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# Ideas

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CRIME IN AMERICA KEEPS GOING DOWN. WHY DOES THE PUBLIC REFUSE TO BELIEVE IT?

# IMAGINARY FIENDS

By JOE KEOHANE

THE YEAR 2009 was a grim one for many Americans, but there was one pleasant surprise amid all the drear: Citizens, though ground down and nerve-racked by the recession, still somehow resisted the urge to rob and kill one another, and they resisted in impressive numbers. Across the country, FBI data show that crime last year fell to lows unseen since the 1960s—part of a long trend that has seen crime fall steeply in the

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United States since the mid-1990s.

At the same time, however, another change has taken place: a steady rise in the percentage of Americans who believe crime is getting *worse*. The vast majority of Americans—nearly three-quarters of the population—thought crime got worse in the United States in 2009, according to Gallup's annual crime attitudes poll. That, too, is part of a running trend. As crime rates have dropped for the past decade, the public belief in worsen-

ing crime has steadily grown. The more lawful the country gets, the more lawless we imagine it to be.

The implications for the country at large are stark. Democracy is based on an informed public calling upon its representatives to address problems facing their society. If we believe crime is on the march in the streets all over the country, it influences our beliefs on critical issues from gun control to sentencing laws, from how we run our prisons to how much money

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## The sweet smell of morality

How scent can shape our thinking

BY COURTNEY HUMPHRIES

CAN A CLEAN smell make you a better person?

That's the provocative suggestion of a recent study in the journal *Psychological Science*. A team of researchers found that when people were in a room recently spritzed with a citrus-scented cleanser, they behaved more fairly when playing a classic trust game. In another experiment, the smell of cleanser made subjects more likely to volunteer for a charity.

The findings suggest that simply smelling

something clean makes people clean up their behavior—that a smell can provoke a mental leap between cleanliness and morality, making people think differently about the world around them. The authors even suggested that clean smells could be employed as a tool to influence how people act.

The idea that a smell can affect something as complex as ethical behavior seems surprising, not least because smell has

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Smell

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how we feel: It affects how we think, in ways that are just beginning to be understood.

Other studies have confirmed that scents can trigger generosity, and that they affect our decision-making processes and judgments rather than just emotions. Even when smells aren't on the forefront of our consciousness, our minds are trying to match them with other sensory information to interpret our surroundings.

The sense of smell, it turns out, is more complex and influential than once thought. Marketers are already trying to use smells in new ways to shape our spending. And a better understanding of smell has broader implications as well, helping explain the hidden forces that motivate our perceptions and behavior, and even opening up new ways for us to experience the world.

IN THE HIERARCHY of the senses, smell has long been relegated to the bottom. Higher communication takes place through our eyes and ears, the thinking goes, whereas the nose is something animals rely on to survive. This notion has a deep history in Western thought: The philosopher Immanuel Kant wrote that there was no point in cultivating the sense of smell since it was primarily a way to help us avoid unhealthy air and spoiled food; Georg Hegel saw smell as a practical sense removed from the realm of aesthetics and intellect.

In some ways, they were on to something: The olfactory system, which detects and processes scents, links directly with the limbic system of the brain, which is involved in emotions and memory. This tight connection explains why you might suddenly feel a profound nostalgia when encountering a smell from your childhood, or why your stomach may turn when catching a whiff of an ex's signature fragrance. And the olfactory system, out of all the senses, is uniquely evolved to guide our behavior in matters of basic survival: finding food, choosing a mate, bonding with family, fleeing danger.

This is still the primary way smell is used commercially, as a way to directly access our appetites and emotions. As a persuasive tool, scent is often used as a binary lever of attraction and disgust: The smell of cinnamon buns or roasted coffee stokes our hunger; the scent added to natural gas alerts us to danger. The smell of Axe body spray supposedly makes a man irresistible to women.

But this is also a simplistic view of smell, says Avery Gilbert, a scent psychologist and author of "What the Nose Knows: The Science of Smell in Everyday Life," who has been trying to debunk what he calls the "raging reptilian brain" view of smell. The idea that smells tap into primal, subconscious parts of our brain is overstated, he says: "People have talked themselves into believing that smell is purely an emotional sense." But in fact, we evaluate smells with some of the same cognitive processes that we use to analyze other sensory information. Our responses to smells can change with experience and learning. We can educate our noses to better identify and analyze the smells in our environment, and to better understand how we respond to them.

