dial. The family-friendly 1957 ad similarly assumed that the guiding intelligence would be embedded in the road.

Today's experiments, by contrast, put the smarts in the car itself. "The first rule of robocars is you do not change the infrastructure," Templeton reminds a Singularity audience member who inquires about smart highways. Just as the Internet restricts intelligence to the computers on either end of a transmission and doesn't care about the specific content of what it carries, paved streets constitute a "dumb network." They can carry anything, from Roman soldiers to California skateboarders, from a

Model T to a robocar. Whether the traffic that a network carries is digital or motorized, revisions and improvements become much simpler when they don't require new infrastructure. Dumb streets and smart cars make for a more flexible, resilient system.

The world of software -- Google's world -- also produces a different mindset from the world of traditional car manufacturing. "Software companies have an amazing ability to release something un-perfect and slowly work their way up," says Brennan, the executive director at Revs. Consumers anticipate progress, making early adopters more tolerant of flaws and shortcomings.

Of course, early automobile adopters were also tolerant. Silicon Valley is where Detroit was in the 1920s or '30s, when cars were the newly indispensable technology. Its critics are culturally marginal, while its products remain touchstones of prosperity and progress. It's only lightly regulated. Silicon Valley's ever-optimistic innovators assume that if they're doing something cool and important, nobody will seriously try to stop them. That cultural confidence -- or outright cockiness -- is as crucial as any particular technology to delivering on the decades-old promise of self-driving cars.

(Virginia Postrel is a Bloomberg View columnist. She is the author of "The Future and Its Enemies," "The Substance of Style" and the forthcoming "The Power of Glamour." Follow her on Twitter @vpostrel. The opinions expressed are her own.)

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