

The Atlantic



A Death on Campus

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Toby Keith's

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THE SCIENCE OF CREATIVITY

The Surprising
Technology Behind
Mona Lisa's Smile

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Inside Google's
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The Unknowable
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Costco Goes to France

What America
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Timeline



HISTORY'S LESSONS IN TRUST

Tech's Impact on Finance

FINANCIAL TECHNOLOGY HAS BROUGHT RAPID, UNPREDICTABLE CHANGES to the way people organize, access, and talk about their money. It has also created new, low-cost opportunities for investors to participate in markets and build portfolios based on a dizzying array of new tools, with tips and data available at any time. The tech-driven evolution of markets has continually challenged the role and scope of investment advisors, whose sophistication must match the speed of change in order to keep the trust of their investors.



1950 The Credit Card

Credit cards spurred consumer spending in the mid-20th century by making money fluid and easier to spend. That required attention to issues relating to individual credit, from limits to ratings. Foreign purchases meant keeping up to date on currency-exchange platforms. Credit-related issues became an area where investors sought expertise from advisors.

1971 Electronic Trading

As stock trading went digital, the market became faster and easier to enter, which required greater agility from investors and advisors. The establishment of NASDAQ in 1971 and Globex two decades later required understanding algorithms and lightning-fast trading, making individual investors more likely to reach out to their advisors to help navigate the digital marketplace.



1983 Online Banking

With the advent of online banking, clients could access and move assets after hours and on weekends, anywhere, which meant advisors also needed to make themselves available for increasingly complex and time-sensitive questions.

2000s Social Media

According to a recent Sysomos study, 40 percent of investors make investment decisions based on information from social media, a channel that varies in its level of truthfulness. In the age of ubiquitous information, vetted, expert advice with a more solid foundation than online "tips" is more important than ever.



2017 and beyond Cybersecurity

As online finance has become increasingly sophisticated, so have hackers' methods of infiltration, requiring vigilance not only from lawmakers but also from investment advisors, who must protect their communications and investors' transactions. Discretion is the essence of trust, and in a time when danger to investors can come from anywhere, adherence to the fiduciary standard will rely on the technological as well as financial sophistication of advisors.

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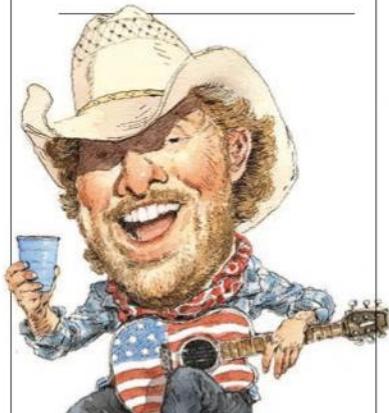
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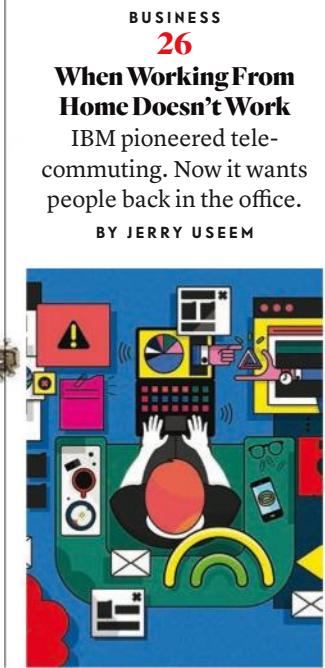
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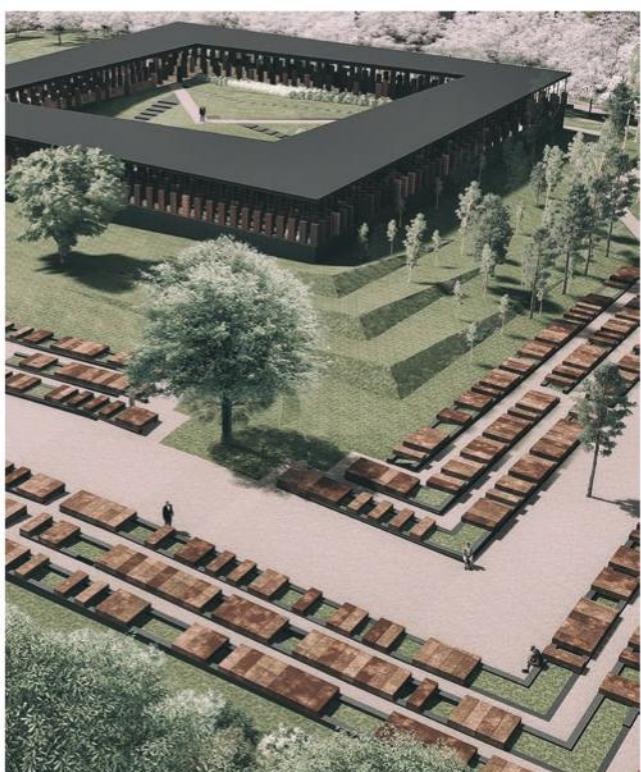
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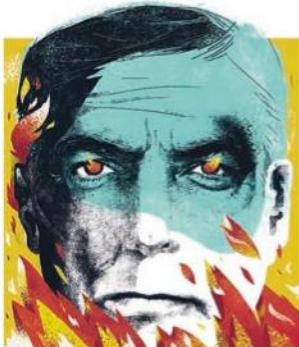
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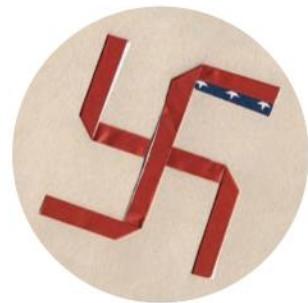
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**On the Cover**

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EDITOR'S NOTE

A HALF A DOZEN BATTLES

IN THE SUMMER OF 1864, Abraham Lincoln blessed a quixotic attempt by a Methodist minister named Colonel James F. Jaquess and a journalist named James R. Gilmore to broach with the Confederacy the possibility of a negotiated settlement of the Civil War. Jaquess and Gilmore crossed Union lines under the white flag of truce and called on Jefferson Davis, the rebel president, and Judah Benjamin, his secretary of state, in Richmond. The meeting was entirely unsuccessful.

Upon his return to Washington, Gilmore presented Lincoln with a report of Davis's recalcitrance. The news did not displease the president; he saw political advantage in publicizing the obstinacy of his enemies. Lincoln asked Gilmore, "What do you propose to do with this?"

Gilmore answered: "Put a beginning and an end to it, sir ... and hand it to the *Tribune*," Horace Greeley's New York newspaper.

Lincoln responded: "Can't you get it into *The Atlantic Monthly*? It would have less of a partisan look there."

Gilmore answered: "No doubt I can, sir, but there would be some delay."

Lincoln suggested that the delay would be worthwhile, because the article "could be worth as much to us as a half a dozen battles" in the war.

Gilmore sent a short dispatch to a Boston newspaper, and then a longer—and definitive—account to *The Atlantic*.

We who are lucky enough to work at *The Atlantic*, and to celebrate, this month, its 160th birthday, are naturally captivated by the magazine's history. The Jefferson Davis episode is one of the more fascinating stories from our past, for at least three reasons. Not least of them is the evident esteem in which America's greatest president held this magazine. Presidents have written for *The Atlantic* with regularity. And we have tried, since the time Nathaniel Hawthorne served as our Civil War correspondent, to cover the presidency carefully, deeply, and critically.

The Davis episode also interests me because the wily Lincoln sought to exploit *The Atlantic's* reputation for fairness

and detachment—our founding manifesto promised readers that the magazine would be "of no party or clique"—for political advantage. And he succeeded. The lesson here is obvious: We must always—but particularly in moments of high political passion—guard our independence. Today, at a notably fractious and polarized moment in American history, one in which the notion of empirical truth itself is under assault, we have a special obligation to let the facts, and analytic rigor, be our only guides. Do we sometimes fail? Yes. Do we defend against the exploitation of *The Atlantic's* reputation by the many parties and cliques of today? Also yes.

I mentioned a third reason for my fascination with this 1864 episode. It is the suggestion, by Gilmore, that *The Atlantic* would publish him comprehensively, but with some delay. In the pre-internet era, of course, our publication schedule was often a barrier to timeliness. Today, we have overcome the constraints of print publishing in so many ways. We have half a dozen platforms from which we launch our stories: a large and vigorous website; Atlantic Studios, our video operation; a live-events division; our new podcasts; our even newer membership program, The Masthead; and, of course, the historical and intellectual core of the enterprise, the magazine you are reading now.

The Atlantic, at 160 years old, has never been bigger. We have more readers, and more journalists, than at any other point in our history. Our stories are read around the globe. And we're growing. Journalism in America is in perilous shape, but *The Atlantic's* future is bright.

We will, as we enter our 161st year, continue to provide you with fine writing, deep reporting, and acute analysis. We will not get everything right, but we will try to live up to the vision and ambition of our founders. And we will try to live up to your expectations of us as well. Please know that we are immensely grateful to you, our subscribers and readers. You are the principal reason *The Atlantic* has reached this day.

—Jeffrey Goldberg



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THE CONVERSATION

RESPONSES & REVERBERATIONS

How America Lost Its Mind

The election of Donald Trump, Kurt Andersen argued in his September cover story, revealed that a critical mass of Americans has become untethered from reality. Andersen also traced the roots of the exceptionalism that has turned the country into “Fantasyland.”



Kurt Andersen documents well *how* America has lost its mind, but only partly *why*. We live in a country whose history, economy, and culture have brought together people of many different races, ethnicities, and religions.

But diversity, one of our nation’s strengths, also creates tension. Culture is what allows us to make sense of the world. Travelers who experience culture shock know how disorienting it is when people say or do things that are not immediately intelligible, that don’t seem normal. So when Somali Muslims move in down the street, their neighbors may feel uncomfortable; the difference in their physical appearance, language, clothing, or music makes some residents feel they don’t know what’s going on, and that is disconcerting. It leads them to retreat, to insist that the world is the way they say it is no matter how many facts may say otherwise. Some point the finger at an easy target and want the source of

their consternation to simply disappear. But that is the most magical of magical thinking, and this is why America has lost its mind.

I agree with Andersen that this story could have a happy ending. We need to become world citizens, and such a trend is already under way. Economics and emigration move people around the globe at a rate history has never before witnessed. Social media have their downside, but they also put the entire world in the palm of your hand. Diversity is becoming the new normal. Although adults today may look askance at those Somali neighbors, their children will not wonder about their clothing, language, or religion—only about whether they listen to Beyoncé and play soccer. The recent sad display of white supremacy in Charlottesville, Virginia, is perhaps evidence of the death throes of an old order.

Robert L. Kelly

PROFESSOR OF ANTHROPOLOGY,
UNIVERSITY OF WYOMING
LARAMIE, WYO.

Kurt Andersen’s article was, for me, a hard look in the mirror. I drank from the wells of Esalen, relativism, and post-structuralism; my education was chock-full of Foucault, and any expectation that objectivity was a “thing” was driven from my mind like Saint Patrick’s snakes from Ireland. But when I left graduate school I realized that 100 percent relativism was flawed; in a democratic society, we need to take a stand for what we believe in, and we need to define right and wrong.

It’s not a coincidence that relativism gained strength in the wake of the civil-rights movement and when America became part of the global community: It allows us to embrace cultural diversity. Considering what relativism offers and that we want to live in a diverse society, our task is to identify the values that hold us together. If that were easy, we would have figured it out already.

Victoria Finn

ZURICH, SWITZERLAND

I think Kurt Andersen is correct that the current form of the disease infecting the political right metastasized via Fox News and the internet. By purposefully tearing down all the “validating institutions,” the GOP untethered its base from any set of stable facts.

But Andersen fails to explain why this worked so well: grievance. Cultivating grievance and outrage has been a core strategy of partisan media, especially on the right, and it is the reason so many people are living in the *same* Fantasyland. This is reinforced by people’s natural desire to fit in to their respective communities, rally around teams (or political parties), and identify enemies. Furthermore, a lot of people feel that things are deeply broken and moving in the wrong direction. Progressives like me look at climate change, economic inequality, and social-justice issues. The right wing seems to have latched on to immigration, terrorism, secularism, and

political correctness. When things feel broken, it's understandable to direct some frustration at institutions and experts who have failed to fix them. And it's not a long leap from there to feeling like those institutions are not only inadequate but complicit.

It's easy to feel hopeless if you've ever tried to argue with a Fantasylander. Reasonable people argue with facts and evidence, but Fantasylanders counter by opposing the very idea of evidence, facts, experts. One weapon they have, in the age of the internet, is the reality that most facts are ultimately a consensus based on faith. I don't mean that there are no objective facts. I mean that most of us can't be absolutely certain of them. I accept the fact that climate change is real and man-made, and that childhood vaccines are a good thing, not because I conducted rigorous experiments but because I trust the people who did, as well as the institutions they belong to.

Shawn Smith

SAN FRANCISCO, CALIF.

I once toured Dachau, the Nazi concentration camp near Munich, Germany. During my two hours there, four groups of elementary-school students came to tour the site, which included a poster of a Hitler Youth member with the caption "Verführt. Verleitet. Verheizt." ("Tempted. Misled. Slaughtered.") Clearly Germany, unlike America, has an investment in truth as a means to avoid deceptive beliefs about its past and a repeat of barbaric practices. Meanwhile, McGraw-Hill published a high-school textbook that described the people captured, brought to the U.S., and forced to labor

on plantations as "workers" rather than slaves.

If the "facts" taught in childhood are a deliberate misrepresentation of reality, is it a surprise that the population continues to nurture views that are independent of facts? Or that we have a president whose administration espouses a policy of deliberate lies that it dares to label "alternative facts"?

Richard DeBeau
NORTHFIELD, MINN.

Everything Kurt Andersen describes in his article is a mere symptom of our dysfunction, not a cause. The real culprit is plain old-fashioned racism—pure and simple. Racism is the reason America cannot properly enter the 21st century. It pollutes and degrades every national dialogue we have, from education to health care to foreign policy.

If you want to point to a date when our politics went "haywire," try 1964. That was the year the Civil Rights Act was passed and the GOP sold its soul to become the party of racism in order to win elections in the Dixiecrat states. It was a desperate strategy by an out-of-touch party to maintain some power, but it worked—at the expense of our nation.

One wonders how Mr. Andersen could miss this point in his analysis. Since 1964, the GOP has managed to weaponize white racial insecurity and inflame bigotry for the benefit of candidates who otherwise couldn't get elected dogcatcher. Conservative talk radio and Fox News continue to worm their way into the brains of white Americans through endless diatribes of paranoia supported by carefully managed disinformation. Their patriotic

THE BIG QUESTION

On TheAtlantic.com, readers answered October's Big Question and voted on one another's responses. Here are the top vote-getters.

Q: What crime most changed the course of history?

5. The original sin of America was slavery. Whether or not it was a crime at the time, there is no denying the illegality of slavery to all we stand for as a country.

— Alayna Buckner

2. The execution of Jesus of Nazareth was a travesty of justice, but his followers' belief that he rose from the dead contributed to the end of the pagan Roman empire.

— Marie D. Hoff

4. The extermination of American Indians, which ultimately led to the creation of the world's greatest superpower, the United States of America.

— Gary Kohl

3. The mass murder of Jews, Gypsies, homosexuals, and others in the Holocaust.

— Louis Franzini

1. Gavrilo Princip assassinating Archduke Franz Ferdinand. This crime triggered World War I, led to the October Revolution and the end of the Habsburg and Ottoman empires, rewrote the world map, set the stage for World War II, and affects just about every person alive today.

— Louis Nagel

accomplishment has been to damage or destroy the judgment (not to mention the hearts) of millions of white Americans.

The GOP has quite possibly inflicted a mortal wound upon itself, but the disease of racism won't disappear with the party. We're going to have to take some decisive and far-reaching actions if we're to preserve our country.

Royal Mason
SAN DIEGO, CALIF.

I read "How America Lost Its Mind" with interest, but I was frustrated by Kurt Andersen's single concept of truth. For him, if faith is involved, it is not truth but "magical thinking." He does not distinguish between the fundamentalist faithful and the faithful who seek insight and inspiration rather than

prediction and certainty.

We have science-based structures to organize our physical lives and we have faith-based structures to organize our lives' meaning. One cannot take the place of the other. The error of fundamentalism is in replacing science with religion. The opposite error is failing to understand that everyone lives by principles that cannot be "rationally" verified.

Patricia DeWitt
JACKSONVILLE, FLA.

Religion has been the primary way by which human beings have tried to understand the meaning of life and make sense out of creation. I do not argue for the truth of these beliefs in terms of objective reality, but like it or not, they form the historical philosophical basis for our concepts of

morality and proper human behavior. To denigrate them as simply an example of a flight into the irrational is perhaps the best example of the intellectual chasm today between those on the left and those on the right. It also is a large factor in why reasoned discussion between the two sides has been on such a dramatic downturn: For those on the right, it is difficult to have a reasonable conversation with someone who makes no secret about the fact that he thinks you are both benighted and stupid.

Bruce Franzeze
WHITE PLAINS, N.Y.

Kurt Andersen has engaged in a great degree of magical thinking of his own, trying to make a connection between Christianity and his perception of unreason in American dialogue. If that were the case, it would be a very long game indeed, as it has taken 2,000 years of Christian tradition and teaching (not to mention millennia of Jewish belief preceding it) to finally result in the wackification of America.

Had Andersen taken the time to acquire more than a popular-culture understanding of orthodox Christianity, he would have found that it explicitly rejects the relativism that he points to as the main symptom of the mindlessness syndrome. All of orthodox Christian belief is laid out for anyone to see; truths are not transient and personal but rather universal and eternal. Ten commandments establish all our responsibilities toward God and our fellow creatures. While Andersen may try to set up a conflict between faith and reason, I have always

been counseled by the Church to understand that the Bible is not a science book. It does not purport to explain the workings of the world, but rather our relationship with the God who made it, by whatever mechanism he did.

Donald Trump does not come from an orthodox-Christian background. His religious training, such as it is, came from the prosperity-gospel school, which is unorthodox in preaching faith (as much in self as in God) as a means to wealth. The fact that many Christians supported him may speak to a fall away from orthodox teaching and toward moral relativism and secular standards that allow a cheat, an adulterer, and a liar to be judged to be the better choice among candidates.

Jon Abel
RICHARDSON, TEXAS

Regarding the origins of relativism in the 1960s counterculture, Kurt Andersen's history is incomplete. He describes New Age irrationalism as bursting onto the scene ex nihilo—an instantaneous spasm of adolescent wooziness. But it's important to remember which "reality" the counterculture was rejecting: that of the Robert McNamaras of the world, whose uncritical faith in capitalism cost thousands of soldiers (and countless civilians) their lives. Their influence extends through Ronald Reagan's presidency and Dick Cheney's shadow reign to the policies of Ayn Rand fanboys like Paul Ryan. Clinging to a belief in markets that works for them, these ideologues have managed to tip the Supreme Court—a bastion, one would hope, of reasonableness—toward the

bizarre fundamentalism of the *Citizens United* ruling, sure to mire American politics for decades to come. Most astonishing of all is how these fanatics have persuaded working-class conservatives to support the very policies that have decimated their communities and livelihoods.

Andersen is unduly harsh toward the harebrained idealists of the '60s, perhaps overreacting to his own youthful gullibility. Far crazier, it seems to me, is the gullibility of mature adults who persistently worship false idols that impoverish them.

David Southward
MILWAUKEE, WIS.

Kurt Andersen replies:

This article, which focused on the past half century, was an excerpt from my new book, Fantasyland, which is about a dozen times as long and whose subtitle is A 500-Year History—that is, all of the issues raised in these letters are addressed at length in the book. As I explain there, the "grievance and outrage" that Shawn Smith mentions has been a defining American habit of mind since the Pilgrims left England. I don't agree with Royal Mason that "plain old-fashioned racism—pure and simple" is the single cause of the Fantasyland phenomenon, but I do devote a large part of the book to myths and fantasies of the Old South and white superiority cultivated from the antebellum period through the 1890s and 1920s and 1960s to now. And while Christianity was only passingly mentioned in the Atlantic excerpt, a plurality of my book's arguments and history concern our very peculiar American Protestantisms; Jon Abel's version of Christianity sounds like a sensible strain with which I have no quarrel.

Getting Smart About Smartphones

In September, Jean M. Twenge chronicled the potential ill effects of ubiquitous smartphones and social media on young adults ("Has the Smartphone Destroyed a Generation?").



We are often asked whether social media and smartphones are good or bad for teens. Parents, teachers, policy makers—even teens themselves—seek clear and simple answers. In this respect, Jean Twenge's article does not disappoint.

Twenge draws a straight line tracing broad trends to a single source: networked technologies. We see three main problems with this. First, Twenge uses correlational data to make causal claims. Yet correlation neither implies nor confirms causation. Second, despite stating that "no single factor ever defines a generation," Twenge devotes her piece to a single-factor characterization of "iGen." Third, just as digital media are unlikely to be the sole cause of teens' attitudes and behaviors, they're also unlikely to have a singular, uniform impact on all teens.

Our research documents that youth can have distinctly different experiences on the

same networked platforms; existing peer and family relationships and prior levels of well-being are among the many factors that converge to determine whether a teen has a positive or negative experience on Instagram, Snapchat, or iMessage. Cherry-picking studies overlooks more-nuanced accounts of teens and technology, as well as the reality that many youth have routinely positive experiences online. Giving in to the allure of simple narratives does a disservice to our young people and undercuts our ability to help them. Only through the deciphering of teens' complex relationship with technology can we fashion effective strategies for supporting them.

Katie Davis
UNIVERSITY OF WASHINGTON
SEATTLE, WASH.

Emily Weinstein and Howard Gardner
HARVARD UNIVERSITY
CAMBRIDGE, MASS.

Fellow parents, it's time for us to consider another possible explanation for why our kids are increasingly disengaged. It's because we've disengaged ourselves; we're too busy looking down at our screens to look up at our kids.

I know: It's how I live myself. Children are *super* annoying—especially teenagers, I would say, now that I've got one ... I would much rather spend an hour perusing Wonder Woman crafts on Pinterest than listening to my 13-year-old ramble on about anime. As a friend warned

me when I first got pregnant, "Children are simultaneously overwhelming and under-stimulating." Why wouldn't we want to be distracted from that? ...

[There is] a competing explanation for the recent declines in adolescent independence that Twenge observes. Fostering independence takes work: Someone has to teach the kid to drive, show them how to get to the mall, maybe prod them to make some friends and get outside ...

My entire experience of parenthood has been lived in the tug-of-war between child and screen; my kids can't remember a time when they didn't have to compete with my iPhone in order to get my attention. Like many people, my constant screen interactions are a matter of professional obligation as well as personal taste, so I live life as a constant juggling act between the needs of my children and the distractions of social media ...

I think we can do better than Twenge's suggestions of instilling "the importance of moderation," or "mild boundary-setting." The off switch has its place, but if that's all we have to offer our kids, we aren't helping prepare them for what it means to live in a digital world ...

It's so important for us to both discover and model ways of being online that help our kids embrace the potential of social media, smartphones, and whatever the next thing is to come along ...

Seventy Years of *The Atlantic*

To commemorate our 160th anniversary this month, *The Atlantic* sought out the subscriber who has been reading the magazine the longest. That search brought us to 90-year-old William Allan Plummer, who received his first issue as a college student on the GI Bill in 1947. "I was interested in world events and culture," he told *The Atlantic* recently.

My own research suggests that the best way we can do that is by embracing our role as *digital mentors*: actively encouraging our kids to use technology, but offering ongoing support and guidance in how to use it appropriately.

