



NEW TECHNOLOGY The rearview mirror in a Cadillac CT6 shows images from a camera mounted atop the car. The virtual cockpit in an Audi Q7 sport utility vehicle displays multiple functions on an LCD screen.



LEFT, GENERAL MOTORS; ABOVE, AUDI

Audi Loads Dashboard With Choices

TECHNOLOGY
STEPHEN WILLIAMS

An animated instrument screen raises questions about driver distraction.

The video game experience has arrived in the automobile. It's called the virtual cockpit and, starting with Audi, it will become a more common feature in cars in the future. Gone are the speedometer, tachometer and various gauges — and in their place is a 12.3-inch LCD screen that houses an animated instrument cluster. The high-reso-

lution screen can be programmed to show several functions — for navigation, a cellphone, radio and media, Google Earth 3-D graphics, and traffic data. That is in addition to the usual functions of showing speed, engine revolutions, outside temperature and the gas level. By any standard, it's an abundance of information, all on one screen. But it also has some drivers and experts asking: How much is too much? Paul A. Green, a research professor at the University of Michigan's Transportation Research Institute, expressed concern. "It becomes like a movie that you're watching, and anything that adds even a half a second or so is problematic," Mr. Green said.

Audi said a central objective in designing the virtual cockpit was simplicity. The on-screen menus are designed to allow access to items with a single click of the steering wheel buttons. "If you look at the virtual cockpit and notice something different, we've failed," said Justin Goduto, a spokesman for Audi. The heart of the virtual cockpit is a powerful computer processor made by Nvidia, which said precision and safety were two important goals. "If you have graphics that don't look good, poor-quality maps that lag, that are hard to read, it becomes a distraction," said Danny Shapiro of Nvidia. The virtual cockpit does have its

fans. Michael Wong test-drove an Audi Q7 with and without the system and wound up ordering the vehicle with the virtual cockpit. "I'd rather have the luxury of having those functions than not," said Mr. Wong. Because the Audi technology is so new and integrated into only a few of the brand's vehicles — the 2016 TT and the 2017 A4 sedan, Q7 sport utility vehicle and R8 sports car — mass-market reaction has been limited. But a study about to be made public raises concerns about how challenging it is to use Audi's Virtual Cockpit 1.0, said Kristin Kolodge of J. D. Power, the research firm. Not all automakers, including General Motors, agree with the ap-

proach, however. "We recognize the need to push the tech, but we have different philosophies in how we present the information to the driver," said Nick Richards, a spokesman for General Motors. Cadillac's CT6 sedan offers a feature called the full display mirror, which transforms the inside rearview mirror into a high-resolution digital display that is fed images from a backward-facing camera atop the car. The device, developed by the Gentex Corporation, is a hybrid, with a toggle to revert to a conventional mirror if the electronic display fails. Gentex said its mirror would be offered in the coming Chevrolet Bolt and by others in coming months.

Reflections of Life On the Arroyo

EDUCATION
SARAH BENSON

Of the more than 200 college application essays that students sent The Times this year, this is one we liked best. The essays reveal that children are watching and listening when parents talk and learning important lessons.

My father takes me down to the arroyo when I am so small that I do not yet reach his waist. My feet fumble across flaking desert skin, and he pulls me along gently by my hand and tells me to be careful of small cacti and the bones of dead jack rabbits. He does not let me

Finding treasures in a dry riverbed, and then leaving it all behind.

straddle the rift where the earth divides into repelling mounds of sand. Instead, he slips his hands beneath my arms and swings me around in a half circle, his red face wrinkling into a smile. That morning, my father had crept into my room with the sun and shaken me into consciousness. "Get your sneakers," he had whispered. "We're going on a treasure hunt." Minutes later we are trudging down an overgrown trail, descending the deep slopes of New Mexican land. Everything smells mud and salt and soaked manure from the horse barn down the road.

The arroyo is scattered with long, silver puddles. In the pink glow of the rising sun, the sand looks shiny and slippery. Around us, green tufts of vegetation burst from the earth and yellow wildflowers knock softly against each other in the wind. My father tells me to wait, and he steps down into the wet sand. He digs into the earth with a discarded stick. Then he stands, approaches me, and places in my hand something smooth. "A pottery shard," he says. "From the Native Americans, who lived right here a thousand years ago. The rain washes them up. If we're lucky, we'll find all the pieces of an entire pot." I look down at the strange triangular stone and wipe the sand from its surface. He lifts me up in his arms, carries me back toward the house. My father gives me a book about Georgia O'Keeffe for my fifth birthday. We read it together, as he bounces me on his knee. He points at a landscape that looks like a rumpled tablecloth and tells me, "This is why we're here." I steal a flashlight and flip through the book under my covers at night. I touch the same glossy picture and whisper, "This is why we're here." When I am 6 years old, the Sunday school teacher asks me what my father does for a living. I tell her he is an artist like Georgia O'Keeffe. I do not know that I am lying. I do not know that he hasn't sold a piece in months. I do not know that my mother sits at the kitchen table after I go to sleep and cries because the mortgage is past due and she can't figure



T.J. KIRKPATRICK FOR THE NEW YORK TIMES

FAMILY CONNECTIONS Sarah Benson with her father, Jonathan Benson, in his shop at their home in Lorton, Va. She plans to attend Virginia Tech in the fall.