Psychology studies suggest strongly that smell affects our behavior in ways that have nothing to do with appetite. Those scents of cinnamon buns and coffee? A study found that people in a mall were

RESEARCH INCREASINGLY SHOWS THAT SMELL DOESN'T JUST AFFECT HOW WE FEEL: IT AFFECTS HOW WE THINK, IN WAYS THAT ARE JUST BEGINNING TO BE UNDERSTOOD.



more likely to help another person by picking up a dropped pen when one of these two scents was wafting through the air rather than in an unscented part of the mall. A study in France found that when a woman dropped an object from her purse in front of a stranger, the other person was more likely to pick it up and hand it to her when she was wearing perfume. These, like the recent study on clean smells, suggest that scents can influence our social and moral behavior, something we assume to be under our rational control.

It's tempting to conclude that good scents simply elevate our mood, which makes us inclined to be more helpful or generous. But scent marketing research shows that the effects of smells are more complex; they change the way we think, not just how we feel. Maureen Morrin, a marketing professor at Rutgers University, tested the effects of scented air on the spending behavior of shoppers in a mall. First she divided the shoppers into different types—those who shop impulsively and those who plan their purchases ahead of time. Surprisingly, it was the more contemplative shoppers who spent more money when scent was in the air.

Morrin says her other research also suggests that the effect of scent on shopping behavior has less to do with mood than with thought. "Almost all the studies I've done do not show a mood effect" of smell, she says. Instead, smell affects how shoppers choose which stores to visit, how many items they compare, and how they evaluate purchases—all

aspects of shopping that Morrin says are cognitive processes.

If smells do work on us subconsciously and tap into deep parts of our brain that we are powerless to control, then the use of ambient scents as marketing tools might seem alarmingly manipulative. But Eric Spangenberg, dean of the College of Business at Washington State University who has studied scent marketing, says it's a mistake to assume that this is how these smells operate. "It's not at all subliminal, it's peripheral," he says. In other words, we're aware of the smells, perceiving and processing them the way we do background music and decor. We take them in quickly and use them to make judgments about the space we're in.

SCENT MARKETERS ARE already trying to use this knowledge to deploy smells in more sophisticated ways. Harald Vogt, founder of the Scent Marketing Institute, an organization that monitors and promotes the industry, says that the simple salivation strategy—pumping in the smell of food at the point of sale to get customers to crave it—is waning. Instead, companies are trying to create signature scents that customers will associate with a particular brand or experience, like the sweet fig aroma greeting visitors in every Sheraton Hotel lobby. Because the memories we form through scent can persist longer than other kinds of information, smells are seen as a way to form stronger brand associations.

One industry has long treated smell as a complex phenomenon: the perfume business. Highly trained perfume experts, or "noses," consider scent to be a language that can convey subtle messages to different audiences. Through training, they learn to identify and blend hundreds of different smells to achieve their effects. Certain aldehydes blended with florals convey sophistication; citrus conveys freshness. In combination, their messages change, the way new words alter a sentence.

Science is just beginning to address how we learn to identify, categorize, and make meaning out of scents. One intriguing finding is that smell may be a two-way street. Jay Gottfried, a cognitive neuroscientist who studies smell at Northwestern University, has led brain imaging studies showing that an area in the cortex of the brain—typically associated with higher-order functions like decision-making—becomes active when people are paying attention to scents, and seems to help them learn new smells and refine their perceptions. Science on human olfaction, he says, has traditionally taken a very "bottom-up" view of smell: A scent activates a particular olfactory receptor, which is registered in the brain. Now, scientists are increasingly aware that not only can smell affect our thoughts, but thoughts can affect what we smell. "Learning, experience, present context, past associations—all of these things can influence how you perceive a smell at any given time," he says.

That means that there is a value to educating our noses—it can, literally, change how we experience the world. Gottfried found that when subjects were exposed to the smell of mint, they became "experts" in identifying and distinguishing different types of mints, such as spearmint, wintergreen, or peppermint. In another study, when people sniffed two different chemicals that humans perceive as smelling identical, but one chemical was accompanied by mild electric shocks, they learned to tell the difference between the two. In both cases, their sensory landscape was suddenly



PHOTOS: ISTOCKPHOTO

richer. "With learning and experience and interest, you can optimize your nose and get it to detect and discriminate things that one might not think was possible," he says.

But it's not just a matter of identifying scents; we can also become more aware of the messages and meanings they convey. This opens up a type of intelligence that often gets overlooked in simplistic views of the senses. Rather than being passive consumers of smells, we can actively engage with the smells that surround us, and the messages they hold—whether they are telling us to buy more, feel happier, or behave more fairly. And maybe, the next time your nose tells you to have a cinnamon bun, you can talk back.