Alexandra Samuel
EXCERPT FROM A JSTOR DAILY ARTICLE

Jean M. Twenge replies:

My thanks to the letter writers. I welcome the opportunity to delve into these issues more deeply. I explicitly noted in the article that the correlational analyses I did can't rule out the possibility that unhappy teens spend more time on screens. However, two studies following people over time found that more social-media use led to unhappiness, but unhappiness did not lead to more social-media use. A third study was a true experiment (which can determine causation); it randomly assigned adults to give up Facebook for a week, or not. Those who gave up Facebook ended the week happier, less lonely, and less depressed.

If depression causes social-media use, why did depression increase so suddenly after 2011? If the increase in depression occurred first, some other,

unknown factor would have had to cause depression to rise so sharply, which would then have led to more smartphone and social-media use. It seems far more likely that smartphone and social-media use went up, and the increase in depression followed.

When weighing evidence and interventions, we have to consider the risks of doing something versus doing nothing. There doesn't seem to be much risk involved in limiting teens' smartphone or social-media use to two hours a day or less. However, letting teens continue to spend six-plus hours a day with new media risks having these negative mental-health trends continue if screen time is even part of the cause for their rise.

Correction:

"How America Lost Its Mind," by Kurt Andersen (September), stated that among all American state legislators, there is only one avowed atheist. In fact, according to the Center for Freethought Equality, there are several.

To contribute to The Conversation, please email letters@theatlantic.com. Include your full name, city, and state.

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DISPATCHES

IDEAS & PROVOCATIONS
November 2017

In 1977, MIT's Thomas J. Allen found that the farther apart colleagues' desks were, the less likely regular communication became. At the 30-meter mark, its likelihood approached zero.
—Jerry Useem, p. 26

• POLITICS

Is the American Idea Over?

Not yet—but it has precious few supporters on either the left or the right.

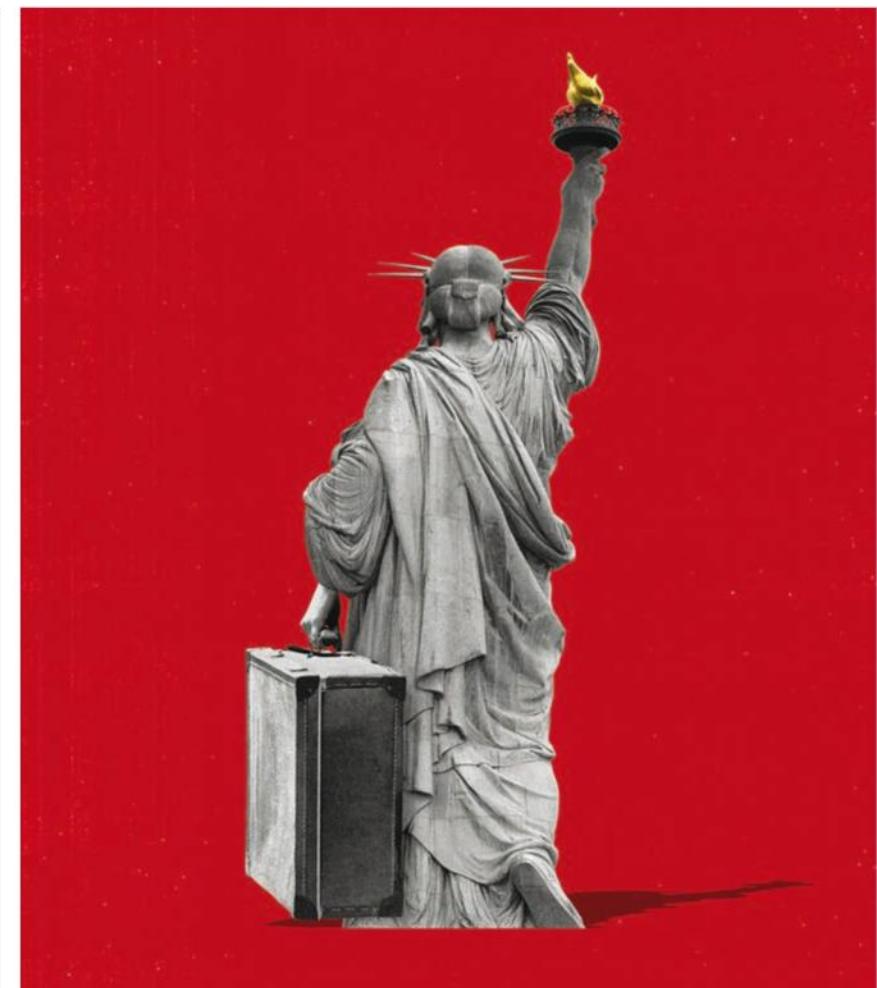
BY YONI APPELBAUM

ON MAY 5, 1857, eight men sat down to dinner at Boston's Parker House hotel. They had gathered to plan a magazine, but by the time they stood up five hours later, they had laid the intellectual groundwork for a second American revolution.

These men were among the leading literary lights of their day, but they had more in mind than literary pursuits. The magazine they envisioned would, its prospectus later promised, "honestly endeavor to be the exponent of what its conductors believe to be the American idea."

That prospectus bore the unmistakable stamp of *The Atlantic*'s founding editor, James Russell Lowell, but "the American idea" had been popularized by Theodore Parker, the radical preacher and abolitionist. The American idea, Parker declared in an 1850 speech, comprised three elements: that all people are created equal, that all possess unalienable rights, and that all should have the opportunity to develop and enjoy those rights. Securing them required "a government of all the people, by all the people, for all the people," Parker said.

Ralph Waldo Emerson, another *Atlantic* founder, put the matter more



concisely. There was, he observed, a single phrase, offered by the little republicans of the schoolyard, that summed the whole thing up: "I'm as good as you be."

As a vision, it was bold and improbable—but the magazine these men launched that November, 160 years ago, helped spur the nation to redefine itself around the pursuit of the American idea. And as the United States grew and prospered, other peoples around the globe were attracted to its success, and the idea that produced it.

Now, though, the idea they articulated is in doubt. America no longer

serves as a model for the world as it once did; its influence is receding. At home, critics on the left reject the notion that the U.S. has a special role to play; on the right, nationalists push to define American identity around culture, not principles. Is the American idea obsolete?

FROM THE FIRST, the idea provoked skepticism. It was radical to claim that a nation as new as America could have its own idea to give the world, it was destabilizing to discard rank and station and allow people to define their own destinies, and it bordered on absurd

to believe that a nation so sprawling and heterogeneous could be governed as a democratic republic. By 1857, the experiment's failure seemed imminent.

Across Europe, the 19th century had dawned as a democratic age, but darkened as it progressed. The revolutions of 1848 failed. Prussia busily cemented its dominance over the German states. In 1852, France's Second Republic gave way to its Second Empire. Spain's Progressive Biennium ended in 1856 as it began, with a coup d'état. Democracy was in full retreat. Even where it endured, the right to vote or hold office was generally restricted to a small, propertied elite.

On the surface, things appeared different in Boston, where *The Atlantic's* eight founders—Emerson, Lowell, Moses Dresser Phillips, Henry Wadsworth

Longfellow, John Lothrop Motley, James Elliot Cabot, Francis H. Underwood, and Oliver Wendell Holmes Sr.—dined in May 1857. Almost all adult males in Massachusetts, black and white alike, could vote, and almost all did. Almost all were literate. And they stood equal before the law. The previous Friday, the state had ratified a new constitutional amendment stripping out the last significant property qualifications for running for state Senate.

But even in Boston, democracy was embattled. The state's government was in the grip of the nativist Know-Nothings, who resented recent waves of immigrants. That same Friday, voters had ratified an amendment imposing a literacy test for voting, a mostly symbolic effort at exclusion. But slavery, the diners believed, posed an even greater threat to democracy. Most of them had been radicalized three years before by the Anthony Burns case, when federal troops marched into their commonwealth to return Burns, an escaped slave then living and working in Boston, to bondage in Virginia—inspiring protests and lethal violence on his behalf. To the west, Kansas was bloodied by fighting between pro- and antislavery elements;

to the south, politicians had begun defending slavery not as a necessary evil but as a positive ideal.

The fight against slavery had become a struggle for the American idea; the two could not coexist. In 1860, Abraham Lincoln's election led the South to conclude that it had lost the argument. The seceding states left Congress with a Republican majority, able to translate the principles of equality, rights, and opportunity into practical action: homesteads for all who sought them; land-grant colleges to spread the fruits of education; tariffs to protect fledgling industries; and a transcontinental railroad to promote commerce and communication. Here was the American idea made manifest.

But the Civil War tested whether a nation built around that idea could "long endure," as Lincoln told his audience at Gettysburg in 1863. His address aimed to rally support for the war by framing it as a struggle for equality, rights, and opportunity. He echoed Parker's speech defining the American idea in order to make clear to his listeners that it fell to them to determine whether "government of the people, by the people, for the people, shall not perish from the earth."

When the Union prevailed, it enshrined this vision in the Constitution with a series of amendments banning slavery, extending equal protection of the law, and safeguarding the right to vote for Americans of all races. In the ensuing decades, the rapid growth of the United States attracted further waves of immigrants and transformed the country into a global power. Some countries and peoples attempted to replicate American success by embracing American principles. Others recoiled and embraced alternatives—monarchy, empire, communism, and fascism among them.

The United States and its allies triumphed in two world wars and in a third that was undeclared—the first, Woodrow Wilson said, waged so that the world might "be made safe for democracy"; the second, Franklin D. Roosevelt

explained, "to meet the threat to our democratic faith"; and the third, Ronald Reagan declared, to settle "the question of freedom for all mankind." Each victory brought with it a fresh surge of democratization around the world. And each surge ebbed, in part because the pursuit of equality, rights, and opportunity guarantees ongoing contention while the alternatives offer the illusion of stability.

The American story isn't simply an arc of history bending toward justice; it's far messier. Americans have never agreed on when to prioritize the needs of individuals and when their collective project should come first. If this tension wasn't itself unifying, it nonetheless helped stake out the terrain over which productive national debate could be waged.

SO WHERE DOES the American idea stand today? To some extent, it is a victim of its own success: Its spread to other nations has left America less distinctive than it once was. But the country has also failed to live up to its own ideals. In 1857, the United States was remarkable for its high levels of democratic participation and social equality. Recent reports rank the U.S. 28th out of 35 developed countries in the percentage of adults who vote in national elections, and 32nd in income equality. Its rates of intergenerational economic mobility are among the lowest in the developed world.

On opportunity, too, the United States now falls short. In its rate of new-business formation and in the percentage of jobs new businesses account for, it ranks in the lower half of nations tracked by the Organization for Economic Cooperation and Development. Today, Americans describe China as Europeans once described the United States—as an uncouth land of opportunity and rising economic might.

It is no surprise that younger Americans have lost faith in a system that no longer seems to deliver on its promise—and yet, the degree of their disillusionment is stunning. Nearly three-quarters of Americans born before the Second World War assign the highest value—10

The democratic experiment is fragile, and its continued survival improbable.

out of 10—to living in a democracy; less than a third of those born since 1980 do the same. A quarter of the latter group say it's unimportant to choose leaders in free elections; just shy of a third think civil rights are needed to protect people's liberties. Americans are not alone; much of western Europe is similarly disillusioned.

Around the globe, those who dislike American ideas about democracy now outnumber those who favor them. Vladimir Putin's Russia offers a belligerent, authoritarian alternative. China whispers seductively to rulers of developing nations that they, too, can keep a tight grip on power while enjoying the spoils of economic growth.

All of this has left many Americans feeling disoriented, their faith that their nation has something distinctive to offer the world shaken. On the left, many have gravitated toward a strange sort of universalism, focusing on America's flaws while admiring other nations' virtues. They decry nationalism and covet open borders, imagining a world in which ideas can prevail without nations to champion them.

Even as the left is made queasy by the notion that an idea can be both good and distinctively American, many on the right now doubt that America is a land defined by a distinctive idea at all. President Donald Trump's rhetoric is curiously devoid of references to a common civic creed. He promotes instead a more generic nationalism—one defined, like any nation's, by culture and borders and narrow interests and enemies.

Both of these visions are corrosive, although not equally. America is an ethnically, geographically, and economically varied land. What helped reunite the states a century and a half ago was a nationalism grounded in a shared set of ideals, ideals that served as a source of national pride and future promise. But nationalism, the greatest force for social cohesion the world has yet discovered, can be wielded to varied ends. Trump embraces an arid nationalism defined by blood and soil, by culture and tradition. It accounts for his moral blindness after the protests in Charlottesville, Virginia—his inability to condemn the

"very fine people" who rallied with the Ku Klux Klan and neo-Nazis against "changing culture." That sort of cultural nationalism can easily shade into something uglier, and glues together only a fraction of Americans.

With democracy in retreat abroad, its contradictions and shortcomings exposed at home, and its appeal declining with each successive generation, it's 1857 all over again. But if the challenges are the same, the solution may also be familiar. Vitriol and divisiveness are commonly blamed for the problems of contemporary politics. But Americans aren't fighting too hard; they're engaged in the wrong fights. The universalism of the left and cultural nationalism of the right are battering America's sense of common national purpose. Under attack on both flanks, and weakened by its failure to deliver exceptional results, the nation's shared identity is crumbling.

Americans have been most successful when fighting over how to draw closer to the promise of their democracy; how to fulfill their threefold commitment to equality, rights, and opportunity; and how to distribute the resulting prosperity. They have been held together by the conviction that the United States had a unique mission, even as they debated how to pursue it.

The greatest danger facing American democracy is complacence. The democratic experiment is fragile, and its continued survival improbable. Salvaging it will require enlarging opportunity, restoring rights, and pursuing equality, and thereby renewing faith in the system that delivers them. This, really, is the American idea: that prosperity and justice do not exist in tension, but flow from each other. Achieving that ideal will require fighting as if the fate of democracy itself rests upon the struggle—because it does. **A**



• VERY SHORT BOOK EXCERPT

NUCLEAR LAUNCH CODES FOR DUMMIES

AFTER THE KENNEDY ADMINISTRATION decided that the threat of a rogue general launching America's nuclear weapons was too serious to ignore, a safeguard was deployed: a code lock mounted on all nuclear bombs. This was essentially the "launch code," considered in popular lore to be the most important of all government secrets. However, the members of the Strategic Air Command—whose power the code lock was designed to constrain—decided that the code was dangerously limiting to them. According to the scholar (and former launch officer) Bruce Blair, they set the code to eight zeros—oooooooo—and kept it like this for more than 15 years. Higher-ups finally rectified the issue in 1977.

— Adapted from *The Darkening Web: The War for Cyberspace*,
by Alexander Klimburg, published by Penguin Press in July

• SKETCH

Toby Keith's Happy Hour

Is anyone more at home in Trump's America than country music's bawdy, boozy star?

BY SPENCER KORNHABER

WHEN THE country star Toby Keith flew to Riyadh in May to play one of the first public concerts held in Saudi Arabia since the early 1990s, he was given strict instructions: no songs about drinking, marijuana, or sex. Complying was no simple task for the author of such sloshed-and-horny classics as "I Love This Bar" and "As Good as I Once Was," the latter a song in which Keith is propositioned by twin sisters. "It kind of knocked me down," he recalled when I met him a few months later in Bethlehem, Pennsylvania. "There were only four or five things that I could play that were famous."

Keith soldiered on with his less racy hits, filling out the set list with rock and soul standards. Until this year, even so tasteful a show would likely have been forbidden in the notoriously conservative kingdom. But, looking to diversify its economy as oil revenues decline, the country recently relaxed its decades-long de facto ban on live music. At the invitation of the royal court, Keith was the first Westerner to be booked. Billed as a night of "Arabian Lute & American Guitar," the event paired Keith with the oud-playing Saudi superstar Rabeh Saqer. In videos, you can see the all-male audience in white robes and checkered red-and-white head coverings waving their phones like Bic lighters to Keith's heartbreak ballad "Does That Blue Moon Ever Shine on You." "They were friendly," Keith said of the Saudis. "They clapped and boogied and stomped their feet."

While Keith was engaged in this act of cultural exchange, Donald Trump was a few miles away with King Salman bin Abdulaziz Al Saud, shuttling between stops on his first official trip abroad.

According to press reports, their golf cart briefly slowed so the heads of state could take in the concert on a jumbo TV screen. Keith said he hadn't known that his visit would coincide with Trump's, and stressed that their paths never crossed, neither during the president's speech in favor of a more moderate Islam nor during his communion with a large, glowing orb.

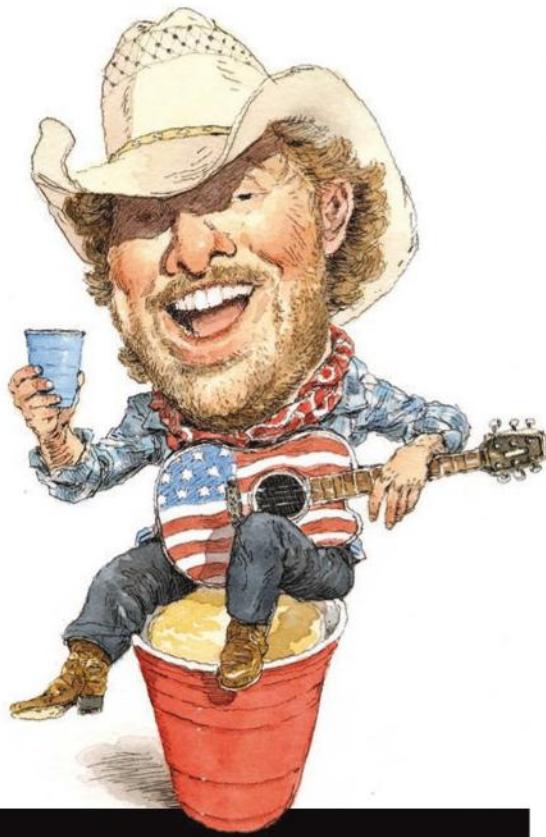
Back home, Keith's concert was nevertheless rolled into the debate over the propriety of Trump's trip. What were such strident defenders of America, Trump and Keith both, doing fraternizing with a regime that has been accused of supporting the 9/11 attackers? It's certainly not obvious why a supposed advocate of liberty, justice, and the inalienable right to sleep with twins would perform at a concert one gender had been forbidden to attend. "My job was to represent the West and to reach out," Keith told me, noting that the concert's very existence represented an easing of religious extremism. "Who am I to tell them how to run their country?"

The flap was merely the latest in Keith's long career as one of the most prominent, if professedly reluctant, political figures in contemporary music. Arguably no major entertainer is more associated with the Trump administration than he is, having headlined the president's inauguration-eve "Make America Great Again" concert, an event that other stars,

even conservative ones, sat out. But Keith is registered as an independent, and explains his stance on ceremonial shows with the straightforward logic of duty: If "the president of the frickin' United States asks you to do something and you can go, you should go instead of being a jack-off."

In the past, this was not such a controversial position for a country singer to hold. But in an era of unsurpassed polarization, Keith's willingness to play any gig he can justify as patriotic is newly fraught: Whether he intended to or not, he's chosen a side. Or perhaps his songbook chose it for him. Keith's lyrics have long trucked in a mix of nostalgia, irreverence, bellicosity, tribalism, and America-first priorities that we now recognize as a hallmark of Trumpism. Yet, either in earnest or because he's wary of his fan base shrinking to the size of the president's, Keith insists that his politics are more complicated than his red, white, and blotto image might suggest.

THE 56-YEAR-OLD KEITH has enjoyed one of the most astonishingly successful careers not only in country but in all of contemporary popular music.





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A former oil-derrick worker and semi-pro football player from Moore, Oklahoma, Keith broke out with the 1993 hit “Should’ve Been a Cowboy,” an elegy for macho independence that became the most-played country song of the ’90s. He followed that up with 20 No. 1 hits on the country charts. Over the course of 18 studio albums, he has demonstrated a knack for both crying-into-your-whiskey ballads (1994’s dejected “Who’s That Man”) and spilling-your-whiskey-everywhere novelty songs (the 2011 viral masterpiece “Red Solo Cup”). He also boasts a business portfolio that spans record labels and a restaurant chain (at Toby Keith’s I Love This Bar & Grill, active military members eat for free). Though his last bona fide hit came in 2012—he blames the dry spell in part on the new vogue for rap-influenced “hick-hop”—he continues to sell out concerts.

Outside of the country world, Keith is better known for his politics than his songwriting. That’s largely thanks to his 2002 anthem “Courtesy of the Red, White and Blue (The Angry American),” in which the son of an Army veteran growls to the perpetrators of the 9/11 attacks, “We’ll put a boot in your ass / It’s the American way.” The biggest hit of Keith’s career up to that point, it became a rallying cry for American soldiers abroad, for whom Keith regularly performs through the USO. It was also the most prominent in a bumper crop of post-9/11 country songs cheering righteous, retributive war. (Fox News recently paired the song with footage of the “mother of all bombs” falling on Afghanistan.) But Keith has long maintained that the perception of him as a “right-wing idiot,” fueled by liberal detractors like the Dixie Chicks and Michael Moore, is simply wrong. He was a registered Democrat until 2008, and he didn’t support the invasion of Iraq. “I’ve had 200 interviews where they go, ‘So, being a Republican, are you...?’” he said. “I just start laughing. I can’t support the troops and not be a Republican. That’s impossible, right?”

Keith says the backlash to his pro-military anthems pushed him away from the Democrats, as did a general shift

on the left: “They PC everything,” he said. Still, he made positive, if measured, statements about Barack Obama before his election and traveled to Oslo to play at a celebration of the president’s Nobel Peace Prize win. (Onstage at the Trump concert, he thanked Obama for his service.) Keith told me that he’s tolerant of gay marriage and abortion, and if you listen through his catalog, you’ll hear nods to a certain chicken-fried multiculturalism. “We’re all mud-flap suburbs, all ball caps and turbans,” he sings on 2014’s “Drunk Americans.”

You’ll also hear odes to vigilante justice, gender essentialism, and dads who buy American. Country music has long championed red-state ideals, but Keith has demonstrated a special taste for controversial fare. Few of his contemporaries would have recorded 2011’s “American Ride,” a wry, “We Didn’t Start the Fire”—esque litany of such talk-radio bugaboos as the War on Christmas and the “tidal wave coming ’cross the Mexican border.” And few of his contemporaries are saying anything about Trump, much less playing gigs for him. The rowdy cycles of exclusionary policies and identity-conscious protests of the Trump presidency have made clearer than ever that country music’s frequent celebration of a supposed “real America”—racially specific and traditionalist about gender—isn’t in fact politically neutral, an uncomfortable truth that Keith’s peers still seem to be processing.

Even Keith is cagey when it comes to Trump. During the 2016 election, he disparaged both the Democratic and GOP nominees, and he hasn’t publicly said whom he voted for. He told me that he made his decision at the last minute, adding, “The only thing I didn’t want is another eight years of the Clintons.” So far, he’s cautiously optimistic in his assessment of Trump’s performance, praising his employ of military generals as advisers, shrugging at his fractious style, and offering a standard-issue

condemnation of partisan rancor. “There’s a civil war going on,” he said. “All the presidents in the last 20 years, 30 years—the word *impeach* has come out on every one of them.”

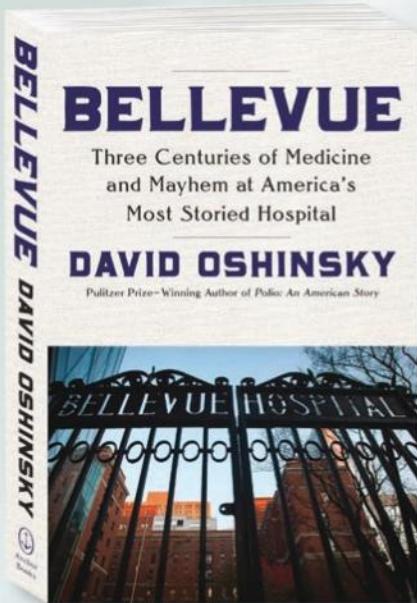
There would seem to be a natural affinity between Keith and Trump. Both are former Democrats who recently became loudmouth, conservative-friendly icons, and both also have a serious knack for branding. I met Keith in August, a few days after Trump’s most vivid threat against North Korea, and when I botched the specifics of the war of words, Keith corrected me. They’ll “be met with fire and fury,” he said, chewing on the president’s coinage as if he was considering a new album title in the vein of 2003’s *Shock’n Y’all*.