out a way to tell me that this year, Santa Claus just might not make it. For Christmas, my father gives me a sparkling blue stone he found in the arroyo. I say thank you and pretend I mean it. Later, I stand on the edge of our brick patio and throw the rock as far as it will go. It disappears inside the bristles of a pine tree. I do not say goodbye to the arroyo before shutting the car door and stretching the seatbelt across my chest. I do not say goodbye because I think that I won't miss it. We are leaving New Mexico. We are going to New York where my father will get a real job and we will become a real family. We drive alongside a cliff, the rock rough and jagged and sprinkled with a thousand tiny diamonds. I press my finger against the glass. This is why we're here. When I am 16 years old, my father takes me back to New Mexico, and we go once more to the arroyo. The neglected trail is long gone now, and we stumble over dried up cacti and

colorless desert flowers. I am too old now to hold my father's hand. He walks a few steps ahead of me, and I do not see his face. The arroyo is bone-dry, littered with dented soda cans, beaten strips of tire and mud-stained garbage bags. Many monsoon seasons have left the sides of the arroyo tall and smooth, except for the dried roots of long-dead plants, still lodged in the dirt, which reach out toward us like skeleton hands. My father crouches over. He delicately parts the earth with his fingers and searches for something he will never find again. "No more pottery," he says. He looks at me and squints his eyes against the sun. "It must have washed far away by now." Suddenly comes to me the vague image of my father in ripped jeans, pressing a pottery shard into my palm. I wonder if he, too, has washed far away.

Reining In Robocalls

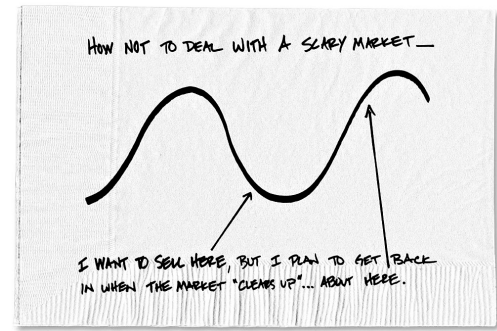
YOUR MONEY
ANN CARRNS

A new law has opened the door for loan servicers and debt collectors to increase automated calls and texts to cellphones, including those of the millions of student loan borrowers. At the same time, however, the Federal Communications Commission is proposing rules to limit such robocalls to three a month and only to borrowers whose federal loans are delinquent. It would also require that debt collectors inform borrowers of their right to request that the calls stop. "The F.C.C. recognizes that allowing calls to be made without consent is a huge danger," said Margot Saunders, a lawyer with the National Consumer Law Center. She said advocates were pleased that the agency would count each call initiated — even if it isn't answered — as one call. Automated calls or texts to a cellphone generally require the consumer's consent, Ms. Saunders said. But last fall, as part of the federal spending bill, Congress exempted collectors of federal debt, including student loans. The exemption, however, is subject to rules to be set by the F.C.C. New technology makes it easier to initiate automated calls and harder for the authorities to track them. Unwanted calls are the subject of more than 1.7 million complaints a year to the Federal Trade Commission. Consumers can register phones on a federal "Do Not Call" list, but many robocalls are initiated overseas by companies that are difficult to trace, said Maureen Mahoney, a policy analyst at Consumers Union.

Basic Training for Investors: How to Think Tough

SKETCH GUY
CARL RICHARDS

I want to talk to you about scary markets. For the sake of this particular subject, I want to be blunt. So for the next few minutes, please, just think of me as your Scary Markets Drill Sergeant. Now, you may be asking, "Why is he talking about this now? The markets aren't even that scary." That's true. But I can predict that another bad market will come again. And when it does, you'll want to have a plan. Let me set the stage for you. The market just got really scary. You and I are discussing what you should do. We're going to start with a couple of assumptions. First, you have a portfolio that was built to give you the



CARL RICHARDS

greatest likelihood of reaching your goals. Second, your portfolio is down 20 percent or more, and you want to sell all of your investments and go to cash because that feels safest. Me: "Why are you invested the way you are?"

You: "Because this portfolio gives me the greatest chance of meeting my goals." Me: "Are your goals still the same?" You: "Yes. But I just can't take it anymore!" Me: "Are you getting out of the stock market forever?" You: "Well, no." Me: "So when do you think you are likely to get back in?" You: "When things settle down!" I want you to imagine what it will be like when things clear up. So why don't you go ahead and answer just a few more questions: When the market clears up, will it be less scary? Will the economy be

better? Will that guy on the financial network be telling everyone to buy more stocks? We all know the answers to those questions: yes, yes and yes. But one last question. How do you think the market then will compare to the market now? It'll be much higher, of course! So, your plan is to sell your portfolio while your investments are down. Then, when the market improves you're going to buy it back at a much higher price. To which I say: Seriously? It makes more sense to keep your portfolio through the scary times and tough it out. Right, soldier? If you sell that portfolio now and buy it back later when the markets are better, all you will do is lose money. It's that simple.

Q & A

- ¶ How can I comment on the F.C.C.'s proposed robocalling rules? You can submit comments online for the proposal, Proceeding No. 02-278, until June 6.
- ¶ Where can I complain about unwanted robocalls? You can file a complaint online with the F.C.C. The agency also offers consumer tips on its website.
- ¶ Can I block automated calls to my cellphone? Some smartphones offer the ability to block certain calls, either through embedded options or via specialized apps. Consumers Union cites several apps in a report on the problem of robocalling, but has not formally tested their effectiveness.