UNCOMMON KNOWLEDGE

SURPRISING INSIGHTS FROM THE SOCIAL SCIENCES | BY KEVIN LEWIS

In prices, precise is nice

NOTE TO REAL estate agents: You're leaving money on the table! Researchers at Cornell University conducted multiple experiments and analyses to demonstrate what they call the "price precision effect." When people are presented with comparable prices, the one that is rounded (i.e., has more zeros) is perceived to be bigger, even if it's slightly smaller. People seem to be thrown for a loop by a large, yet precise, number, causing them to misinterpret it as a smaller number and, thus, be willing to pay more. The same pattern was found in a survey of prospective home buyers and in transaction data from the Multiple Listing Service. According to the authors, if there are two comparable homes listed for \$485,000 and \$484,880, the latter can be expected to sell for about \$1,200-\$1,450 more.

Thomas, M. et al., "The Price Precision Effect: Evidence from Laboratory and Market Data," *Marketing Science* (January-February 2010).

Power corrupts, starting with you

HARDLY A DAY goes by without us hearing about the hypocrisy of some powerful person. But are these just a few bad apples? To find out, researchers primed people to think about power and then asked them to report how acceptable it would be for others or themselves to entertain unethical behavior, such as over-reporting travel expenses, breaking traffic laws, under-reporting income, or stealing a bike. Those who were put in a powerful frame of mind were significantly more hypocritical—in other words, they demanded better behavior from others than from themselves. In contrast, those who were put in a low-power or illegitimate-power frame of mind exhibited what the authors call "hypercrisy"—demanding more from

themselves than from others. Lammers, J. et al., "Power Increases Hypocrisy: Moralizing in Reasoning, Immorality in Behavior," *Psychological Science* (forthcoming).

Botox numbs the sadness muscle

BECAUSE EMOTIONS are often revealed in subtle facial expressions, reading faces (or "tells") is important in domains like poker and law enforcement. Conversely, a team of researchers has found that disabling these expressions may disable the emotions, too. Patients who were

about to receive Botox injections in their frown muscle were asked to read sentences describing angry, happy, or sad situations and then press a button to indicate understanding. When the same patients were tested two weeks after treatment, they took significantly longer to indicate their understanding of angry and sad, but not happy, sentences. This result suggests that the brain doesn't just send signals to the body but also relies on subtle signals from the body to inform higher-level thinking.

Havas, D. et al., "Cosmetic Use of Botulinum Toxin-A Affects Processing of Emotional Language," *Psychological Science* (forthcoming).



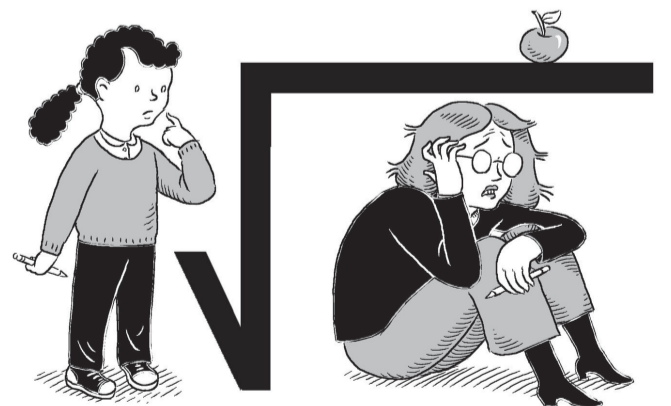
WESLEY BEDROSIAN FOR THE BOSTON GLOBE

He just looks Republican

YOU SHOULDN'T judge a book by its cover, but you can probably judge political partisans by theirs. Psychologists at Tufts University showed people photos of white Democratic and Republican politicians and college students. People were able to guess the political affiliation of the person in the photo at a rate significantly better than chance. There was no significant difference in how accurately people perceived the political affiliation of men vs. women. When asked to assess the traits of people in the photos, people perceived powerful-looking individuals to be Republicans and warm-looking individuals to be Democrats, though only perceptions of having a powerful appearance actually correlated with political affiliation.

Rule, N. & Ambady, N., "Democrats and Republicans Can Be Differentiated from Their Faces," *PLoS ONE* (January 2010).

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Math anxiety starts with the teacher

AS IF TEACHERS didn't have enough to worry about, new research suggests that they should be mindful of their own anxieties. According to psychologists at the University of Chicago, the level of math anxiety reported by first- and second-grade teachers—who are nearly all women—reduced the math achievement of girls, but not boys, over the course of the school year. Girls seem to be picking up on the stereotype that girls are not as good at math as boys. Indeed, girls whose math achievement suffered the most were also the ones who most endorsed the stereotype, as measured by whether they drew a boy or girl in response to a story about a student who was good at math. The effect did not appear to be due to math-anxious teachers being worse math teachers, since the boys were not affected.

Beilock, S. et al., "Female Teachers' Math Anxiety Affects Girls' Math Achievement," *Proceedings of the National Academy of Sciences* (Feb. 2, 2010).