KEITH’S LATEST ALBUM, *The Bus Songs*, compiles new and old material born of men hanging out on a bus and making impolitic chitchat. Keith said songs such as “The Size I Wear” and “Runnin’ Block”—both of which specify the female body types that the burly singer finds attractive or, alternately, repulsive—were designed to entertain in the testosterone-soaked “locker room” environment of U.S. military camps abroad. “We’ve probably got 30 bus songs, but 20 of them we can’t play for anyone else,” he told me, sitting on his tour bus with his buddies. “They’re bad in every way that you can possibly imagine.”

It’s not lost on Keith that this kind of material has become politically charged. “Guys talk like that everywhere,” he replied when I asked about Donald Trump’s “grab ‘em by the pussy” comment, also made on a bus and brushed off as “locker-room talk.” “Bill Clinton, everyone was on him about getting a BJ. I was like, ‘It doesn’t affect the way he’s running the country.’” He raised the Toby Keith-branded red-plastic cup from which he’d been sipping Jack Daniel’s and addressed the rest of the bus. “I wonder how many presidents did get a BJ in the White House?” he asked, his

Keith’s lyrics have long trucked in a mix of nostalgia, bellicosity, tribalism, and America-first priorities.

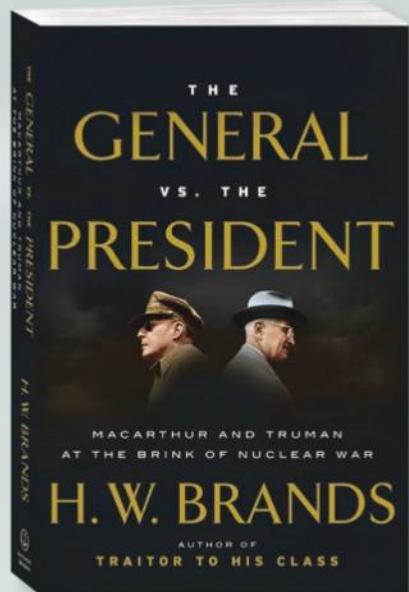
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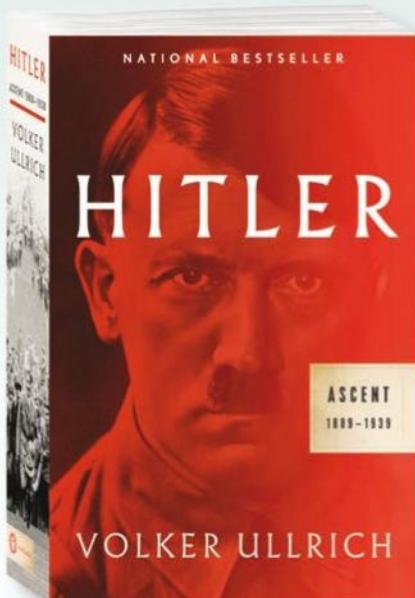


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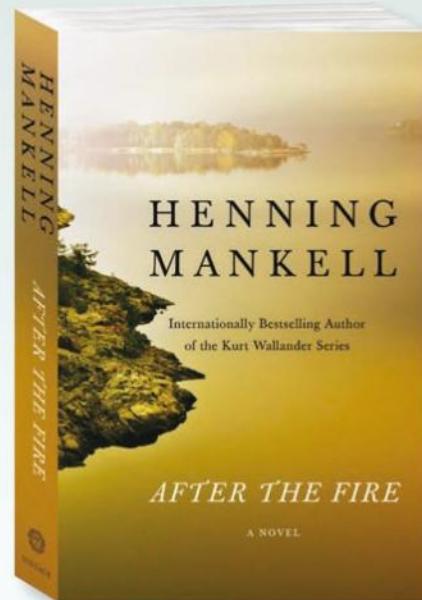


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ANCHOR

Oklahoman drawl giving the *J* a particularly round, plummy resonance.

"At least four," shot back Keith's collaborator Scotty Emerick, wearing a cowboy hat and noodling on an acoustic guitar.

"I think Nixon and Pat said they had to watch *Deep Throat* five times before he could get it down pat," offered Keith's manager T. K. Kimbrell to a round of guffaws.

Keith's national tour has suffered some mild blowback for his playing Trump's inauguration, with one protest against his booking at an Illinois barbecue festival making the pages of the *Chicago Tribune*. But Keith says the bulk of his fans—he calls them "redneck, hardcore, old-school, traditional country" people—haven't changed their attitude about him in the Trump era. "You're going to get some flak," he said. "But [to] the people who're flakking, the other people are going, 'You didn't buy an album anyways, bitch!'"

There was no sign of controversy in Bethlehem, where I watched him take the stage in the shadow of a decommissioned steel mill. The sold-out audience, more diverse in age than race, toted giant beer mugs—a far cry from the Riyadh show. Keith strode on stage in all denim and a straw cowboy hat, with a cross dangling from his neck. The energetic set spanned his peripatetic career, encompassing '90s tales of heartbreak, Bush-era salutes to the troops, and his new *Bus Songs* paean to marijuana, "Wacky Tobaccy": "If you can't take the heat, son, vaporize 'er!" At one point, his band members ritualistically passed around a bottle of Wild Shot Mezcal, the liquor line Keith launched in 2011.

When the lights came up after 18 songs, the crowd burst into a spontaneous chanting of "U-S-A! U-S-A!" Keith returned with his band for an encore: "American Soldier" and "Courtesy of the Red, White and Blue." For the latter song, he pointed at members of the audience holding pro-military signs, and one by one they were brought onto the stage. "Never apologize for being patriotic," he said. "Fuck 'em." ■



BIG IN ... FRANCE

COSTCO

IT CAN be difficult to predict which American exports will stick the landing in France. Jerry Lewis, Burger King, and anything *très Brooklyn*: a resounding *oui*. Uber, Netflix, and Skippy peanut butter: not so much.

Until June, when Costco opened its first French location, on the outskirts of Paris, the warehouse chain seemed doomed to join the latter. Last fall, *Le Parisien* dubbed the chain an "American mastodon" and wondered whether the French really wanted five-kilogram chocolate bars and half-meter pizzas.

French culture "is much less about abundance and excess," Doug Stephens, the founder of the consulting firm Retail Prophet, told me. "The French buy to consume, not to have."

So I was surprised, two weeks after the French Costco opened, to find it mobbed.

"C'est quoi ça?" my taxi driver muttered with bewilderment. The lot was nearly full, even though it was the beginning of France's summer

holiday season, when retail shops are supposed to be dead.

A bouncer in a black suit checked membership cards and pointed first-time visitors to the enrollment area, where more than 100 people stood waiting to pay the €36 annual fee. The store had signed up 12,000 members in its first 10 days.

I asked Pascale Charbonneau, the assistant warehouse manager, to give me a tour. Costco had brought over Francophones like Charbonneau from its Quebec operations to launch the warehouse. She looked at me quizzically. Hadn't I ever been to a Costco? I had.

"It's exactly the same," she said, and hurried off.

It was in fact very similar, with a few Continental tweaks. The day I visited, shoppers snapped up products with names calibrated to convey maximum New World authenticity, including Real American Super Buns (baked in the Netherlands) and Shipyard American IPA beer (brewed in Britain). French foods got a more

discerning reception. Costco-size packages of charcuterie flew out of a refrigerated display, but the house champagne—Kirkland Signature Brut—sat untouched.

The fluorescent cathedral's most familiar aspect was its uncanny ability to make shoppers act more, well, American. So much of French life is segregated, but Costco's newest members formed a diverse melting pot: hijab-clad mothers, stooped pensioners, Franco-bros in Hollister T-shirts, women with African head wraps. Children raced, shouting, around a *maison enfant*. An employee handing out cheese samples cracked a joke, and a shopper burst out laughing. A toddler had an atomic meltdown in the candy aisle. I had never seen so many public displays of naked emotion in France.

In the rear of the store, I found a gaggle of black and Arab adolescents in soccer jerseys, pushing a massive shopping cart. Their nominal leader held his smartphone aloft as he narrated to an absent friend, via videochat, the deals to be had.

"Quarante bouteilles, €3.79!" he cried. A blurry face shouted back approvingly, and the boys began hoisting cases of Kirkland bottled water into the cart.

Why had they come?

"It's cheap!" one kid replied, in French. He and his compatriots tore off, their cart careening down another canyon. The last one backpedaled around the corner, rubbing his fingers together, and called out, in heavily accented English: "Money!" —David Gauve Herbert

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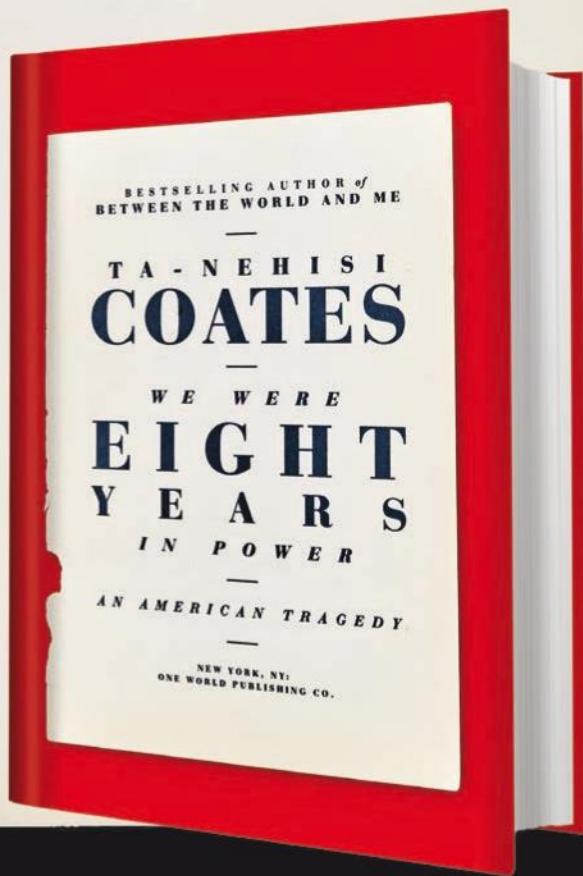


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• BUSINESS

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IBM pioneered telecommuting. Now it wants people back in the office.

BY JERRY USEEM

IN 1979, IBM was putting its stamp on the American landscape. For 20 years, it had been hiring the greats of modernism to erect buildings where scientists and salespeople could work shoulder-to-shoulder commanding the burgeoning computer industry. But that year, one of its new facilities—the Santa Teresa Laboratory, in Silicon Valley—tried an experiment. To ease a logjam at the office mainframe, it installed boxy, green-screened terminals in the homes of five employees, allowing them to work from home.

The idea of telecommuting was still a novelty. But this little solution seemed effective. By 1983, about 2,000 IBMers were working remotely. The corporation eventually realized that it could save millions by selling its signature buildings and institutionalizing distance work; the number of remote workers ballooned. In 2009, an IBM report boasted that “40 percent of IBM’s some 386,000 employees in 173 countries have no office at all.” More than 58 million square feet of office space had been unloaded, at a gain of nearly \$2 billion. IBM, moreover, wanted to help other corporations reap the same officeless efficiencies through its consulting services. Leading by example was good marketing.

Then, in March of this year, came a startling announcement: IBM wanted

thousands of its workers back in actual, physical offices again.

The reaction was generally unsparing. The announcement was depicted, variously, as the desperate move of a company whose revenues had fallen 20 quarters in a row; a veiled method of shedding workers; or an attempt to imitate companies, like Apple and Google, that never embraced remote work in the first place. “If what they’re looking to do is reduce productivity, lose talent, and increase cost, maybe they’re on to something,” says Kate Lister, the president of Global Workplace Analytics, which measures (and champions) working from home.

IBM might have seen this coming. A similarly censorious reaction greeted Yahoo when it reversed its work-from-home policy in 2013. Aetna and Best Buy have taken heat for like-minded moves since. That IBM called back its employees anyway is telling, especially given its history as “a business whose business was how other businesses do business.” Perhaps Big Blue’s decision will prove to be a mere stumble in the long, inevitable march toward remote work for all. But there’s reason to regard the move as a signal, however faint, that telecommuting has reached its high-water mark—and that more is lost in working apart than was first apparent.

How could this be? According to Gallup, 43 percent of U.S. employees work remotely all or some of the time. As I look to my left, and then to my right, I see two other business-casual-clad men hammering away on their laptops beside me at a Starbucks just outside Chicago. They look productive. Studies back this impression up. Letting Chinese call-center employees work from home boosted their productivity by 13 percent, a Stanford study reported. And, again according to Gallup, remote workers log significantly longer hours than their office-bound counterparts.

Another batch of studies, however, shows the exact opposite: that proximity boosts productivity. (Don’t send call-center workers home, one such study argues—encourage them to spend more time together in the break room, where

they can swap tricks of the trade.) Trying to determine which set of studies to trust is—trust me—a futile exercise. The data tend to talk past each other. But the research starts to make a little more sense if you ask what type of productivity we are talking about.

If it’s personal productivity—how many sales you close or customer complaints you handle—then the research, on balance, suggests that it’s probably better to let people work where and when they want. For jobs that mainly require interactions with clients (consultant, insurance salesman) or don’t require much interaction at all (columnist), the office has little to offer besides interruption.

But other types of work hinge on what might be called “collaborative efficiency”—the speed at which a group successfully solves a problem. And distance seems to drag collaborative efficiency down. Why? The short answer is that collaboration requires communication. And the communications technology offering the fastest, cheapest, and highest-bandwidth connection is—for the moment, anyway—still the office.

Consider the extremely tiny office that is the cockpit of a Boeing 727. Three crew members are stuffed in there, wrapped in instrument panels.



Comfort-wise, it's not a great setup. But the forced proximity benefits crew communication, as researchers from UC San Diego and UC Irvine demonstrated in an analysis of one simulated flight—specifically the moments after one crew member diagnoses a fuel leak.

A transcript of the cockpit audio doesn't reveal much communication at all. The flight engineer reports a "funny situation." The pilot says "Hmmm." The co-pilot says "Ohhhh."

Match the audio with a video of the cockpit exchange and it's clear that the pilots don't need to say much to reach a shared understanding of the problem. That it's a critical situation is underscored by body language: The flight engineer turns his body to face the others. That the fuel is very low is conveyed by jabbing his index finger at the fuel gauge. And a narrative of the steps he has already taken—no, the needle on the gauge isn't stuck, and yes, he has already diverted fuel from engine one, to no avail—is enacted through a quick series of gestures at the instrument panel and punctuated by a few short utterances.

It is a model of collaborative efficiency, taking just 24 seconds. In the email world, the same exchange could easily involve several dozen messages—which, given

the rapidly emptying fuel tank, is not ideal.

This brings us to a point about electronic communications technologies. Notionally, they are cheap and instantaneous, but in terms of person-hours spent using them, they are actually expensive and slow. Email, where everything must literally be spelled out, is probably the worst. The telephone is better. Videoconferencing, which gives you not just inflection but expression, is better still. More-recent tools like the workplace-communication app Slack integrate social cues into written exchanges, leveraging the immediacy of instant-messaging and the informality of emoji, plus the ability to create a channel to bond over last night's #gameofthrones.

Yet all of these technologies have a weakness, which is that we have to choose to use them. And this is where human nature throws a wrench into things. Back in 1977, the MIT professor Thomas J. Allen looked at communication patterns among scientists and engineers and found that the farther apart their desks were, the less likely they

were to communicate. At the 30-meter mark, the likelihood of regular communication approached zero.

The expectation was that information technology would flatten the so-called Allen Curve. But Ben Waber, a visiting scientist at MIT, recently found that it hasn't. The communications tools that were supposed to erase distance, it turns

out, are used largely among people who see one another face-to-face. In one study of software developers, Waber, working alongside researchers from IBM, found that workers in the same office traded an average of 38 communications about each potential trouble spot they confronted, versus roughly eight communications between workers in different locations.

The power of presence has no simple explanation. It might be a manifestation of the "mere-exposure effect": We tend to gravitate toward what's familiar; we like people whose faces we see, even just in passing. Or maybe it's the specific geometry of such encounters. The cost of getting someone's attention at the coffee machine is low—you know they're available, because they're getting coffee—and if, mid-conversation, you see that the other person has no idea what you're talking about, you automatically adjust.

Whatever the mechanisms at play, they were successfully distilled into what Judith Olson, a distance-work expert at UC Irvine, calls "radical collocation." In the late 1990s, Ford Motor let Olson put six teams of six to eight employees into experimental war rooms arranged to maximize team members' peripheral awareness of what the others were up to. The results were striking: The teams completed their software-development projects in about a third of the time it usually took Ford engineers to complete similar projects. That extreme model is hard to replicate, Olson cautions. It requires everyone to be working on a single project at the same time, which organizational life rarely allows.

The communications technology offering the fastest, cheapest, and highest-bandwidth connection is still the office.



ILLUSTRATION BY JAMIE CULLEN

But IBM has clearly absorbed some of these lessons in planning its new workspaces, which many of its approximately 5,000 no-longer-remote workers will inhabit. “It used to be we’d create a shared understanding by sending documents back and forth. It takes forever. They could be hundreds of pages long,” says Rob Purdie, who trains fellow IBMers in Agile, an approach to software development that the company has adopted and is applying to other business functions, like marketing. “Now we ask: ‘How do we use our physical space to get on and stay on the same page?’”

The answer, of course, depends on the nature of the project at hand. But it usually involves a central table, a team of no more than nine people, an outer rim of whiteboards, and an insistence on lightweight forms of communication. If something must be written down, a Post-it Note is ideal. It can be stuck on a whiteboard and arranged to form a “BVC”—big, visual chart—that lets everyone see the team’s present situation, much like the 727’s instrument panels. Communication is both minimized and maximized.

Talking with Purdie, I began to wonder whether the company was calling its employees back to an old way of working or to a new one—one that didn’t exist in 1979, when business moved at a more stately pace. In those days, IBM could decide what to build, plan how to build it, and count on its customers to accept what it finally built at the end of a months-long process. Today, in the age of the never-ending software update, business is more like a series of emergencies that need to be approached like an airplane’s fuel leak. You diagnose a problem, deliver a quick-and-dirty solution, get feedback, course-correct, and repeat, always with an eye on the changing weather outside.

I asked Purdie whether IBM’s new approach could be accomplished at a distance, using all the new collaborative technology out there. “Yes,” he said. “Yes, it can. But the research says those teams won’t be as productive. You won’t fly.” **A**

Jerry Useem has covered business and economics for Inc. magazine, The New York Times, Fortune, and other publications.

What's Normal?

A scientific inquiry

BY BEN ROWEN

AFTER ELECTION Day, “This is not normal” became a rallying cry for Donald Trump’s opponents: Harry Reid warned against press coverage that normalized the president-elect; a John Oliver monologue about Trump being abnormal won 14 million YouTube views; THIS IS NOT NORMAL T-shirts popped up around the country. But in July, after critics opined that his bullying tweets were “not normal,” Trump tweeted back that his social-media usage, far from deviant, was simply “MODERN DAY PRESIDENTIAL.” Maybe he’s hit on an uncomfortable truth: Even abhorrent things can become standard. Could his behavior become normal?

The answer depends in part on what we mean by *normal*. Recent research suggests that our sense of what’s normal reflects not only our belief about what’s average, but also our sense of what’s ideal. In one experiment, subjects said that three hours was a normal amount of TV to watch each day—in between the 2.3 hours they described as ideal and the four hours they said was average. **[1]** What people consider

normal or typical can also depend on how much they know. According to an earlier study, non-experts were likely to call a tree typical if it was familiar to them; tree experts were likely to call a tree typical if it was prescriptively ideal. **[2]**

Complicating matters, our sense of what’s ideal can be fickle.



Children, who by age 3 have ideas about what is normal behavior, **[3]** are prone to seeing an instance of a random behavior—someone taking items out of a bag in a certain way, say—as exemplifying a norm, even without any prompting. **[4]** Among adults, too, conventions can emerge with surprising speed. A University of Pennsylvania study asked members of a social network to look at images of adults and name them. After each participant shared his or her suggested name with just a few others in the group, the entire network quickly reached

consensus. **[5]** This helps explain how names that were uncommon 20 years ago, like Aiden, can become, well, normal.

Norms can also shift quickly on more disturbing matters. In one study, a group of women was shown a movie that presented stalking as romantic. For some, the romantic portrayal “normalized” the behavior; these subjects later registered a more permissive attitude toward stalking. **[6]** Similarly, a recent working paper found that when people were told that a xenophobic opinion they disagreed

with was in fact a popular view, they were less likely to judge a person who publicly subscribed to it. **[7]**

More than simply destigmatizing the fringe, exposure to extreme opinions can change one’s sense of normality. When researchers presented more than 1,000 subjects with either radically conservative or radically liberal policy options—for example, ban immigration, or don’t limit it at all—their sense of what a centrist position was shifted toward that extreme. **[8]**

So yes, norms can shift to accommodate deviance. Of course, if Trump truly wants to be seen as “modern day” normal, a simpler route would be for him to move toward existing norms, instead of waiting for the norms to come to him. **A**

THE STUDIES:

- [1]** Bear and Knobe, “Normality” (*Cognition*, Oct. 2017)
- [2]** Lynch et al., “Tall Is Typical” (*Memory & Cognition*, Jan. 2000)
- [3]** Rakoczy et al., “The Sources

of Normativity” (*Developmental Psychology*, May 2008)

- [4]** Schmidt et al., “Young Children See a Single Action and Infer a Social Norm” (*Psychological Science*, Oct. 2016)
- [5]** Centola and Baronchelli,

“The Spontaneous Emergence of Conventions” (*Proceedings of the National Academy of Sciences*, Feb. 2015)

- [6]** Lipman, “I Did It Because I Never Stopped Loving You” (*Communication Research*, Feb. 2015)

[7] Bursztyn et al., “From Extreme to Mainstream” (*National Bureau of Economic Research*, May 2017)

- [8]** Simonovits, “Centrist by Comparison” (*Political Behavior*, March 2017)



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• WORKS IN PROGRESS

Hanged, Burned, Shot, Drowned, Beaten

Memorializing America's 4,384 known victims of lynching

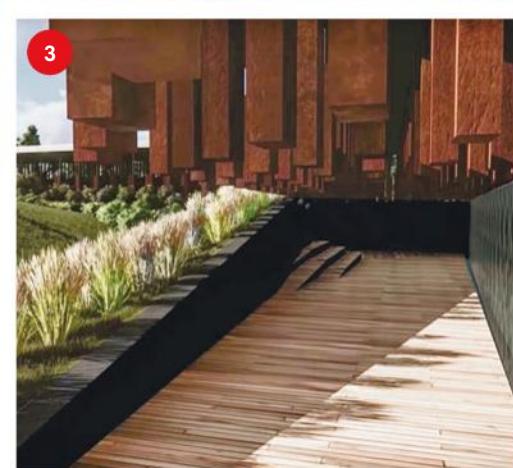
BY KRISTON CAPP\$

ON THE CORNER of Washington and Decatur streets in Montgomery, Alabama, a visitor can feel history pressing in from every side. Just down the street is the church where Martin Luther King Jr. and others planned

the Montgomery bus boycott. Two blocks away sits the First White House of the Confederacy, where Jefferson Davis once lived. But although the city is crowded with historical markers—including, by one count, 59 Confederate memorials, and

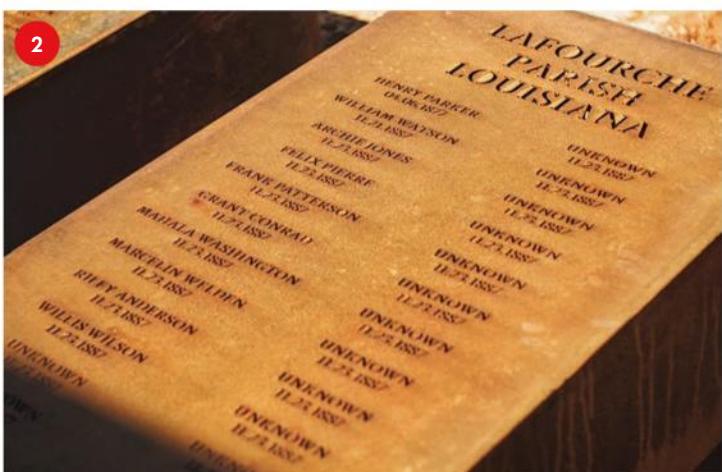
a similar number devoted to the civil-rights movement—you won't find many markers of the racial violence following Reconstruction.

Soon, however, on a six-acre site overlooking Montgomery's Cottage Hill neighborhood, just a stone's



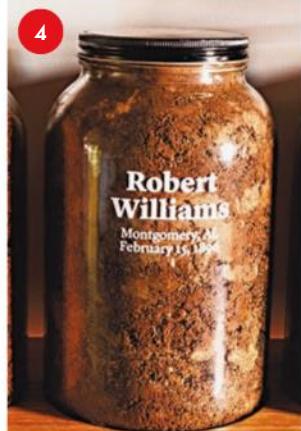
throw from the Rosa Parks Museum, the Memorial to Peace and Justice **1** will serve as a national monument to the victims of lynchings. It will be the first such memorial in the U.S., and, its founders hope, it will show how lynchings of black

2



continued to grow; it now stands at 4,384.

Stevenson felt that it was crucial to find a way to incorporate this history into what he describes as a landscape “littered with the iconography of the Confederacy.” Conceived by MASS Design Group, a Boston architecture firm, the memorial’s design comprises 816 suspended columns, each representing a U.S. county in which EJI has documented lynchings, with the names of that county’s known victims inscribed **②**. The columns will be made of Corten steel, a material that oxidizes when exposed to weather; over time, rust may bleed onto nearby surfaces. (The metal was used to great effect in the Barclays



4

people were essential to maintaining white power in the Jim Crow South.

The memorial is the brainchild of Bryan Stevenson, a lawyer who directs the Equal Justice Initiative, a Montgomery-based legal-advocacy organization. Two years ago, EJI completed an ambitious tally of the black Americans hanged, burned alive, shot, drowned, beaten, or otherwise murdered by white mobs from 1877 to 1950. EJI’s original report identified 4,075 victims, a sizable increase from previous estimates. Since then, the list of killings has

Center in Brooklyn.) Viewers walking through the pavilion will gradually descend. As they do, the rust-colored columns will hang above them, a frank suggestion of dangling corpses **③**.

Bordering the memorial will be replicas of the columns; EJI is challenging counties to come and claim theirs—a takeaway memorial to erect at home. The hope is that one day, the perimeter of the monument will be empty, the replicas dispersed across 20 states ranging from the Deep South to Utah, Minnesota, and California.

Construction on the memorial is already under way, with an opening planned for next spring. EJI is also creating a museum called From Enslavement to Mass Incarceration, which seeks to connect the history of slavery with the racial violence of the 20th century. One exhibit will feature hundreds, perhaps eventually thousands, of jars of soil **④ ⑤** from the sites of documented lynchings, collected by community volunteers **⑥**.

The Apartheid Museum in Johannesburg, the Kigali

Genocide Memorial in Rwanda, and the Memorial to the Murdered Jews of Europe in Berlin are among the models for the new memorial and museum, Stevenson told me. America’s original sin predates the atrocities that prompted those memorials, but he believes it’s not too late for the country to come to terms with the violence that has supported white supremacy across centuries. “I think we do need truth and reconciliation in America,” he said. “But truth and reconciliation are sequential. You can’t get to reconciliation until you first tell the truth.” **A**

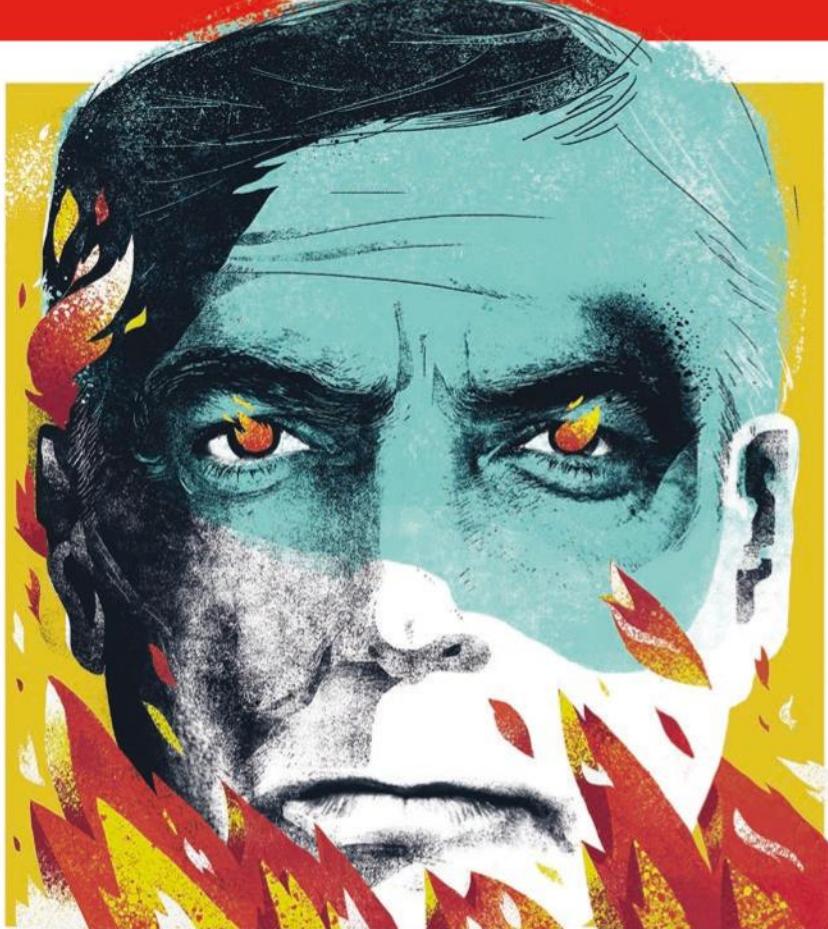


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6

The CULTURE FILE



THE OMNIVORE

The Bonfire of Humanity

Ten years after *Michael Clayton*'s release, the world has caught up to the film's bleak vision.

BY JAMES PARKER

ONE OF THE DISORIENTATIONS of where we're at—the obliterative sucking splotch of a present tense in which we now all live—is that it feels simultaneously like a malign mischance and like something we should have seen coming a mile off. For decades the poets have been sobbing, the screenwriters having nightmares, and the canaries in the coal mine toppling stoically from their perches. Works of art that seemed, at the time, to be merely broody or frazzled now appear darkly predictive—pregnant with prophecy, some of them. All the signs point to here. So how to mark this rather subterranean anniversary, 10 years after the release of a very, very good movie? Perhaps by saying that it is becoming a classic before our eyes, because things are even more *Michael Clayton* now than they were when *Michael Clayton* first came out.

Want Trumpton 2017, a grinning Babylon of graft, pelf, and payola, with everybody mortgaged to everybody, and everything else—marriages, bank accounts, moral systems, nervous systems, reasons for living—burned out? Here it is. Recall if you will George Clooney, in the titular role, driving too fast on predawn country roads. His face is heavy, so heavy. Existence is choking him. Despair is on his tongue and in the black basins of his Clooney eyes. He looks like a man who woke up depressed, in that state (you know that state) where every thought has a dripping, downward-dragging tendency. In fact, he hasn't slept at all. Abruptly he pulls over, climbs out of his Mercedes, and sets off up a grassy hillside, slightly dizzy-looking in his flapping shroud of a dark corporate suit, as if in the wake of a catastrophe ... How did he—how did we—get here?

Michael Clayton has been working for 17 years for a sprawling, devouring New York law firm called Kenner, Bach & Ledeen. He was a lawyer once, but he's not really a lawyer anymore. Now he's some kind of shady threshold guardian, a sorter-out of difficulties. Get yourself in a jam, any kind of jam, and you call Michael Clayton. *Miracle worker*, say some; *fixer*, *janitor*, *bagman*, say others. His medium, his material, is human frailty, the near end of original sin, and the tools of his trade are the glad hand, the scratched back, the padded envelope, the cut corner, and the jumped line. ("Super job, Elston," Clayton says to a Milwaukee police officer who's just done him a favor. "You get to New York, you need tickets to a game—or anything—you let me know.") He is immensely charming, although—because he is being played by George Clooney—his charm is a strange burden, a thickening of aura, almost a physical weight upon him.

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In the city, anxiety reigns, debt stacked upon debt. The restaurant/bar that Clayton owned with his brother Timmy has gone belly-up—as has Timmy, an addict—and a loan shark wants \$75,000 from him, today. Kenner, Bach & Ledeen is teeter-tottering on the edge of a huge merger. Out in the heartland, meanwhile, milking its cows and getting cancer, subsists that other American population: the perpetually screwed. Kenner, Bach & Ledeen has been defending the agri-monster U/North, producer of a weed killer that also—less efficiently, but no less finally—kills human beings, in a class-action suit brought on behalf of many poisoned, ailing, and bereaved rural families. Tilda Swinton plays Karen Crowder, U/North's in-house counsel: ultra-accomplished, merciless, shallow-breathing, at an agonizing pitch of tension. Her head swivels in birdlike terror.

And now Arthur Edens (Tom Wilkinson), the firm's lead attorney on the U/North case, has gone rogue. Gone bananas. He's off his meds. He's high on the truth. Illumined by mania, gnashing with conviction, he sees it all:

I realized, Michael, that I had emerged not through the doors of Kenner, Bach & Ledeen, not through the portals of our vast and powerful law firm, but from the asshole of an organism whose sole function is to excrete the, the, the, the poison, the ammo, the *defoliant* necessary for other larger, more powerful organisms to destroy the miracle of humanity.

Is Arthur insane? Not at all. His perceptions have a fine, religious clarity. Pierce the everyday, deepen your sense of reality, and the firm of Kenner, Bach & Ledeen is a giant, squatting, toxin-squirting organism. We live surrounded by—ruled by—just such giant, squatting, toxin-squirting organisms.

All right. Pause. Breathe. It taxes my reviewerly brain to try to synopsize this movie, because the real mysteries, it turns out, are not the ones you don't or can't understand, but the ones that endlessly, bottomlessly disclose meaning. They increase in relevance. And *Michael Clayton* is mysterious like that: better today than it was in 2007. Writer-director Tony Gilroy is a Hollywood paradox: a visionary journeyman, a machinist-poet who churned through many entertainments, including the original Jason Bourne trilogy, on his way to *Michael Clayton*. The earlier work holds hints and presagings. In *The Devil's Advocate*, Satan (Al Pacino) runs a great big Manhattan law firm, sucking nice young attorneys skyward on backdrafts of temptation, up into the infernal spires and the penthouses of Tartarus. And Jason Bourne, amnesiac hit man, is a very pure existential cipher—a man on the run, profoundly alone,

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**The
CultureFile**

THE OMNIVORE

**Want
Trumpton
2017, a
grinning
Babylon of
grift, pelf,
and payola?
Here it is.**

surveilled by demons, desperate to discover who he is and how he was made. But there's no lively, twinkling Satan/Pacino in *Michael Clayton*, no CIA master villain. Evil is not an active principle in this universe; it is a sluggish compound of evasion, appetite, and self-interest. It gathers around your ankles.

Michael Clayton is a great film because underneath the stylishness, the performances, the dialogue, and the closed-circuit plotting, underneath everything that got it nominated for seven Academy Awards, is the mute, heaven-pummeling, gaping-like-a-baby unformed vowel of a human soul crying out. Let's return to that hillside where Clayton exited his Mercedes. In the gray light, he climbs the pasture. Halfway up the slope, three horses are standing: sculpturally still, casually composed in a perfect triptych of horsitude. Clayton stops, wobbles slightly. The horses watch him, three velvety dinosaur heads scanning this end-of-his-rope man with a balance of priestly inquiry and animal indifference. They breathe, they nod, incense of horse-exhalation in the cool air. He breathes, he nods. Something is exchanged. Something is understood. Something is absolved. Something is released. Behind him, in a gassy wallop of flame, his car explodes. The horses wheel and take off, with the air of having suddenly remembered a superior engagement. And Clayton, understanding after a few seconds of confusion that somebody just tried to kill him, blunders back down to the blazing vehicle and clumsily, hastily, tosses into it his watch, his wallet, whatever is in his pockets.

"I am Shiva, the god of death." So says Arthur, manic and glaring, to Michael Clayton. And so says Clayton, post-horses, with cosmic irony, to U/North's CEO. The law does its work, finally, in *Michael Clayton*. It mops up the corruption. The system functions. Society holds. But for the individual, for Michael Clayton, there has been a reckoning. Conflagration, transformation. The film ends on an extended shot of Clayton's face as he rides in the back of a cab, doleful and emptied-out, redeemed and ashen, jolting through the lumps and craters of Manhattan. We're all implicated, all coated in psychic slime like Arthur Edens, and each one of us has world-reversing power. So when you feel Shiva's heat, when the cleansing, incinerating moment comes, seize it. Give the trappings of your identity to the flames. Throw your wallet into the exploding car. Burn it up, and be renewed. **A**

James Parker, an Atlantic contributing editor, will be sharing the Omnivore column with Caitlin Flanagan through next summer.

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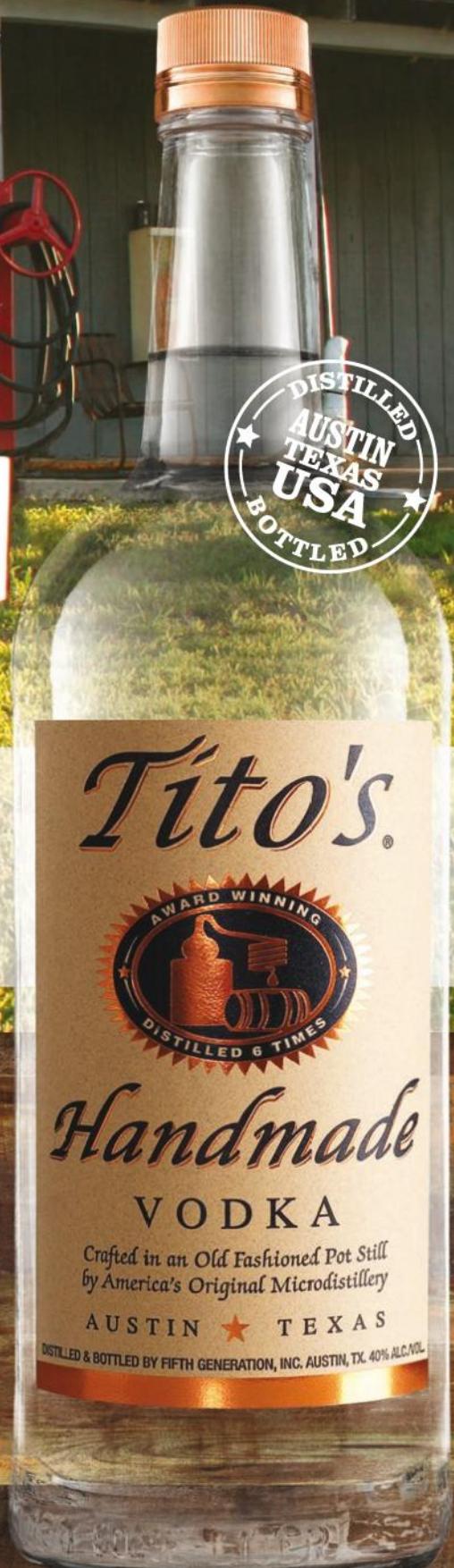


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▼
BOOKS

The Unknowable Joni Mitchell

Her music inspires a deep sense of intimacy, yet her fierce privacy is the key to her genius.

BY JACK HAMILTON

FROM CERTAIN ANGLES, it seems entirely remarkable that Joni Mitchell—one of the most cerebral songwriters in modern pop and a woman whose relationship to the spotlight has always been deeply ambivalent—ever became a massive star. From other angles, her ascension seems inevitable. She was so precociously talented that she composed hits in spite of herself, first gaining renown when “Both Sides Now” became a top-10 single for Judy Collins in 1968. Mitchell, who was 25 years old, had only just released her first record. Two years later, her third album, *Ladies of the Canyon*, closed with the troika of “Big Yellow Taxi,” “Woodstock,” and “The Circle Game,” three of the most iconic songs of a generation, rattled off almost as an afterthought. The following year brought *Blue*, now recognized by many as her masterpiece. This summer—almost half a century later—*Blue* topped NPR Music’s list of “The 150 Greatest Albums Made by Women,” compiled by a panel of nearly 50 contributors.

“*Blue* remains the clearest and most animated musical map to the new world that women traced, sometimes invisibly, within their daily lives in the aftermath of the utopian, dream-crushing 1960s,” wrote the NPR music critic Ann Powers, who helped conceive the top-150 project. Powers called attention to the discomfiting audacity of Mitchell’s creation: “It is a record full of love songs, of sad songs; but more than that, it is a compendium of reasonable demands that too many men in too many women’s lives heard, in 1971, as pipe dreams or outrageous follies.” Indeed, upon its release, *Blue*—an abrupt turn away from the counterculture-soaked *Ladies* and toward something both more personal and more elusive—was met with confusion in many quarters. It would not be the last of Mitchell’s releases to provoke such a response. By the mid-’70s, her compositions had grown so complex that she was performing almost exclusively with jazz musicians. L.A.’s rock session players were no longer able to figure out her chords.

Trying to write about her music proved only slightly less difficult than trying to play it. Mitchell was a songwriter and a performer who prompted her audience to fantasize about some sort of personal access to her even as her art itself grew ever more challenging and rarefied. Nearly 50 years’ worth of critical efforts to solve Mitchell’s mysteries

have now been rounded up in Barney Hoskyns's *Joni: The Anthology*. The first major collection of previously published writing on the singer has its quirks and gaps (and a distinctly British flavor). But what comes through most consistently is a possessive impulse, a desire to *really know* an artist whose fierce privacy has often seemed at odds with the impression of intimacy conveyed by her music.

Mitchell's most ambitious songs were impervious to musical comparison or reference, the staples of workaday rock criticism. So instead, people (mostly male people) wrote about *her*, or their ideas of her, mining her lyrics for nuggets of confession and gossiping about her personal life. A generation of rock men, assuming for themselves the role of authorities in the genre, tended to view Mitchell primarily as an object—of desire, of curiosity, of worship, of derision. Stephen Stills once told the journalist Ellen Sander that “every man within fifty feet falls in love with her.”

Critics followed suit. Writing about *Ladies of the Canyon*, the *New York Times* reviewer declared himself “hopelessly in love with Joni Mitchell.” Praise went hand in hand with sexist condescension, and worse. “Joni Mitchell’s particular triumph is that girl singers or girl artists of any kind who have really gotten at what it is to be a woman can be counted on the fingers of one hand,” wrote a male reviewer of her first album, in 1968. In 1971, *Rolling Stone* dubbed her “Old Lady of the Year.” In 1972, the magazine prominently featured Mitchell in a crude chart of rock stars’ relationships, romantic as well as musical. (The Hoskyns anthology includes a grotesquely lewd review of a 1976 Mitchell concert from *Swank*, a porn magazine.)

AMONG MITCHELL’S greatest gifts as a songwriter and a performer was a double-edged one: her preternatural ability to create a sense of connection with her audience. Male listeners, believing they were in love with her, also indulged the illusion that she might love them. Female listeners believed she was giving voice to their own lives and thoughts. Her dazzling powers of expression, in her writing and in a pristine soprano that seemed to exude confessional directness, had a way of obscuring the sophistication and intellect that defined her art. Particularly in her early years, Mitchell seemed to represent for her audience an ideal of human companionship—lover, friend, confidant, teacher. She was, to use one of contemporary English’s worst words, relatable.

Yet whatever her listeners might dream or desire, Joni Mitchell was never in it for them, and she certainly wasn’t *like* them: She was a genius. As David Yaffe shows in his new biography, *Reckless*

▼
The Culture File

Among Mitchell’s greatest gifts is her ability to create a sense of connection with her audience.

Daughter: A Portrait of Joni Mitchell, to approach her as an open book waiting to be read is to miss the essence of that genius. In the best full-length treatment of Mitchell yet published, Yaffe follows her from her childhood in postwar Saskatchewan all the way up to a Chick Corea concert last year, her first public appearance after suffering an aneurysm in 2015. Yaffe was granted extraordinary access to the famously standoffish Mitchell, as well as to many of her closest friends and collaborators, including Wayne Shorter, Herbie Hancock, Joan Baez, David Crosby, Judy Collins, and the late Leonard Cohen. Making the most of his proximity, he pulls off the feat that has eluded so many of his predecessors: He forges an intimacy with Mitchell on her own, uncompromising terms by truly listening to her, as closely and as generously as she’s always deserved.

Yaffe, a humanities professor at Syracuse University, is a self-professed Mitchell obsessive. He writes with the passion of a fan, but his book is neither a hagiography nor a kiss-and-tell-all. Occasionally his closeness to his subject seems to tempt him to overpsychologize, and some may find his habit of calling his subject “Joni” distracting, but given the amount of time he spent with her, it doesn’t feel unearned. And Yaffe never tries to present Mitchell as a straightforwardly cooperative subject. He wisely presumed the contrary, as he makes clear from the start. He opens with a story of being chewed out by her in 2007 for using a particular adjective—*middle class*—to describe her home in a profile he wrote of her for *The New York Times*. As he appreciates, her problem wasn’t just that she found it unflattering, but that she deemed it imprecise. (*Earthy* would have suited her better.) Plus, she didn’t regret the friction, as she admits to him later: “I’m so easy to win back. But if there’s no meeting and no communication and the vibe is cold, what can you do?”

Talking about music, like writing about it, is remarkably difficult, and most musicians aren’t much better at it than the rest of us. Mitchell is the rare artist whose description of her work and creative process can enhance our understanding, not in a literal-minded way but in a sort of metacritical one. “Joni’s songs taunt listeners into biographical readings,” Yaffe writes, “and they also invite us to understand the mind creating them.” In *Reckless Daughter*, he draws out that mind as it dances from humor to introspection to prickliness to profundity.

BLUE WASN’T MITCHELL’S BIGGEST hit (that turned out to be 1974’s *Court and Spark*), nor was it her most musically ambitious work (next to her late-'70s output, it sounds studiously minimalist). But it’s the album

that has most seductively metonymized the singer in the minds of fans and critics in the decades since its release. It is one of the most viscerally intimate pop albums ever recorded, an effect achieved not merely through its lyrical content but through its entire sonic form. *Blue*'s signature sound, heard in the opening notes of the album's first track, "All I Want," is made by an Appalachian dulcimer. Mitchell once described her emotional state during the period she was working on *Blue* as "like a cellophane wrapper on a pack of cigarettes," a condition that the dulcimer puts to sound, all sparkling, brittle fragility. The album features "Little Green," Mitchell's love song to a daughter she'd given up for adoption at age 21, as well as "A Case of You," perhaps the most romantic song in Mitchell's entire catalog.

The album also includes "River," which became one of Mitchell's most popular compositions. (According to Yaffe, it has been covered more than 500 times.) From its opening reharmonization of "Jingle Bells" to its unflinching depiction of a relationship in winter, "River" is a perfect song. "I wish I had a river so long / I would teach my feet to fly," Mitchell sings, elongating and soaring upward on that last word, only to finally settle back to Earth on the brutal line "I made my baby cry," sung in a descending major scale, which is among the most elemental melodies in Western music. "River" is a microcosm of Mitchell's compositional gifts, its words and melody and harmonic progression so exquisitely interlaced that discerning which generated which is impossible. Its fate is also a microcosm of the confused reception accorded Mitchell's music in the broader culture. "River" is now a staple of holiday radio and movie soundtracks, its ubiquity drowning out its truth: "River" is a song about people being terrible to each other.

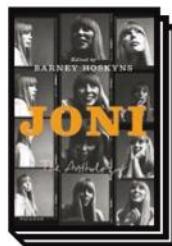
Yaffe understands the dark undercurrents and the big stakes, which Mitchell articulated in what is probably the most famous interview she's ever given, to *Rolling Stone*'s Cameron Crowe in 1979. "By the time of my fourth album," she told Crowe,

I came to another turning point—that terrible opportunity that people are given in their lives. The day that they discover to the tips of their toes that they're *assholes* (*solemn moment, then a gale of laughter*). And you have to work on from there. And decide what your values are. Which parts of you are no longer really necessary. They belong to childhood's end. *Blue* really was a turning point in a lot of ways.

As Yaffe puts it, "With these songs, a cycle on the perils and pleasures of love and its discontents, Joni offers her own battered heart for anyone else

The Culture File

BOOKS



JONI: THE ANTHOLOGY
EDITED BY BARNEY HOSKYNS
Picador



RECKLESS DAUGHTER: A PORTRAIT OF JONI MITCHELL
DAVID YAFFE
Sarah Crichton

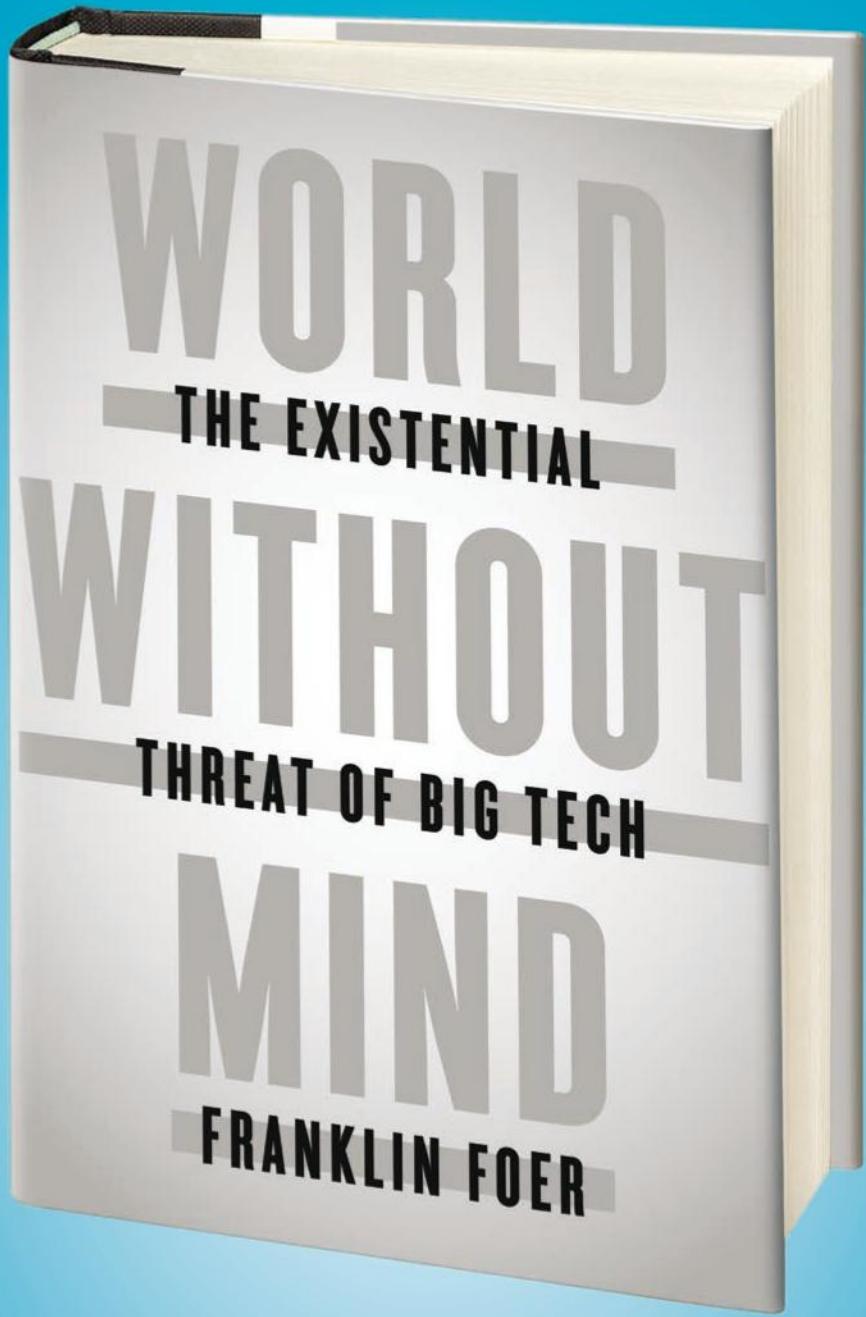
who has dared to be vulnerable and survived the wreckage." Yet her offering was anything but simple, and with one word, *cycle*, he points to the ambition of Mitchell's musical and emotional endeavor. Her songs—entwined with one another without being constrained—evoke evanescence, but also endurance, and tell a universal story in vividly particular terms that could only be her own.

Yaffe's greatest accomplishment in *Reckless Daughter*, stuffed though it is with insightful reporting, is to shed light not just on the artist but also on the art. Yaffe (the author of two previous books, *Fascinating Rhythm: Reading Jazz in American Writing* and *Bob Dylan: Like a Complete Unknown*) brings a sophisticated and exceptionally careful ear to music that demands nothing less. A detailed analysis of the title track on *Court and Spark* links the song's harmonic structure to Debussy's "Clair de Lune"—a piece that Mitchell adored as a child in Canada. Such moments are what the very best biographies of artists strive for. Yaffe's exegeses take flight again and again. Read him on *Blue*'s "All I Want"—"Like eros itself," he observes, "perpetually incomplete, but searching for completion anyway"—and the song will never sound the same.

As the '70s progressed, the tension between Mitchell's genius and her audience's expectations grew more fraught. *The Hissing of Summer Lawns* (1975), her follow-up to the multiplatinum *Court and Spark* and her boldest foray yet into the avant-garde borderlands of jazz, was dismissed by *Rolling Stone* as "a great collection of pop poems with a distracting soundtrack." (It's now considered a stellar achievement—Prince cited it as one of his favorite albums of all time.) *Reckless Daughter* also offers an overdue reconsideration of the most controversial entry in Mitchell's catalog, *Mingus*, her collaboration in 1978 with the dying jazz great Charles Mingus, a partnership that she considered almost sacred—and that nearly destroyed her career.

Mitchell turns 74 this month, and may or may not make music again. She will almost certainly never seek out the Boomer-in-winter adulation that has proved so lucrative for many of her contemporaries. Nor does she need to. Her influence on popular music is staggering, heard in artists ranging from Taylor Swift to Frank Ocean to James Blake to Lorde. And it is only growing. "I am a lonely painter / I live in a box of paints," Mitchell sang in "A Case of You" nearly 50 years ago. The box is still hers, but today we all live there. A

Jack Hamilton, an assistant professor of American studies and media studies at the University of Virginia, is the author of Just Around Midnight: Rock and Roll and the Racial Imagination.



“*World Without Mind* is an argument in the spirit of those brave democracy protestors who stand alone before tanks. Franklin Foer asks us to unplug and think. He asks us to recognize and challenge Silicon Valley’s monopoly power. **HIS BOOK IS A VITAL RESPONSE TO DIGITAL UTOPIANISM.”**

—STEVE COLL, Pulitzer Prize-winning author of *Ghost Wars* and *Private Empire*



▼
BOOKS

Diving Into the Wreck

Jennifer Egan's surprising swerve into historical fiction

BY RUTH FRANKLIN

THE SEA, THE SEA!" It's the jubilant, elemental cry of a child released from a hot car on a summer day, but also a phrase with deep historical and literary roots. The shout of mercenary Greek soldiers—"Thalatta! Thalatta!"—in 401 B.C., when they finally glimpsed the Black Sea, and thus their salvation, on their way back from fighting in Persia, in Xenophon's telling. A symbol of solace and rejuvenation, in Paul Valéry's poem "The Graveyard by the Sea": "The sea, the sea, always beginning anew." A source of fear and violence, in the famous monologue of Molly Bloom in *Ulysses*: "That awful deepdown torrent O and the sea the sea crimson sometimes like fire."

Joy, purification, renewal, death—the sea is all of these things in *Manhattan Beach*, Jennifer Egan's intricately patterned and visionary new novel. The author of four previous novels and a collection of short stories, Egan broke free of the Brooklyn-writer pack with her Pulitzer Prize-winning *A Visit From the Goon Squad* (2010), one of the most stirring and unusual works of fiction of the past decade. Something between a novel and a collection of linked stories, it follows more than a dozen characters in interconnected episodes spanning nearly five decades. Each segment plunges the reader into the life of a different character, someone who has appeared already in an earlier episode, now seen more intimately. The change in perspective can take a moment to register—how did the earnest teenage music fan become the hotshot record producer we saw in the previous chapter?—but once you adjust, it's dizzying how much can be perceived from a different vantage.

"Time's a goon," more than one character remarks, in what serves as a quirky mantra for the novel: Time will inevitably have its way with them all. But if this is so, then the novelist is the leader of the "goon squad," since she is the one who scrolls forward and backward in their lives, offering up

a well-chosen moment here or there as if selecting tracks for an existential playlist. There are moments when the wheel spins wildly, letting us glance years ahead, then returning us gently to where we were. One of the book's most remarked-upon chapters is written as a PowerPoint presentation. It's striking not just because of its originality, but because of the way the nonlinear form—which utilizes gaps and white space as much as words—mimics the novel itself. Almost everything happens in the pauses, the gaps between the chapters. The reader is left to make the pieces and pauses into a story.

Fans of Egan who have been eagerly anticipating her next novel may not initially be sure what to make of *Manhattan Beach*. To begin with, it's a historical novel—perhaps today's least fashionable form, and a thorough surprise after *Goon Squad*, the last chapter of which takes place in Manhattan in what seems to be the mid-2020s, and features smartphone-using toddlers and a sinister method of viral marketing. (If you thought this seemed prescient when the novel first came out, try reading it again now.) But perhaps the turn to the past is not as large a leap as it appears. The critic James Wood has called historical fiction "science fiction facing backward," and though he didn't intend it as a compliment, his remark gets at something inherent but not obvious about the form: It requires the author to construct a fictional universe—here, Brooklyn during World War II—based on a combination of research and imagination. Egan cites numerous experts who guided her, monographs she consulted, and even her own oral-history interviews.

In the current literary climate of fascination with the way we live now on the one hand and memoir on the other, why go to all this trouble? For

some authors—Hilary Mantel among them—the historical novel works to illuminate the past in a way that traditional scholarship can't, developing unexpected psychology for real-life figures and recasting familiar events in a surprising way. But Egan's intentions are different. Here her focus moves from time to water, another element with the power both to heal and to destroy. Anna Kerrigan, the novel's central figure, trains as a diver, trawling the bottom of New York Harbor to explore a "landscape of lost objects," make repairs to World War II battleships, and finally search for a corpse. *Manhattan Beach*, too, plunges into the past to discover what lies beneath the surface of our own world.

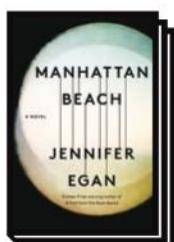
ON A CHILLY AFTERNOON in 1934, 11-year-old Anna accompanies her father, Eddie, to visit the gangster Dexter Styles in his Manhattan Beach mansion. Eddie is a "bagman"—"the sap who ferries a sack containing something (money, of course, but it wasn't his business to know) between men who should not rightly associate." He earns subsistence wages, he is increasingly estranged from his wife, and he cannot bear the presence of his invalid younger daughter, Lydia, brain-damaged and paralyzed at birth. Seeking a job with Styles so that he can buy a wheelchair for Lydia, Eddie is chagrined when Anna—already a striver, appetitive and sensation-seeking—cheekily removes her shoes and puts her feet in the freezing water. But Styles is charmed. The meeting makes an impression on Anna that will have repercussions later.

When we next see them, it's 1942. Anna, now 19, is working at a tedious job in the Brooklyn Navy Yard, inspecting tiny ship parts with a micrometer. After a year at Brooklyn College, she's helping to support her mother and Lydia. Eddie disappeared five years earlier without saying goodbye: "The truth had arrived gradually, like nightfall: a recognition, when she caught herself awaiting his return, that she'd waited days, then weeks, then months—and he'd still not come." Eating lunch on the piers one day, Anna catches her first glimpse of a diver descending from one of the barges and feels "a seismic rearrangement within herself." Longing to walk along the bottom of the sea, she begs the lieutenant in charge to let her try out for the job.

The preparations alone are grueling. With the help of two handlers, a diver must dress in a suit of rubberized canvas, complete with a copper breastplate, a belt with blocks of lead attached, a brass helmet, and shoes made of wood, metal, and leather. The full getup weighs about 200 pounds—necessary to keep the diver submerged underwater, but nearly impossible to walk in on

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The Culture File

Egan's novel suggests patterns and motivations that exist at a level far deeper than rationality.



MANHATTAN
BEACH
JENNIFER EGAN
Scribner

land. (It's no surprise to read in Egan's acknowledgments that she tried on one of these suits herself: Its weight is palpable in her description.) To the lieutenant's astonishment, Anna passes his first test—untying a knot while dressed in the suit, wearing three-fingered diving gloves. Still, he initially allows her to dive only as a way of embarrassing the other trainees, all men. Her acquisition of this skill is another essential link in the novel's chain of events.

Like flotsam brought in with the tide and then washed out to sea again, seemingly insignificant details are introduced from one character's perspective, then reappear again with a different meaning, seen through someone else's eyes. At their initial meeting, Styles is impressed by Eddie Kerrigan's car and his well-tailored suits; we quickly learn that the car is borrowed (it used to belong to Eddie, but he sold it to his boss during the Depression), the suits altered by his wife to fit his thinning frame.

Later, when a chance encounter with Anna results in Styles coming to her apartment to drive her and Lydia to the beach—Anna hopes a glimpse of the ocean might awaken her sister from the stupor she has recently fallen into—he notices marks on the wall where pictures have been removed. He assumes they were of the father who abandoned the family, and so have been banished. In fact, Anna removed them to prevent Styles from connecting her with her father, whose fate, she suspects, he had something to do with. Very few things here are what they initially appear to be; each of the assumptions made shows how little we understand one another.

THIS PATTERNING SOMETIMES feels mannered, the perspectival trick used perhaps once too often. But the flaw is offset by Egan's magnificent style. Here she is on Anna's first taste of champagne: "The pale gold potion snapped and frothed in her glass. When she took a sip, it crackled down her throat—sweet but with a tinge of bitterness, like a barely perceptible pin inside a cushion." She is even better on sex, which Styles at one point refers to as "a pleasure so explosive, so transporting, that it justified even the risk of annihilation." When he and Anna inevitably have a sexual encounter, he feels as if "she must be on both sides of his skin, inhabiting him—how else could she know what he felt at each move she made?" The nighttime delirium is matched by Anna's dismay in the light of day. Styles, the first man she has ever seen naked, appears to her as "a towering stranger with coils of dark hair that seemed to pour from his chest down his torso and pool around an assemblage of

private parts that brought to mind a pair of boots dangling by their laces from a lamppost."

It is disappointing to find this wonderful language sometimes buried in that bugbear of the historical novel: a surfeit of research. We learn that boxed lunches for workers at the Navy Yard cost 40 cents, and we learn what they contain. We hear a bit too much period talk: "Say, this is delicious!" Anna says of her glass of champagne, to which her companion replies, "Isn't it grand?" And we get lines like these about Anna's mother's indifference to the war effort:

It seemed to Anna that their mother spent her days listening to serials, *Guiding Light*, *Against the Storm*, and *Young Doctor Malone* ... It was Anna who turned the radio to *The New York Times News Bulletin* at suppertime, eager for news of the U.S. landings in French North Africa.

This feels less like a passage in a novel than an answer to an exam question about what people in Brooklyn listened to on the radio in 1942.

While underwater, Anna is connected to her boat by two ropes: one that dangles in the water, serving as a guidepost, and another that she can jerk to send signals. These ropes might be metaphors for the complex network of connections that underpin this novel, and the ways in which they can and cannot be shaken off. "I wanted to write a book whose connections were felt rather than understood," Egan once said of her fictional method. This is perhaps her greatest gift as a novelist—to suggest patterns and motivations that exist at a level far deeper than rationality. Each step in the complicated dance of relationships is essential to the greater picture, yet most of those steps are not exactly what they seem. We don't simply repeat the events of the past; rather, like the ghostly outlines of ships that Dexter Styles watches from a hill overlooking the harbor, they rise and fall, sometimes visible, more often not.

When *Manhattan Beach* goes astray, it is in places where Egan overexplains rather than trusting readers to put things together on their own. The novel's loveliest scene is one that makes no logical sense but nonetheless feels inevitable. Anna turns out to have been right—the sight of the ocean does awaken Lydia. For an instant, we see it through her eyes and hear her language, barely comprehensible yet familiar. "*See the sea. Sea the sea the sea the sea ... Kiss Anna Bird Cree cree See the waves hrasha hrasha hrasha.*" The moment is over almost as soon as it has begun, but its echo endures. ■

Ruth Franklin is the author of Shirley Jackson: A Rather Haunted Life.

BOOKS

What America Taught the Nazis

The Germans were fascinated by race law's global leader in the 1930s—the United States.

BY IRA KATZNELSON

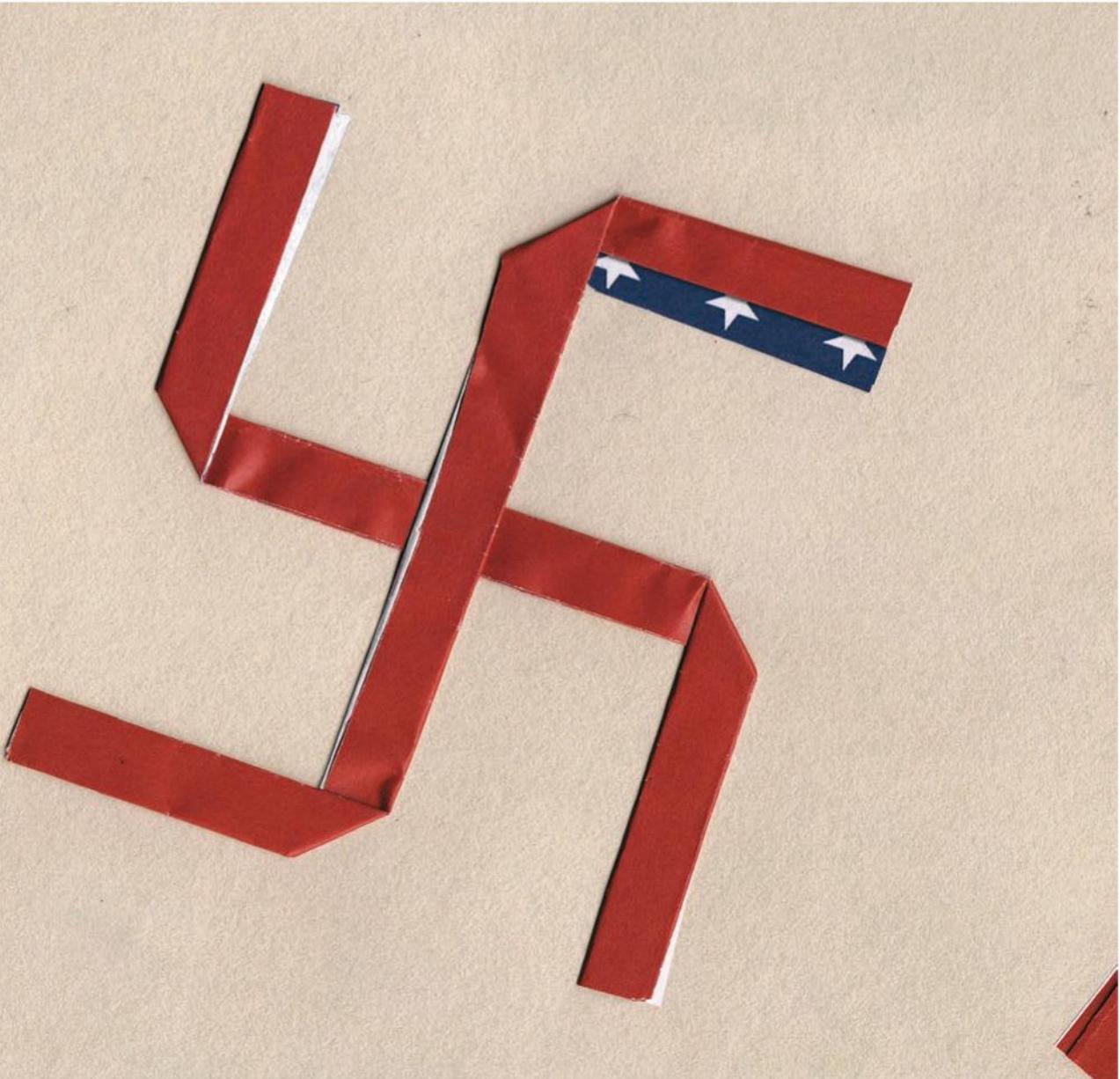
HERE WAS NO more extravagant site for Third Reich political theater than the spectacular parade grounds, two large stadiums, and congress hall in Nuremberg, a project master-minded by Albert Speer. From 1933 to 1938, he choreographed massive rallies associated with the annual conference of the Nazi Party, assemblies made famous by Leni Riefenstahl's stunning documentaries of 1933 and 1935, *The Victory of Faith* and *Triumph of the Will*. Nuremberg was the setting for the September 1935 "Party Rally of Freedom," at which a special session of the Reichstag passed, by acclamation, legislation that disqualified Jews as Reich citizens with political rights, forbade them to marry or have sex with persons identified as racial Germans, and prohibited any display by Jews of national colors or the new national flag, a banner with a swastika.

Just eight days after the Reich Citizenship Law, the Law on the Protection of German Blood and German Honor, and the Reich Flag Law were formally proclaimed by Adolf Hitler, 45 Nazi lawyers sailed for New York under the auspices of the Association of National Socialist German Jurists. The trip was a reward for the lawyers, who had codified the Reich's race-based legal philosophy. The announced purpose of the visit was to gain "special insight into the workings of American legal and economic life through study and lectures," and the leader of the group was Ludwig Fischer. As the governor of the Warsaw District half a decade later, he would preside over the brutal order of the ghetto.

Every day brings fresh reminders that liberal and illiberal democracy can entwine uncomfortably, a timely context for James Q. Whitman's *Hitler's American Model*, which examines how the Third Reich found sustenance for its race-based initiatives in American law. Upon docking, the Germans attended a reception organized by the New York City Bar Association. Everyone in the room would have known about the recent events in Nuremberg, yet the quest by leading Nazi jurists to learn from America's legal and economic systems was warmly welcomed.

Whitman, a professor at Yale Law School, wanted to know how the United States, a country grounded in such liberal principles as individual rights and the rule of law, could have produced legal ideas and practices "that seemed intriguing and attractive to Nazis." In exploring this apparent incongruity, his short book raises important questions about law, about political decisions that affect the scope of civic membership, and about the malleability of Enlightenment values.

Pushing back against scholarship that downplays the impact in Nazi Germany of the U.S. model of legal racism, Whitman marshals an array of evidence to support the likelihood "that the Nuremberg Laws themselves reflect direct American influence." As race law's



global leader, Whitman stresses, America provided the most obvious point of reference for the September 1933 *Preußische Denkschrift*, the Prussian Memorandum, written by a legal team that included Roland Freisler, soon to emerge as the remarkably cruel president of the Nazi People's Court. American precedents also informed other crucial Nazi texts, including the *National Socialist Handbook for Law and Legislation* of 1934–35, edited by the future governor-general of Poland, Hans Frank, who was later hung at Nuremberg. A pivotal essay in that volume, Herbert Kier's recommendations for race legislation, devoted a quarter of its pages to U.S. legislation—which went beyond segregation to include rules governing American Indians, citizenship criteria for Filipinos

and Puerto Ricans as well as African Americans, immigration regulations, and prohibitions against miscegenation in some 30 states. No other country, not even South Africa, possessed a comparably developed set of relevant laws.

Especially significant were the writings of the German lawyer Heinrich Krieger, “the single most important figure in the Nazi assimilation of American race law,” who spent the 1933–34 academic year in Fayetteville as an exchange student at the University of Arkansas School of Law. Seeking to deploy historical and legal knowledge in the service of Aryan racial purity, Krieger studied a range of overseas race regimes, including contemporary South Africa, but discovered his foundation in American law. His deeply researched writings

about the United States began with articles in 1934, some concerning American Indians and others pursuing an overarching assessment of U.S. race legislation—each a precursor to his landmark 1936 book, *Das Rassenrecht in den Vereinigten Staaten* (“Race Law in the United States”).

Whitman’s “smoking gun” is the transcript of a June 5, 1934, conference of leading German lawyers gathered to exchange ideas about how best to operationalize a racist regime. The record reflects how the most extreme among them, who relied on Krieger’s synoptic scholarship, were especially drawn to American legal codes based on white supremacy. The main conceptual idea was Freisler’s. Race, he argued, is a political construction. In both America and Germany, the importance and meaning of race for the most part had been determined less by scientific realities or social conventions than by political decisions enshrined in law.

BUT EVEN INDISPUTABLE EVIDENCE of the Germans’ intense interest in American models doesn’t clinch a formative role for U.S. racial law, as Whitman himself is careful to acknowledge. After all, Nazism’s intellectual and political leaders may well have utilized American examples merely to make more legitimate the grotesque designs they already planned to pursue. In any case, answering the question of cross-national influence is ultimately less important than Whitman’s other goal, which is to examine the status of racial hierarchy in the United States through Nazi eyes. “What the history presented in this book demands that we confront,” he writes, “are questions not about the genesis of Nazism, but about the character of America.”

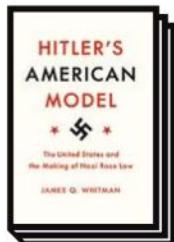
His disturbing report thus takes its place within the larger history of the United States as a polity founded on principles of human equality, Enlightenment reason, and constitutional limits on state power, yet molded by the prodigious evil and long-term consequences of chattel slavery based on race. To read *Hitler’s American Model* is to be forced to engage with the stubborn fact that during the 1933–45 period of the Third Reich, roughly half of the Democratic Party’s members in Congress represented Jim Crow states, and neither major party sought to curtail the race laws so admired by German lawyers and judges.

How to understand the relationship between race and democracy has been a pressing question ever since the United States was founded. The deep tension between the two—summed up in the irony of a plantation named Equality in Port Tobacco, Maryland, filled with slaves and owned by Michael Jenifer Stone, one of the

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BOOKS

Not even South Africa had a set of relevant race laws as developed as those in the U.S.



HITLER'S
AMERICAN
MODEL: THE
UNITED STATES
AND THE MAKING
OF NAZI RACE LAW
JAMES Q. WHITMAN
Princeton

six members of that state’s delegation to the House of Representatives in the First Federal Congress—puzzled the great student of American equality Alexis de Tocqueville. In *Democracy in America*, published precisely a century before the Nuremberg Laws, he began a discussion of “the three races that inhabit the territory of the United States” by announcing that these topics “are like tangents to my subject, being American, but not democratic, and my main business has been to describe democracy.”

Whitman invokes the work of political scientists who, in the separate-spheres spirit of Tocqueville, distinguish what they call a white-supremacist order from a liberal and egalitarian order. But his own book shows that such a division is too clear-cut. We must come to terms with race in America in tandem with considerations of democracy. Whitman’s history does not expose the liberal tradition in the United States as merely a sham, as many of the Third Reich’s legal theorists intimated when they highlighted patterns of black and American Indian subordination. Rather, he implicitly challenges readers to consider when and how, under what conditions and in which domains, the ugly features of racism have come most saliently to the fore in America’s liberal democracy. Conversely, we might ask, when and why have those features been repressed, leading to more-equal access for racial minorities to physical space, cultural regard, material life, and civic membership?

Liberal-democratic ideas and institutions in America, unlike in Hitler’s regime, have always been both vulnerable and resistant to racist exclusions. Although the United States entered the 1930s as the globe’s most established racialized order, the pathways from Nuremberg and Jim Crow unfolded very differently, one culminating in mass genocide, the other, after much struggle, in civil-rights achievements. Yet none of these gains, not even the presidency of an African American, has taken issues of race and citizenship off the political agenda. Current debates over both sharply remind us that positive outcomes are not guaranteed. The very rules of the democratic game—elections, open media, and political representation—create persisting possibilities for racial demagoguery, fear, and exclusion. As Freisler and other Third Reich jurists understood all too well, racial ideas and racist policies are profound products of political decisions. □

Ira Katznelson is a professor of political science and history at Columbia University and the author of *Fear Itself: The New Deal and the Origins of Our Time*.

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The White House Mythmaker

How Arthur Schlesinger Jr.'s heroic vision of American presidents led him, and the country, astray

BY SAM TANENHAUS

THE FOUNDERS DID NOT envision a presidential cult of personality, but an unhappy paradox of American democracy is the sovereignty that politicians hold over the public that elects them. This sway has never been more evident than now, when tens of millions of us begin each day by reaching for our phone, skimming through our news feeds, or otherwise plugging into a communal presidential drama—pulled into the vortex, whether we like it or not. This isn't Donald Trump's fault. He may be finding new avenues of access, but he didn't invent the strange intimacy of leader and led that has become a feature, not a bug, of the American system. "Presidential primacy, so indispensable to the political order, has turned into presidential supremacy," the historian Arthur Schlesinger Jr. wrote 44 years ago in *The Imperial Presidency*, coining the term we all still use.

Schlesinger has a lot to teach us and deserves fresh attention today. No other writer did so much to shape our idea of the presidency—as an office, as an institution, as an incarnation of popular consciousness. His many books may be out of fashion, but the terms he popularized remain part of our common vocabulary. Among them were also *judicial activism*, *unilateralism*, and *the politics of hope*. This last is usually identified with Barack Obama, but it was the title of Schlesinger's first essay collection, published in 1963, when Schlesinger the Harvard professor had become the in-house chronicler of John F. Kennedy's administration.

The assumption, on both sides, was that Kennedy would prove to be a pivotal, larger-than-life president, following the examples of Andrew Jackson (the subject of Schlesinger's celebrated 1945 revisionist history) and FDR (the hero of his three masterly volumes that came out between 1957 and 1960). As it turned out, *A Thousand Days* (1965), his gigantic inside account, not only added luster to Kennedy, but also transformed Schlesinger. The best-selling academic became a full-scale celebrity. His image—pursed lips and thinning hair, owlish horn-rims and floppy bow tie—stared out in a pastel portrait from the cover of *Time* in the same week that the British film goddess Julie Christie adorned the cover of *Newsweek*, as Richard Aldous notes in his new biography, *Schlesinger: The Imperial Historian*.

How to assess Schlesinger's trajectory? Aldous, who teaches history at Bard College, frames the question bluntly: "Was he a great and important historian, a model of how academics and public service can mix? Or was he a popularizer and court historian held captive to the Establishment that nurtured his career?" Actually, this either/or doesn't quite get at the problem. Schlesinger's debt to the establishment, or to several establishments—Harvard (where his father taught history before him), the inside-the-Beltway power elite, the Manhattan literary orbit—was never in doubt. Nor was his embrace of the ideas and beliefs that bound those worlds together. The more important question is whether Schlesinger's work still matters, and if so, why.

ABIOGRAPHER MUST TRACK his quarry through a telling of the life, or in this case a retelling, since Schlesinger was a diligent self-chronicler, first in his memoir, *A Life in the Twentieth Century: Innocent Beginnings, 1917–1950*, and then in his giant *Journals, 1952–2000*, published soon after his death, at 89, in 2007. (Reviewers savored the consecutive diary entries on the Monroe Doctrine and Marilyn Monroe.) Six years later we got the copious *Letters of Arthur Schlesinger, Jr.* (2013), with their not-so-innocent stroking of the mighty ("Dear Jackie," "Dear Lyndon," etc.).



Aldous draws on all this, plus some new material, including unpublished correspondence and diaries. He has also interviewed Schlesinger's wives, Marian Cannon and Alexandra Emmet, and the children of those two marriages. The result is a very readable distillation of a long and fruitful life. There were many highs: Schlesinger's seasons at Harvard (where "young Arthur" absorbed his father's theory of shifting "tides of national politics"—alternating periods of liberal and conservative dominance—and then joined him on the faculty), his devoted service to the Kennedys, his later years in Manhattan as a socialite and a literary eminence. And there were lows: a dreary wartime interval in the Office of Strategic Services, a stormy first marriage, a lengthy and unhappy term as villain to the New Left.

But Schlesinger wasn't just a famous man. First and foremost he was a serious historian. And that, oddly, is the subject on which Aldous has the least to say. He summarizes the oeuvre and provides a scorecard of contemporary reviews. But he skims the surface of the Faustian bargain Schlesinger made with power and goes light, too, on his ideas and arguments. Often Aldous seems less stimulated than embarrassed by his subject. "Here is not the place to engage with the historiographical debates that would surround *The Age of Jackson* throughout the rest of the

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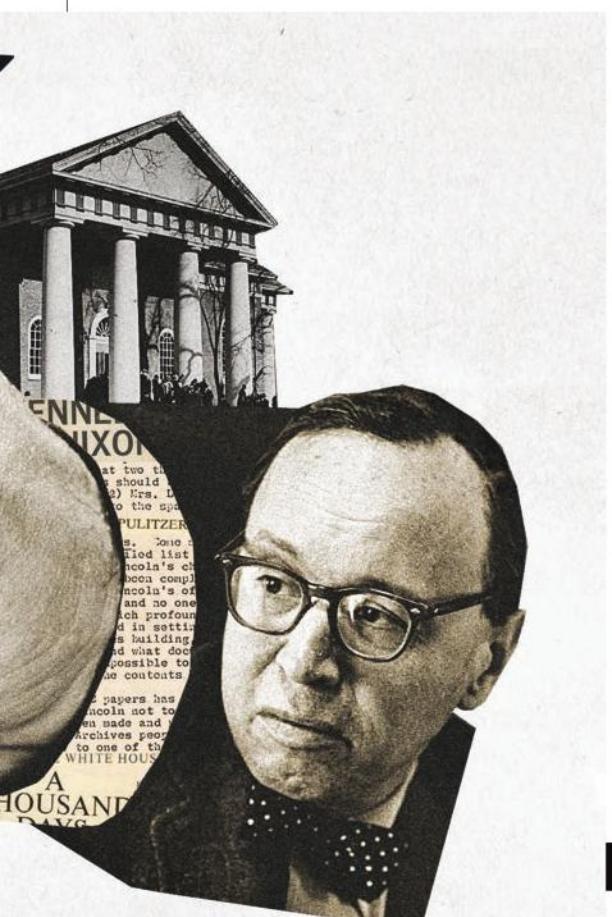
twentieth century and beyond," he writes. But where is the place to engage with Schlesinger's interpretation of presidential influence and impact, introduced in its fullness in that precocious early book, if not in a biography plainly meant to revive Schlesinger's reputation, or at least come to terms with his legacy?

Like many other professional historians of his era, Schlesinger was slow to grapple with the injustices of race in America and the shocking facts of the American Indians' removal. But for its time, his perspective was rare in its breadth and its emphasis on working-class sensibilities. From the beginning, Schlesinger wrestled with the contradictions of the American presidency, an office with clear political limits (set forth in the Constitution) but horizonless influence over the cultural life of the country. He explored them first as a scholar and later as a front-row observer and now-and-again participant. And he did so during the peak of the Cold War, when America offered itself to the world as an empire that was also a beacon of democracy. It was, in fact, the two in combination that excited Schlesinger's imagination, even as that vision led him astray.

**Schlesinger
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Faustian
bargain
with power.**

AS AMERICA STOOD on the threshold of the Cold War, the prevailing idea, or belief, was that the country was a God-favored vessel set on an exceptional course. Schlesinger demurred. America's future, like its past, he said, depended on illustrious actors who strode onto the historical stage bringing a message of liberation and change. This was a bold thesis in 1945. The latest gallery of "great men" included not only FDR (recently deceased) and his ally Churchill (driven from power), but also Hitler and Mussolini as well as Stalin, who was very much alive, gobbling up Eastern and Central Europe and subjugating its peoples. The world had seen quite enough of dynamic leadership.

But Schlesinger wanted to show that American history was written by virtuous giants who promised and delivered ever more democracy. Not power-hungry Caesars or quasi-religious charismatics, such figures were, as he went on to write, "Promethean" liberators, exemplars of "heroic leadership" who released "new forces, new energies, new values." Contrary to recent criticism, Schlesinger's portrait of Jackson is not, in fact, a hagiography. Much of the time, Jackson disappears as Schlesinger re-creates the era's debates over currency and bank charters and describes the rise of commoners of every variety. Jackson turned on the spigot and democracy flowed, in all its throbbing intensity of movement and change.



To make this case, Schlesinger had to assimilate whole areas of 19th-century democracy—city and state politics; banking, commerce, and labor; publishing and journalism; the cost of meat and coal; the cultures of pamphleteering and soapbox oratory; the “ambiguities” of common law and the reform of the judicial system. He swirled it all into a narrative and captured the mood of the Jacksonian revolution. At 28, Schlesinger was a plausible heir to Henry Adams, the original genius of American historiography.

In one sense he fulfilled this promise. His output was prodigious, and in no way slowed by celebrityhood: one major book after another, each encyclopedic in its learning and written with a stylist’s natural verve and a 19th-century novelist’s devotion to scenery and character. And while he liked being successful, he wasn’t dazzled by the prizes (a Pulitzer, his first, for the Jackson book) and fame. Nor did he lose intellectual ambition or seriousness. For Schlesinger, the problem originated in his own great-man theory, and in his eagerness to be more than a sideline witness when America was emerging as a historic empire.

As he developed his idea of the Promethean hero of democracy, he searched for real-life examples in his own moment. The crucial years in his life, from the beginning of the Cold War through the Vietnam debacle, were spent in pursuit of rare men who would seize command of the “cycles of history” and prolong the liberal age, before the pendulum swung back, as it eventually must, to the right. The quest was on even when no such men were in sight. Schlesinger’s vivid polemic *The Vital Center*, published in 1949, tried to elevate the “little man” Harry Truman into a kind of bantam greatness, by translating Truman’s bluster into a higher ethic of responsibility. The collective heroes now were anti-Communist liberals, tough-guy “doers” who repudiated left-wing sissies, the “doughface progressives ... the sentimentalists, the utopians, the wailers.”

After Truman came another would-be Prometheus, Adlai Stevenson. Schlesinger wrote so many speeches for him, in his 1952 and 1956 presidential campaigns, that Schlesinger’s own voice lost its suppleness. In sermons published in magazines but better suited to the convention hall, he called for a president who would “affirm human freedom against the supposed inevitabilities of history.” Schlesinger at last found, he thought, the true Prometheus in John Kennedy. Or rather, they found each other. The popular notion of Schlesinger as lapdog to Kennedy gets the dynamic wrong. When the two first met, at a dinner party at Joseph Alsop’s Georgetown house in 1946, Schlesinger—whose *The Age of Jackson* went into eight printings in eight

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BOOKS

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months—was the more imposing figure. JFK, not yet even a member of the House of Representatives, was a lightweight and a playboy. Schlesinger, like many others, didn’t take him seriously. It was Kennedy who cultivated Schlesinger, asking for help on *Profiles in Courage*. And Schlesinger was won over—and eventually besotted.

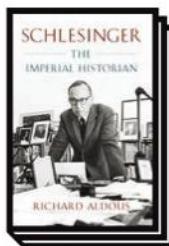
With the 1960 election, the democratic revolution could be renewed. No less than Jackson, JFK was an outsider—a Boston Catholic who had toppled a barrier of bigotry. At the same time, he was a man of ideas and words, attracted to intellectuals, in particular Harvard men like himself. The pioneer trail of the New Frontier might be blazed on the Boston-Washington shuttle. Schlesinger’s name was even bruited for national-security adviser—creating Cold War policy in, as JFK put it, the “twilight struggle.” That job went to another Kennedy “Harvard,” McGeorge Bundy. Schlesinger brushed aside an ambassadorship—presumably too far from the action—but when Robert F. Kennedy suggested that he work in the White House, Schlesinger leaped. “No professional historian in all our history has ever been privileged to see events from this vantage point,” he told Harvard’s president, Nathan Pusey. The perils of compromised neutrality, or worse, seem not to have occurred to him, probably because he felt as much author as observer of Kennedy’s promise. The president, with a politician’s shrewdness, saw more clearly how the bargain worked, accurately guessing that his reputation “was safe in Arthur’s hands,” Aldous drily observes.

YET ALDOUS IS surprisingly uncritical of the “Harvards” in power. Schlesinger himself wasn’t very critical of them either. But he was an excellent observer, and a fine writer, and the truth seeped into the corners of his accounts. Read *A Thousand Days* along with the *Journals*, and you feel the Promethean grandeur grow darker. When Bundy said to Kennedy, shortly into the administration, “Do you realize that you are surrounded by five ex-professors?,” he “brought down the house,” Schlesinger wrote in his journal. But that hilarity came during the Bay of Pigs fiasco—one of the ghastliest blunders of the Cold War. Schlesinger, whose many areas of expertise included Latin America, knew the Cuba operation was a “terrible idea.” Still, he accepted Robert Kennedy’s admonition to keep his misgivings to himself, lest he undermine the president’s confidence. He also accepted the job of persuading his former hero Stevenson, now the ambassador to the United Nations, to stiffen his spine like a “good soldier” and “make the best possible U.S. case” to the UN.

Schlesinger compromised himself further during the post-Bay of Pigs mop-up and left the unpleasant facts out of *A Thousand Days*. Defending the book against accusations that he gave away too much about the inner workings of the Kennedy administration, he quoted the English journalist and political theorist Walter Bagehot: "When a historian withholds important facts likely to influence the judgment of his readers, he commits a fraud." But that's just what Schlesinger did when he sanitized his own doings. His memo "Protection of the President," outlining a strategy of deception in advance of the Cuba invasion, came to light only when it was declassified. "When lies must be told, they should be told by subordinate officials," Schlesinger had counseled. He also suggested foisting the blame for the Cuban debacle onto the CIA and its "errant idealists and soldiers-of-fortune working on their own." Schlesinger's experiences in the Office of Strategic Services, a forerunner of the CIA, as well as in the Office of War Information, were a handy primer in the techniques of propaganda and misinformation. He also knew that the CIA really had carried out some of its worst rampages under Kennedy.

Aldous treats these later revelations as a red-faced moment for Schlesinger. But they raised disturbing questions. For one, how had a serious scholar worked himself into a place where the public history he wrote was undermined by his own secret writings? For another, how much mischief was he responsible for as a starry-eyed mythologist of the "strong president"? *The Imperial Presidency* was Schlesinger's implicit answer. That the book was really an act of atonement was clear in its method and its message: the rigorous

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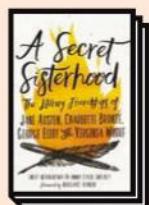


SCHLESINGER:
THE IMPERIAL
HISTORIAN
RICHARD ALDOUS
Norton

constitutionalism; the well-documented case studies; the chastened admission that the democratically minded Prometheus, the leader with his almost-mystical hold on the public, could be a danger in his own right—not Caesar, but a cowboy or a wild man, swinging his torch in any direction he liked, taking "unto himself the final judgments of war and peace."

The hidden costs of power also emerged in his elegiac *Robert Kennedy and His Times* (1978), with its pained acknowledgment that Kennedy's attempt "to bridge the great schisms—between white and nonwhite, between affluent and poor, between age and youth, between the old and the new politics, between order and dissent, between the past and the future"—had ended in his own murder. RFK's grand mission thus fulfilled the kind of ancient formula, in this case of the charismatic leader sacrificed to his cause, that Schlesinger's historical program for the United States had once so buoyantly defied. His manifesto *The Disuniting of America* (1991) was equally bracing, though its critique of the "politics of identity" and the "tribal antagonisms" it bred should have included a harder look at his own privileged tribe, its delusions as well as its prejudices and presumptions. Nevertheless, the book is among his most prescient. By this time, Schlesinger's own "politics of hope" seemed all but exhausted. It is this pessimistic Schlesinger who speaks to us today, quite as Henry Adams does, as a historian whose vast knowledge carries the stern message of prophecy. ■

Sam Tanenhaus is writing a biography of William F. Buckley Jr.



COVER TO COVER

A Secret Sisterhood: The Literary Friendships of Jane Austen, Charlotte Brontë, George Eliot, and Virginia Woolf

EMILY MIDORIKAWA AND
EMMA CLAIRE SWEENEY
HOUGHTON MIFFLIN HARCOURT

FEMALE FRIENDSHIP, a trending theme in contemporary fiction, is ripe for fresh non-fiction attention. Emily Midorikawa and Emma Claire Sweeney—two young writers who are, yes, also friends—have just the book (and they

got Margaret Atwood to write a foreword). They probe the lives of four literary giants, exploring formative experiences of literary sisterhood that have gone unsung.

For Jane Austen and Charlotte Brontë, the support of actual

sisters was essential, of course. But *A Secret Sisterhood* is curious about the creative impetus each novelist got from a woman writer beyond her immediate family. Obstacles to intimacy for every pair proved constant—sporadic

letters, foiled rendezvous, painful illnesses, misunderstandings. So did an urgent feeling of connection, as this medley of vivid narratives reveals.

If Austen's obscure literary friend (Anne Sharp, the play-writing governess of Austen's niece) remains elusive, the famous friends supply rich grist. Who would have guessed that George Eliot, in replying to Harriet Beecher Stowe's very first letter to her, frankly

confessed her "paralyzing despondency" about her own work? Virginia Woolf, so different from Katherine Mansfield in so many ways, marveled at "the queerest sense of echo coming back to me from her mind the second after I've spoken" as the two talked about writing. *Soul mates* isn't the right term for any of these friends. Crucial to the spark were the fascinating contrasts between them.

—Ann Hulbert





The science behind
the world's most
famous painting

How Leonardo Made Mona Lisa Smile

By Walter Isaacson

Illustration by Alvaro Tapia Hidalgo

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EOARDO da Vinci liked to think that he was as good at engineering as

he was at painting, and though this was not actually the case (*nobody* was as good at engineering as he was at painting), the basis for his creativity was an enthusiasm for interweaving diverse disciplines. With a passion both playful and obsessive, he pursued innovative studies of anatomy, mechanics, art, music, optics, birds, the heart, flying machines, geology, and weaponry. He wanted to know everything

there was to know about everything that could be known. By standing astride the intersection of the arts and the sciences, he became history's most creative genius.

His science informed his art. He studied human skulls, making drawings of the bones and teeth, and conveyed the skeletal agony of *Saint Jerome in the Wilderness*. He explored the mathematics of optics, showing how light rays enter the eye, and produced magical illusions of changing visual perspectives in *The Last Supper*.

His greatest triumph of combining art, science, optics, and illusion was the smile of the *Mona Lisa*, which he started working on in 1503 and continued laboring over nearly until his death 16 years later. He dissected human faces, delineating the muscles that move the lips, and combined that knowledge with the science of how the retina processes perceptions. The result was a masterpiece that invites and responds to human interactions, making Leonardo a pioneer of virtual reality.

The magic of the *Mona Lisa*'s smile is that it seems to react to our gaze. *What is she thinking?* She smiles back mysteriously. Look again. Her smile seems to flicker. We glance away, and the enigmatic smile lingers in our minds, as it does in the collective mind of humanity. In no other painting are motion and emotion, the paired touchstones of Leonardo's art, so intertwined.

The artist Giorgio Vasari, a near-contemporary, told of how Leonardo kept Lisa del Giocondo, the young wife of a Florentine silk merchant, smiling during her portrait sessions. "While painting her portrait, he employed people to play and sing for her, and jesters to keep her merry, to put an end to the melancholy that painters often succeed in giving to their portraits." The result, Vasari said, was "a smile so pleasing that it was more divine than human," and he proclaimed that it was a product of superhuman skills that came directly from God.

That's a typical Vasari cliché, and it's misleading. The *Mona Lisa*'s smile came not from some divine intervention. Instead, it was the product of years of painstaking and studied human effort involving applied science as well as artistic skill. Using his technical and anatomical knowledge, Leonardo generated the optical impressions that made possible this brilliant display of virtuosity. In doing so, he showed how the most-profound examples of creativity come from embracing both the arts and the sciences.

LEONARDO'S EFFORTS TO fashion the *Mona Lisa*'s effects began with the preparation of the painting's wood panel. On a thin-grained plank cut from the center of a trunk of poplar, he applied a primer coat of lead white, rather than just a mix of chalk and pigment. That undercoat, he knew, would be better at reflecting back the light that made it through his fine layers of translucent glazes and thereby would enhance the impression of depth, luminosity, and volume.

Some of the light that penetrates the layers of paint reaches the white undercoat and is reflected back through those same layers. As a result, our eyes see the interplay between the light rays that bounce off the colors on the surface and those that dance back from the depths of the painting. This creates shifting and elusive subtleties. The contours of Lisa's cheeks and smile are created by soft transitions of tone that seem veiled by the glaze layers, and they vary as the light in the room and the angle of our gaze change. The painting comes alive.

Like 15th-century Netherlandish painters such as Jan van Eyck, Leonardo used glazes that had a very small proportion of pigment mixed into the oil. Leonardo's distinctive approach was to apply the glaze in extraordinarily thin and tiny strokes and then very slowly, over months and sometimes years, apply additional layer upon thin layer. This permitted him to create forms that looked three-dimensional, show subtle gradations in shadows, and blur the borders of objects in a sfumato style. His strokes were so light and layered that many individual brushstrokes are imperceptible.

For the shadows that form the contours of Lisa's face and especially around her smile, he pioneered the use of an iron-and-manganese mix to create a pigment that was burnt umber in color. "The thickness of a brown glaze placed over the pink base of the *Mona Lisa*'s cheek grades smoothly from just 2–5 micrometers to around thirty micrometers in the deepest shadow," according to a *Nature* article about a recent study using X-ray-fluorescence spectroscopy. The strokes were applied in an intentionally irregular way that served to make the grain of the skin look more lifelike.

Mona Lisa seems miraculously alive, conscious both of us and of herself.

DURING THE YEARS when he was perfecting Lisa's smile, Leonardo was spending his nights in the depths of the morgue at the Hospital of Santa Maria Nuova, near his Florence studio, peeling the skin off cadavers and studying the muscles and nerves underneath. He became fascinated by how a smile begins to form, and he analyzed every possible movement of each part of the face to determine the origin of every nerve that controlled each facial muscle.

Leonardo was especially interested in how the human brain and nervous system translate emotions into movements of the body. In one drawing, he showed the spinal cord sawed in half, and delineated all the nerves that ran down to it from the brain. "The spinal cord is the source of the nerves that give voluntary movement to the limbs," he wrote.

Of these nerves and related muscles, the ones controlling the lips were the most important to Leonardo. Dissecting them was exceedingly difficult, because lip muscles are small and plentiful and attach deep in the skin. "The muscles which move the lips are more numerous in man than in any other animal," he wrote. "One will always find as many muscles as there



PHOTOGRAPH: DENNIS HALLINAN/ALAMY



are positions of the lips and many more that serve to undo these positions." Despite these difficulties, Leonardo depicted the facial muscles and nerves with remarkable accuracy.

On one delightfully crammed anatomical sheet (Figure 1, below), Leonardo drew the muscles of two dissected arms and hands, and he placed alongside them two partially dissected faces in profile. The faces show the muscles that control the lips and other elements of expression. In the one on the left, Leonardo has removed part of the jawbone to expose the buccinator muscle, which pulls back the angle of the mouth and flattens the cheek as a smile begins to form. Here we can see, revealed with masterful scalpel cuts and then pen strokes, the actual mechanisms that transmit emotions into facial expressions. "Represent all the causes of motion possessed by the skin, flesh and muscles of the face and see if these muscles receive their motion from nerves which come from the brain or not," he wrote next to one of his face drawings.

He labeled one of the muscles in the left-hand drawing "H" and called it "the muscle of anger." Another is labeled "P" and designated as the muscle of sadness or pain. He showed how these muscles not only move the lips but also serve to move the eyebrows downward and together, causing wrinkles.

Leonardo also describes pursuing the comparative anatomy he needed for a battle painting that he was planning; he matched the anger on the faces of the humans to that on the faces of the horses. After his note about representing the causes of motion of the human face, he added: "And do this first for the horse that has large muscles. Notice whether the muscle that raises the nostrils of the horse is the same as that which lies here in man." Thus we discover another secret to Leonardo's unique ability to paint a facial expression: He is probably the only artist in history ever to dissect with his own hands the face of a human and that of a horse to see whether the muscles that move the lips are the same ones that can raise the nostrils of the horse's nose.

Leonardo's excursions into comparative anatomy allowed him to delve deeper into the physiological mechanisms of humans as they smiled or

grimaced (Figure 2, below). He focused on the role of various nerves in sending signals to the muscles, and he asked a question that was central to his art: Which of these are cranial nerves originating in the brain and which are spinal nerves?

His notes begin with a description of how to portray angry expressions. "Make the nostrils drawn up, causing furrows in the side of the nose, and the lips arched to disclose the upper teeth, with the teeth parted in order to shriek lamentations," he wrote. He then began to explore other expressions. In the top-left corner of another page, he drew lips that were tightly pursed, under which he wrote, "The maximum shortening of the mouth is equal to half its maximum extension, and it is equal to the greatest width of the nostrils of the nose and to the interval between the ducts of the eye."

He tested in himself and in the cadaver how each muscle of the cheek could move the lips, and how the muscles of the lips can also pull the lateral muscles of the wall of the cheek. "The muscle shortening the lips is the same muscle forming the lower lip itself," he wrote. This led him to a discovery that any of us could make on our own, but it is a testament to Leonardo's keen power of observation that he noticed it when most of us don't: Because we pucker our lips by contracting the muscle

that forms the lower lip, we can pucker both lips at the same time or the lower lip alone, but we cannot pucker our top lip alone. It was a tiny discovery, but for an anatomist who was also an artist, especially one who was painting the *Mona Lisa*, it was worth noting.

Other movements of the lips involve different muscles, including "those which bring the lips to a point, others which spread them, and others which curl them back, others which straighten them out, others which twist them transversely, and others which return them to their first position." He sketched head-on and profile drawings of retracted lips with the skin still on, then a row of

FIGURE 1



FIGURE 2



A New Ambition



Ambition has long been the backbone of the American way of life, from the schools we attend and the jobs we pursue to the cars we drive and the places we live. While some things never change, technology inevitably has—and it's reshaping the way we set out to achieve our ambitions in pursuit of the American dream.

Today, ambition is a personal endeavor, with each of us developing our own definitions of success, forging new paths to get there, and deciding, for ourselves, when we've arrived. Like never before, the world around us is shaping our experiences and influencing what we see, feel, and hear.

Continue reading as we explore how our ambitions have evolved over time—and what we're doing differently today to achieve them.



Has American Ambition Evolved?



IN THE POSTWAR ERA, advertisements and TV shows often painted a clear vision of the ideal American life: You get married, buy a home, find a “good” job, and build a “normal” life—generally in that order. And to achieve these goals, you put your head down and worked hard.

The countercultural revolution of the 1960s helped ignite a greater interest in achievements beyond material possessions—as well as a movement toward personal expression, meaning, and truth. With that heightened awareness, though, there was still a desire to show the world we had “made it.” Whether it was taking a vacation, buying our first home, or starting a landscaping business, we kept people in the loop by sending postcards, having housewarming parties, or buying newspaper ads. We had realized our ambitions—and we didn’t mind showing it.

Today, ambition is less about “making it” or “having it.” Perhaps more than other generations, Millennials like to live through their experiences—and only *they* know what experiences are right for them. Their ambition is directed at these moments in time, in whatever form they take. In large part, this shift can be attributed to the rise of the internet and, more recently, social media. Where ambition was once shaped by physical surroundings, today’s youth have access to information from more sources. And a multicultural generation of Millennials is bringing diverse ideas and opinions to the conversation. They might set their goals based on something they spot on Instagram, while their aspirations go well beyond having the nicest car on the block.

Baby Boomers are, for their part, redefining retirement, often pursuing encore careers instead of simply, well, retiring.

They have a lot more information at their fingertips, and they’re familiar with the scientific rationale behind keeping their brains active as they age. They’re living healthier lives—and see their careers as more than things to achieve. Now work is something to enjoy, somewhere to socialize, and a way to stay active. Many Baby Boomers are also heading back to the big cities to take advantage of their better health at later stages of life and enjoy rich, diverse cultural experiences.

They’re not the only ones focusing on health. Talk to Americans of any generation and they are likely to mention health as one of their priorities. This has widely developed in tune with technological advances. As companies create more devices that monitor health data, such as fitness trackers and GPS watches, people like to see their healthy ambitions visually represented by the results. *Lifestyle*, once simply a technical term, has become something of a personal obsession, with—you guessed it—specialty gym memberships, spin classes, organized dance clubs, and the corner yoga studios becoming the best social tickets in town.

As notions of success evolve from shared norms—from whatever it was the Joneses owned and everyone else wanted—to the notably different values of today, purchasing behavior is changing, too. You have more travel options available to create the perfect family getaway—whether it’s around the corner or around the world. You can shape your career from the comfort of your laptop. You can take advantage of the latest technological advancements to open that neighborhood business more quickly. And you can rest assured that our ambitions will continue to evolve over time—and there will always be new ways for us to achieve our American dreams.



Pursuing experiences, purpose, and health rather than acquiring material things means that purchasing behavior is shifting, too, as designer jeans and expensive cars are replaced by things that will more readily serve today's ambitions.

Dive deeper into four tenets of evolving American ambition—health, career, family, and travel—in our four-part digital piece, **Life Well Spent**:

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lips with the skin layer peeled off. This is the first known anatomical drawing of the human smile.

Floating above the grotesque grimaces on the top of the page in Figure 2 is a faint sketch in black chalk of a simple set of lips that are rendered in a way that is artistic rather than anatomical. The lips peek out of the page directly at us with just a hint—flickering and haunting and alluring—of a mysterious smile. Even though the fine lines at the ends of the mouth turn down almost imperceptibly, the impression is that the lips are smiling. Here amid the anatomy drawings we find the makings of the *Mona Lisa*'s smile.

ANOTHER PIECE OF SCIENCE that augments the *Mona Lisa*'s smile comes from Leonardo's research on optics: He realized that light rays do not come to a single point in the eye, but instead hit the whole area of the retina. The central area of the retina, known as the fovea, has closely packed cones and is best at seeing small details; the area surrounding the fovea is best at picking up shadows and shadings of black and white. When we look at an object straight on, it appears sharper. When we look at it peripherally, glimpsing it with the corner of our eye, it is a bit blurrier, as if it were farther away.

With this knowledge, Leonardo was able to create an interactive smile, one that is elusive if we are too intent on seeing it. The fine lines at the corners of Lisa's mouth show a small downturn—just like the mouth floating atop the anatomy sheet. If you stare directly at the mouth, the retina catches these tiny details and delineations, making her appear not to be smiling. But if you move your gaze slightly away, to look at her eyes or cheeks or some other part of the painting, you will catch sight of her mouth only peripherally. It will be a bit blurrier. The tiny delineations at the corners of the mouth become indistinct, but you will still see the shadows at her mouth's edge. These shadows and the soft sfumato at the edge of her mouth make her lips seem to turn upward into a subtle smile. The result is a smile that twinkles brighter the less you search for it.

Scientists recently found a technical way to describe all of this. "A clear smile is much more apparent in the low spatial frequency [blurrier] images than in the high spatial frequency image," according to the Harvard Medical School neuroscientist Margaret Livingstone. "Thus, if you look at the painting so that your

gaze falls on the background or on Mona Lisa's hands, your perception of her mouth would be dominated by low spatial frequencies, so it would appear much more cheerful than when you look directly at her mouth."

So the world's most famous smile is inherently and fundamentally elusive, and therein lies Leonardo's ultimate realization about human nature. His expertise was in depicting the outer manifestation of inner emotions, but here in the *Mona Lisa* he shows something more important: that we can never fully know another person's true emotions. They always have a sfumato quality, a veil of mystery.

LEONARDO ONCE WROTE and performed at the court of Milan a discourse on why painting should be considered the most exalted of all the art forms, more worthy than poetry or sculpture or even the writing of history. One of his arguments was that painters did more than simply depict reality—they also augmented it. They combined observation with imagination. Using tricks and illusions, painters could enhance reality with cobbled-together creations, such as dragons, monsters, angels with wondrous wings, and landscapes more magical than any that ever existed. "Painting," he wrote, "embraces not only the works of nature but also infinite things that nature never created."

Leonardo believed in basing knowledge on experience, but he also indulged his love of fantasy. He relished the wonders that could be seen by the eye but also those seen only by the imagination. As a result, his mind could dance magically, and sometimes frenetically, back and forth across the smudgy line that separates reality from fantasia.

Stand before the *Mona Lisa*, and the science and the magic and the art all blur together into an augmented reality. While Leonardo worked on it, for most

Leonardo tested in himself and in the cadaver how each muscle of the cheek could move the lips.

of the last 16 years of his life, it became more than a portrait of an individual. It became universal, a distillation of Leonardo's accumulated wisdom about the outward manifestations of our inner lives and about the connections between ourselves and our world. Like *Vitruvian Man* standing in the square of the Earth and the circle of the heavens, Lisa sitting on her balcony is Leonardo's profound meditation on what it means to be human.

When the British needed to contact their allies in the French resistance during World War II, they used a code phrase: *La Joconde garde un sourire*—"The *Mona Lisa* keeps her smile." Even though it may seem to flicker, her

smile contains the immutable wisdom of the ages.

The *Mona Lisa* became the most famous painting in the world not just because of hype and happenstance, but because viewers were able to feel an emotional engagement with her. It is a brilliant depiction of reality—an alluring and emotionally mysterious woman sitting alone on a loggia—that is augmented radiantly by science and magical illusions. She provokes a complex series of psychological reactions, ones that she in turn seems to exhibit as well. Most miraculously, she seems aware—conscious—both of us and of herself. That is what makes her seem alive, more alive than any other portrait ever painted.

And what about all the scholars and critics over the years who despaired that Leonardo squandered too much time immersed in his studies of optics, anatomy, technology, and the patterns of the cosmos? The *Mona Lisa* answers them with a smile. **A**

Walter Isaacson's latest book is Leonardo da Vinci, from which this article is adapted. He is the CEO of the Aspen Institute and previously was the editor of Time magazine and the chairman of CNN. In 2018, he will be the University Professor of History at Tulane.

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What the secretive
Silicon Valley lab can
teach America about
the science of break-
throughs and the
lost art of invention

By
Derek Thompson

Illustrations by
Christopher DeLorenzo

A snake-robot designer, a balloon scientist, a liquid-crystals technologist, an extradimensional physicist, a psychology geek, an electronic-materials wrangler, and a journalist walk into a room. The journalist turns to the assembled crowd and asks: Should we build houses on the ocean?

The setting is X, the so-called moonshot factory at Alphabet, the parent company of Google. And the scene is not the beginning of some elaborate joke. The people in this room have a particular talent: They dream up far-out answers to crucial problems. The dearth of housing in crowded and productive coastal cities is a crucial problem. Oceanic residences are, well, far-out. At the group's invitation, I was proposing my own moonshot idea, despite deep fear that the group would mock it.

Like a think-tank panel with the instincts of an improv troupe, the group sprang into an interrogative frenzy. "What are the specific economic benefits of increasing housing supply?" the liquid-crystals guy asked. "Isn't the real problem that transportation infrastructure is so expensive?" the balloon scientist said. "How sure are we that living in densely built cities makes us happier?" the extradimensional physicist wondered. Over the course of an hour, the conversation turned to the ergonomics of Tokyo's high-speed trains and then to Americans' cultural preference for suburbs. Members of the team discussed commonsense solutions to urban density, such as more money for transit, and eccentric ideas, such as acoustic technology to make apartments soundproof and self-driving housing units that could park on top of one another in a city center. At one point, teleportation enjoyed a brief hearing.

X is perhaps the only enterprise on the planet where regular investigation into the absurd is not just permitted but encouraged, and even required. X has quietly looked into space elevators and cold fusion. It has tried, and abandoned, projects to design hoverboards with magnetic levitation and to make affordable fuel from seawater. It has tried—and succeeded, in varying measures—to build self-driving cars, make drones that deliver aerodynamic packages, and design contact lenses that measure glucose levels in a diabetic person's tears.

These ideas might sound too random to contain a unifying principle. But they do. Each X idea adheres to a simple three-part formula. First, it must address a huge problem; second, it must propose a radical solution; third,

it must employ a relatively feasible technology. In other words, any idea can be a moonshot—unless it's frivolous, small-bore, or impossible.

The purpose of X is not to solve Google's problems; thousands of people are already doing that. Nor is its mission philanthropic. Instead X exists, ultimately, to create world-changing companies that could eventually become the *next* Google. The enterprise considers more than 100 ideas each year, in areas ranging from clean energy to artificial intelligence. But only a tiny percentage become "projects," with full-time staff working on them. It's too soon to know whether many (or any) of these shots will reach the moon: X was formed in 2010, and its projects take years; critics note a shortage of revenue to date. But several projects—most notably Waymo, its self-driving-car company, recently valued at \$70 billion by one Wall Street firm—look like they may.

X is extremely secretive. The company won't share its budget or staff numbers with investors, and it's typically off-limits to journalists as well. But this summer, the organization let me spend several days talking with more than a dozen of its scientists, engineers, and thinkers. I asked to propose my own absurd idea in order to better understand the creative philosophy that undergirds its approach. That is how I wound up in a room debating a physicist and a roboticist about apartments floating off the coast of San Francisco.

I'd expected the team at X to sketch some floating houses on a whiteboard, or discuss ways to connect an ocean suburb to a city center, or just inform me that the idea was terrible. I was wrong. The table never once mentioned the words *floating* or *ocean*. My pitch merely inspired an inquiry into the purpose of housing and the shortfalls of U.S. infrastructure. It was my first lesson in radical creativity. Moonshots don't begin with brainstorming clever answers. They start with the hard work of finding the right questions.

C

reativity is an old practice but a new science. It was only

in 1950 that J. P. Guilford, a renowned psychologist at the University of Southern California, introduced the discipline of creativity research in a major speech to the American Psychological Association. "I discuss the subject of creativity with considerable hesitation," he began, "for it represents an area in which psychologists generally, whether they be angels or not, have feared to tread." It was an auspicious time to investigate the subject of human ingenuity, particularly on the West Coast. In the next decade, the apricot farmland south of San Francisco took its first big steps toward becoming Silicon Valley.

Yet in the past 60 years, something strange has happened. As the academic study of creativity has bloomed, several key indicators of the country's creative power have turned downward, some steeply. Entrepreneurship may

X is perhaps the only company on the planet where regular investigation into the absurd is encouraged, and even required.



well-funded and diverse teams to try to solve big problems is what gave us the nuclear age, the transistor, the computer, and the internet. Today, the U.S. is neglecting to plant the seeds of this kind of ambitious research, while complaining about the harvest.

No one at X would claim that it is on the verge of unleashing the next platform technology, like electricity or the internet—an invention that could lift an entire economy. Nor is the company's specialty the kind of basic science that typically thrives at research universities. But what X is attempting is nonetheless audacious. It is investing in both invention and innovation. Its founders hope to demystify and routinize the entire process of making a technological breakthrough—to nurture each moonshot, from question to idea to discovery to product—and, in so doing, to write an operator's manual for radical creativity.

THE O INKLING

Inside X's Palo Alto headquarters, artifacts of projects and prototypes hang on the walls, as they might in a museum—an exhibition of alternative futures. A self-driving car is parked in the lobby. Drones shaped like Jedi starfighters are suspended from the rafters. Inside a three-story atrium, a large screen renders visitors as autonomous vehicles would see them—pointillist ghosts moving

ow-colored grid. It looks like Seurat tried to
me.

he drones, I find Astro Teller. He is the leader title, captain of moonshots, is of a piece with perhaps self-conscious, charisma. He has a long and silver goatee, and is wearing a long-sleeved shirt, and large black Rollerblades. Fresh off an I ask. "Actually, I wear these around the office of the time," he says. I glance at an X publicist e's serious. Her expression says: *Of course he is.*

He is the son of Edward Teller, the father of the hydrogen bomb, and of Alfréd Rényi, a mathematician who won a Nobel Prize in Physics. With a doctorate in artificial intelligence from Carnegie Mellon, Teller is an entrepreneur, a two-time Emmy award-winner, the author of a nonfiction book, *Sacred Cows*, on the politics of divorce—co-written with his second wife. His nose, though painfully swollen after the leader of the Hungarian opposition was bestowed upon him in high school, by

have grown as a status symbol, but America's start-up rate has been falling for decades. The label *innovation* may have spread like ragweed to cover every minuscule tweak of a soda can or a toothpaste flavor, but the rate of productivity growth has been mostly declining since the 1970s. Even Silicon Valley itself, an economic powerhouse, has come under fierce criticism for devoting its considerable talents to trivial problems, like making juice or hailing a freelancer to pick up your laundry.

Breakthrough technology results from two distinct activities that generally require different environments—*invention* and *innovation*. Invention is typically the work of scientists and researchers in laboratories, like the transistor, developed at Bell Laboratories in the 1940s. Innovation is an invention put to commercial use, like the transistor radio, sold by Texas Instruments in the 1950s. Seldom do the two activities occur successfully under the same roof. They tend to thrive in opposite conditions; while competition and consumer choice encourage innovation, invention has historically prospered in labs that are insulated from the pressure to generate profit.

The United States' worst deficit today is not of incremental innovation but of breakthrough invention. Research-and-development spending has declined by two-thirds as a share of the federal budget since the 1960s. The great corporate research labs of the mid-20th century, such as Bell Labs and Xerox Palo Alto Research Center (PARC), have shrunk and reined in their ambitions. America's withdrawal from moonshots started with the decline in federal investment in basic science. Allowing

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friends who said his flattop haircut resembled Astroturf. (His given name is Eric.)

In 2010, Teller joined a nascent division within Google that would use the company's ample profits to explore bold new ideas, which Teller called "moonshots." The name X was chosen as a purposeful placeholder—as in, *We'll solve for that later*. The one clear directive was what X would *not* do. While almost every corporate research lab tries to improve the core product of the mother ship, X was conceived as a sort of anti-corporate research lab; its job was to solve big challenges anywhere except in Google's core business.

When Teller took the helm of X (which is now a company, like Google, within Alphabet), he devised the three-part formula for an ideal moonshot project: an important question, a radical solution, and a feasible path to get there. The proposals could come from anywhere, including X employees, Google executives, and outside academics. But grand notions are cheap and abundant—especially in Silicon Valley, where world-saving claims are a debased currency—and actual breakthroughs are rare. So the first thing Teller needed to build was a way to kill all but the most promising ideas. He assembled a team of diverse experts, a kind of Justice League of nerds, to process hundreds of proposals quickly and promote only those with the right balance of audacity and achievability. He called it the Rapid Evaluation team.

In the landscape of ideas, Rapid Eval members aren't vertical drillers but rather oil scouts, skillful in surveying the terrain for signs of pay dirt. You might say it's Rapid Eval's job to apply a kind of future-perfect analysis to every potential project: If this idea succeeds, what *will have been* the challenges? If it fails, what *will have been* the reasons?

The art of predicting which ideas will become hits is a popular subject of study among organizational psychologists. In academic jargon, it is sometimes known as "creative forecasting." But what sorts of teams are best at forecasting the most-successful creations? Justin Berg, a professor at the Stanford Graduate School of Business, set out to answer this question in a 2016 study focused on, of all things, circus performances.

Berg found that there are two kinds of circus professionals: creators who imagine new acts, and managers who evaluate them. He collected more than 150 circus-performance videos and asked more than 300 circus creators and managers to watch them and predict the performers' success with an audience. Then he compared their reactions with those of more than 13,000 ordinary viewers.

Creators, Berg found, were too enamored of their own concepts. But managers were too dismissive of truly novel acts. The most effective evaluation team, Berg concluded, was a group of creators. "A solitary creator might fall in love with weird stuff that isn't broadly popular," he told me, "but a panel of judges will reject anything too new. The ideal mix is a panel of creators who are also judges, like the teams at X." The best evaluators are like player-coaches—they create, then manage, and then return to creating. "They're hybrids," Berg said.

Rich DeVaul is a hybrid. He is the leader of the Rapid Eval team but he has also, like many members, devoted himself to major projects at X. He has looked into the feasibility of space elevators that could transport cargo to satellites without a rocket ship and modeled airships that might transport goods and people in parts of the world without efficient roads, all without ever touching the ground. "At one point, I got really interested in cold fusion," he said. "Because why not?"

One of DeVaul's most consuming obsessions has been to connect the roughly 4 billion people around the world who don't have access to high-speed internet. He considers the internet the steam engine or electrical grid of the 21st century—the platform technology for a long wave of economic development. DeVaul first proposed building a cheap, solar-powered tablet computer. But the Rapid Eval team suggested that he was aiming at the wrong target. The world's biggest need wasn't hardware but access. Cables and towers were too expensive to build in mountains and jungles, and earthbound towers don't send signals widely enough to make sense for poor, sparsely populated areas. The cost of satellites made those, too, prohibitive for poor areas. DeVaul needed something inexpensive that could live in the airspace between existing towers and satellites. His answer: balloons. Really big balloons.

The idea struck more than a few people as ridiculous. "I thought I was going to be able to prove it impossible really quickly," said Cliff L. Biffle, a computer scientist and Rapid

Eval manager who has been at X for six years. "But I totally failed. It was really annoying." Here was an idea, the team concluded, that could actually work: a network of balloons, equipped with computers powered by solar energy, floating 13 miles above the Earth, distributing internet to the world. The cause was huge; the solution was radical; the technology was feasible. They gave it a name: Project Loon.



JULIA WANG/X

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At first, Loon team members thought the hardest problem would be sustaining an internet connection between the ground and a balloon. DeVaul and Biffle bought several helium balloons, attached little Wi-Fi devices to them, and let them go at Dinosaur Point, in the Central Valley. As the balloons sluiced through the jet stream, DeVaul and his colleagues chased them down in a Subaru Forester rigged with directional antennae to catch the signal. They drove like madmen along the San Luis Reservoir as the balloons soared into the stratosphere. To their astonishment, the internet connection held. DeVaul was ecstatic, his steampunk vision of broadband-by-balloon seemingly within grasp. "I thought, *The rest is just ballooning!*" he said. "*That's not rocket science.*"

He was right, in a way. Ballooning of the sort his team imagined isn't rocket science. It's harder.

Let's start with the balloons. Each one, flattened, is the size of a tennis court, made of stitched-together pieces of polyethylene. At the bottom of the balloon hangs a small, lightweight computer with the same technology you would find at the top of a cell tower, with transceivers to beam internet signals and get information from ground stations. The computer system is powered by solar panels. The balloon is designed to float 70,000 feet above the Earth for months in one stretch. The next time you are at cruising altitude in an airplane, imagine seeing a balloon as far above you as the Earth is far below.

The balloons have to survive in what is essentially an alien environment. At night, the temperature plunges to 80 degrees below zero Celsius, colder than your average evening on Mars. By day, the sun could fry a typical

Cliff L. Biffle,
a member of
X's Rapid Eval
team, which
seeks to kill,
as quickly
as possible,
ideas that will
ultimately fail

computer, and the air is too thin for a fan to cool the motherboard. So Loon engineers store the computer system in a specially constructed box—the original was a Styrofoam beer cooler—coated with reflective white paint.

The computer system, guided by an earthbound data center, can give the balloon directions ("Go northeast to Lima!"), but the stratosphere is not an orderly street grid in which traffic flows in predictable directions. It takes its name from the many strata, or layers, of air temperatures and wind currents. It's difficult to predict which way the stratosphere's winds will blow. To navigate above a particular town—say, Lima—the balloon cannot just pick any altitude and cruise. It must dive and ascend thousands of feet, sampling the gusts of various altitudes, until it finds one that is pointing in just the right direction. So Loon uses a team of balloons to provide constant coverage to a larger area. As one floats off, another moves in to take its place.

Four years after Loon's first real test, in New Zealand, the project is in talks with telecommunications companies around the world, especially where cell towers are hard to build, like the dense jungles and mountains of Peru. Today a network of broadband-beaming balloons floats above rural areas outside of Lima, delivering the internet through the provider Telefónica.

Improving internet access in Latin America, Africa, and Asia to levels now seen in developed countries would generate more than \$2 trillion in additional GDP, according to a recent study by Deloitte. Loon is still far from its global vision, but capturing even a sliver of one percentage point of that growth would make it a multibillion-dollar business.

**"At one point,
I got really
interested in
cold fusion.
Because why not?"**



T H E ○

F A I L ⚡

Astro Teller likes to recount an allegorical tale of a firm that has to get a monkey to stand on top of a 10-foot pedestal and recite passages from Shakespeare. Where would you begin? he asks. To show off early progress to bosses and investors, many people would start with the pedestal. That's the worst possible choice, Teller says. "You can always build the pedestal. All of the risk and the learning comes from the extremely

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hard work of first training the monkey.” An X saying is “#MonkeyFirst”—yes, with the hashtag—and it means “do the hardest thing first.”

But most people don’t want to do the hardest thing first. Most people want to go to work and get high fives and backslaps. Despite the conference-keynote pabulum about failure (“Fail fast! Fail often!”), the truth is that, financially and psychologically, failure sucks. In most companies, projects that don’t work out are stigmatized, and their staffs are fired. That’s as true in many parts of Silicon Valley as it is anywhere else. X may initially seem like a paradise of curiosity and carefree tinkering, a world apart from the drudgery required at a public company facing the drumbeat of earnings reports. But it’s also a place immersed in failure. Most green-lit Rapid Eval projects are unsuccessful, even after weeks, months, or years of one little failure after another.

At X, Teller and his deputies have had to build a unique emotional climate, where people are excited to take big risks despite the inevitability of, as Teller delicately puts it, “falling flat on their face.” X employees like to bring up the concept of “psychological safety.” I initially winced when I heard the term, which sounded like New Age fluff. But it turns out to be an important element of X’s culture, the engineering of which has been nearly as deliberate as that of, say, Loon’s balloons.

Kathy Hannun told me of her initial anxiety, as the youngest employee at X, when she joined in the spring of 2012. On her

first day, she was pulled into a meeting with Teller and other X executives where, by her account, she stammered and flubbed several comments for fear of appearing out of her depth. But everyone, at times, is out of his or her depth at X. After the meeting, Teller told her not to worry about making stupid comments or asking ignorant questions. He would not turn on her, he said.

Hannun now serves as the CEO of Dandelion, an X spin-off that uses geothermal technology to provide homes in New York State with a renewable source of heating, cooling, and hot water. “I did my fair share of unwise and inexperienced things over the years, but Astro was true to his word,” she told me. The culture, she said, walked a line between patience and high expectations, with each quality tempering the other.

X encourages its most successful employees to talk about the winding and potholed road to breakthrough invention. This spring, André Prager, a German mechanical engineer, delivered a 25-minute presentation on this topic at a company meeting, joined by members of X’s drone team, called Project Wing. He spoke about his work on the project, which was founded on the idea that drones could be significant players in the burgeoning delivery economy. The idea had its drawbacks: Dogs may attack a drone that lands, and elevated platforms are expensive, so Wing’s engineers needed a no-landing/no-infrastructure solution. After sifting through hundreds of ideas, they settled on an automatic winching system that lowered and raised a specialized spherical hook—one that can’t catch on clothing or tree branches or anything else—to which a package could be attached.

In their address, Prager and his team spent less time on their breakthroughs than on the many failed cardboard models they discarded along the way. The lesson they and Teller wanted to communicate is that simplicity, a goal of every product, is in fact extremely complicated to design. “The best designs—a bicycle, a paper clip—you look and think, *Well of course, it always had to look like that,*” Prager told me. “But the less design you see, the more work was needed to get there.” X tries to celebrate the long journey of high-risk experimentation, whether it leads to the simplicity of a fine invention or the mess of failure.

Because the latter possibility is high, the company has also created financial rewards for team members who shut down projects that are likely to fail. For several years, Hannun led another group, named Foghorn, which developed technology to turn seawater into affordable fuel. The team appeared to be on track, until the price of oil collapsed in 2015 and its members forecast that their fuel couldn’t compete with regular gasoline soon enough to justify keeping the project alive. In 2016, they submitted a detailed report explaining that, despite advancing the science, their technology would not be economically viable in the near future. They argued for the project to be shut down. For this, the entire team received a bonus.

Above:
Obi Felten leads
Foundry, a division
of X tasked with
turning scientific
breakthroughs
into marketable
products. Right:
A 2013 public
demonstration of
Google Glass, X’s
most infamous
failure to date.



Some might consider these so-called failure bonuses to be a bad incentive. But Teller says it's just smart business. The worst scenario for X is for many doomed projects to languish for years in purgatory, sucking up staff and resources. It is cheaper to reward employees who can say, "We tried our best, and this just didn't work out."

Recently, X has gone further in accommodating and celebrating failure. In the summer of 2016, the head of diversity and inclusion, a Puerto Rican-born woman named Gina Rудан, spoke with several X employees whose projects were stuck or shut down and found that they were carrying heavy emotional baggage. She approached X's leadership with an idea based on Mexico's *Día de los Muertos*, or Day of the Dead. She suggested that the company hold an annual celebration to share stories of pain from defunct projects. Last November, X employees gathered in the main hall to hear testimonials, not only about failed experiments but also about failed relationships, family deaths, and personal tragedies. They placed old prototypes and family mementos on a small altar. It was, several X employees told me, a resoundingly successful and deeply emotional event.

No failure at X has been more public than Google Glass, the infamous head-mounted wearable computer that resembled a pair of spectacles. Glass was meant to be the world's next great hardware evolution after the smartphone. Even more quixotically, its hands-free technology was billed as a way to emancipate people from their screens, making technology a seamless feature of the natural world. (To

Moonshots don't begin with brainstorming clever answers. They start with the hard work of finding the right questions.



critics, it was a ploy to eventually push Google ads as close to people's corneas as possible.) After a dazzling launch in 2013 that included a 12-page spread in *Vogue*, consumers roundly dissed the product as buggy, creepy, and pointless. The last of its dwindling advocates were branded "glassholes."

I found that X employees were eager to talk about the lessons they drew from Glass's failure. Two lessons, in particular, kept coming up in our conversations. First, they said, Glass flopped not because it was a bad consumer product but because it wasn't a consumer product at all. The engineering team at X had wanted to send Glass prototypes to a few thousand tech nerds to get feedback. But as buzz about Glass grew, Google, led by its gung-ho co-founder Sergey Brin, pushed for a larger publicity tour—including a TED Talk and a fashion show with Diane von Furstenberg. Photographers captured Glass on the faces of some of the world's biggest celebrities, including Beyoncé and Prince Charles, and Google seemed to embrace the publicity. At least implicitly, Google promised a product. It mailed a prototype. (Four years later, Glass has reemerged as a tool for factory workers, the same group that showed the most enthusiasm for the initial design.)

But Teller and others also saw Glass's failure as representative of a larger structural flaw within X. It had no systemic way of turning science projects into businesses, or at least it hadn't put enough thought into that part of the process. So X created a new stage, called Foundry, to serve as a kind of incubator for scientific breakthroughs as its team develops a business model. The division is led by Obi Felten, a Google veteran whose title

says it all: head of getting moonshots ready for contact with the real world.

"When I came here," Felten told me, "X was this amazing place full of deep, deep, deep geeks, most of whom had never taken a product out into the world." In Foundry, the geeks team up with former entrepreneurs, business strategists from firms like McKinsey, designers, and user-experience researchers.

One of the latest breakthroughs to enter Foundry is an energy project code-named Malta, which is an answer to one of the planet's most existential questions: Can wind and solar energy replace coal? The advent of renewable-energy sources is encouraging, since three-quarters of global carbon emissions come from fossil fuels. But there is no clean, cost-effective, grid-scale technology for storing wind or solar energy for those times when the air is calm or the sky is dark. Malta has found a way to do it using molten salt. In Malta's system, power from a wind farm would be converted into extremely hot and extremely cold thermal energy.

The warmth would be stored in molten salt, while the cold energy (known internally as “coolth”) would live in a chilly liquid. A heat engine would then recombine the warmth and coolth as needed, converting them into electric energy that would be sent back out to the grid. X believes that salt-based thermal storage could be considerably cheaper than any other grid-scale storage technology in the world.

The current team leader is Raj B. Apte, an ebullient entrepreneur and engineer who made his way to X through PARC. He compares the project’s recent transition to Foundry to “when you go from a university lab to a start-up with an A-class venture capitalist.” Now that Apte and his team have established that the technology is viable, they need an industry partner to build the first power plant. “When I started Malta, we very quickly decided that somewhere around this point would be the best time to fire me,” Apte told me, laughing. “I’m a display engineer who knows about hetero-doped polysilicon diodes, not a mechanical engineer with a background in power plants.” Apte won’t leave X, though. Instead he will be converted into a member of the Rapid Eval team, where X will store his creative energies until they are deployed to another project.

Thinking about the creation of Foundry, it occurred to me that X is less a moonshot factory than a moonshot studio. Like MGM in the 1940s, it employs a wide array of talent, generates a bunch of ideas, kills the weak ones, nurtures the survivors for years, and brings the most-promising products to audiences—and then keeps as much of the talent around as possible for the next feature.

THE INVENTION

Technology is feral. It takes teamwork to wrangle it and patience to master it, and yet even in the best of circumstances, it runs away. That’s why getting invention right is hard, and getting commercial innovation right is hard, and doing both together—as X hopes to—is practically impossible. That is certainly the lesson from the two ancestors of X: Bell Laboratories and Xerox PARC. Bell Labs was the preeminent science organization in the world during the middle of the 20th century. From 1940 to 1970, it gave birth to the solar cell, the laser, and some 9 percent of the nation’s new communications patents. But it never merchandised the vast majority of its inventions. As the



research arm of AT&T’s government-sanctioned monopoly, it was legally barred from entering markets outside of telephony.

In the 1970s, just as the golden age at Bell Labs was ending, its intellectual heir was rising in the West. At Xerox PARC, now known as just PARC, another sundry band of scientists and engineers laid the foundation for personal computing. Just about everything one associates with a modern computer—the mouse, the cursor, applications opening in windows—was pioneered decades ago at PARC. But Xerox failed to appreciate the tens of trillions of dollars locked within its breakthroughs. In what is now Silicon Valley lore, it was a 20-something entrepreneur named Steve Jobs who in 1979 glimpsed PARC’s computer-mouse prototype and realized that, with a bit of tinkering, he could make it an integral part of the desktop computer.

Innovators are typically the heroes of the story of technological progress. After all, their names and logos are the ones in our homes and in our pockets. Inventors are the anonymous geeks whose names lurk in the footnotes (except, perhaps, for rare crossover polymaths such as Thomas Edison and Elon Musk). Given our modern obsession with billion-dollar start-ups and mega-rich entrepreneurs, we have perhaps forgotten the essential role of inventors and scientific invention.

The decline in U.S. productivity growth since the 1970s puzzles economists; potential explanations range from an aging workforce to the rise of new monopolies. But John Fernald, an



economist at the Federal Reserve, says we can't rule out a drought of breakthrough inventions. He points out that the notable exception to the post-1970 decline in productivity occurred from 1995 to 2004, when businesses throughout the economy finally figured out information technology and the internet. "It's possible that productivity took off, and then slowed down, because we picked all the low-hanging fruit from the information-technology wave," Fernald told me.

The U.S. economy continues to reap the benefits of IT breakthroughs, some of which are now almost 50 years old. But where will the next brilliant technology shock come from? As total federal R&D spending has declined—from nearly 12 percent of the budget in the 1960s to 4 percent today—some analysts have argued that corporate America has picked up the slack. But public companies don't really invest in experimental research; their R&D is much more D than R. A 2015 study from Duke University found that since 1980, there has been a "shift away from scientific research by large corporations"—the triumph of short-term innovation over long-term invention.

The decline of scientific research in America has serious implications. In 2015, MIT published a devastating report on the landmark scientific achievements of the previous year, including the first spacecraft landing on a comet, the discovery of the Higgs boson particle, and the creation of the world's fastest supercomputer. None of these was an American-led accomplishment. The first two were the products of a 10-year European-led consortium. The supercomputer was built in China.

As the MIT researchers pointed out, many of the commercial breakthroughs of the past few years have depended on inventions that occurred decades ago, and most of those were the results of government investment. From 2012 to 2016, the U.S. was the world's leading oil producer. This was largely thanks to hydraulic fracturing experiments, or fracking, which emerged from federally funded research into drilling technology after the 1970s oil crisis. The recent surge in new cancer drugs and therapies can be traced back to the War on Cancer announced in 1971. But the report pointed to more than a dozen research areas where the United States is falling behind, including robotics, batteries, and synthetic biology. "As competitive pressures have increased, basic research has essentially disappeared from U.S. companies," the authors wrote.

▲
Left: Raj B. Apte, the leader of Project Malta, which seeks to store wind power in molten salt.
Above: A workshop at X where prototypes are created.

It is in danger of disappearing from the federal government as well. The White House budget this year proposed cutting funding for the National Institutes of Health, the crown jewel of U.S. biomedical research, by \$5.8 billion, or 18 percent. It proposed slashing funding for disease research, wiping out federal climate-change science, and eliminating the Energy Department's celebrated research division, ARPA-E.

The Trump administration's thesis seems to be that the private sector is better positioned to finance disruptive technology. But this view is ahistorical. Almost every ingredient of the internet age came from government-funded scientists or research labs purposefully detached from the vagaries of the free market. The transistor, the fundamental unit of electronics hardware, was invented at Bell Labs, inside a government-sanctioned monopoly. The first model of the internet was developed at the government's Advanced Research Projects Agency, now called DARPA. In the 1970s, several of the agency's scientists took their vision of computers connected through a worldwide network to Xerox PARC.

"There is still a huge misconception today that big leaps in technology come from companies racing to make money, but they do not," says Jon Gertner, the author of *The Idea Factory*, a history of Bell Labs. "Companies are really good at combining existing breakthroughs in ways that consumers like. But the breakthroughs come from patient and curious scientists, not the rush to market." In this regard, X's methodical approach to invention, while it might invite sneering from judgmental critics and profit-hungry investors, is one of its most admirable qualities. Its pace and its patience are of another era.

THE QUESTION, AGAIN

Any successful organization working on highly risky projects has five essential features, according to Teresa Amabile, a professor at Harvard Business School and a co-author of *The Progress Principle*. The first is "failure value," a recognition that mistakes are opportunities to learn. The second is psychological safety, the concept so many X employees mentioned. The third is multiple diversities—of backgrounds, perspectives, and cognitive styles. The fourth, and perhaps most complicated, is a focus on refining questions, not just on answers; on routinely stepping back to ask whether the problems the organization is trying to solve are the most important ones. These are features that X has self-consciously built into its culture.

The fifth feature is the only one that X does not control: financial and operational autonomy from corporate headquarters.

That leads to an inevitable question: How long will Alphabet support X if X fails to build the next Google?

The co-founders of Google, Brin and Larry Page, clearly have a deep fondness for X. Page once said that one of his childhood heroes was Nikola Tesla, the polymath Serbian American whose experiments paved the way for air-conditioning and remote controls. “He was one of the greatest inventors, but it’s a sad, sad story,” Page said in a 2008 interview. “He couldn’t commercialize anything, he could barely fund his own research. You’d want to be more like Edison ... You’ve got to actually get [your invention] into the world; you’ve got to produce, make money doing it.”

Nine years later, this story seems like an ominous critique of X, whose dearth of revenue makes it more like Tesla’s laboratory than Edison’s factory. Indeed, the most common critique of X that I heard from entrepreneurs and academics in the Valley is that the company’s prodigious investment has yet to produce a blockbuster.

Several X experiments *have* been profitably incorporated into Google already. X’s research into artificial intelligence, nicknamed Brain, is now powering some Google products, like its search and translation software. And an imminent blockbuster may be hiding in plain sight: In May, Morgan Stanley analysts told investors that Waymo, the self-driving-car company that incubated at X for seven years, is worth \$70 billion, more than the market cap of Ford or GM. The future of self-driving cars—how they will work, and who exactly will own them—is uncertain. But the global car market generates more than \$1 trillion in sales each year, and Waymo’s is perhaps the most advanced autonomous-vehicle technology in the world.

What’s more, X may benefit its parent company in ways that have nothing to do with X’s own profits or losses. Despite its cuddly and inspirational appeal, Google is a mature firm whose 2017 revenue will likely surpass \$100 billion. Growing Google’s core business requires salespeople and marketers who perform ordinary tasks, such as selling search terms to insurance companies. There is nothing wrong with these jobs, but they highlight a gap—perhaps widening—between Silicon Valley’s world-changing rhetoric and what most people and companies actually do there.

X sends a corporate signal, both internally and externally, that Page and Brin are still nurturing the idealism with which they founded what is now basically an advertising company. Several business scholars have argued that Google’s domination of the market for search advertising is so complete that it should be treated as a monopoly. In June, the European Union slapped Google with a \$2.7 billion antitrust fine for promoting its own shopping sites at the expense of competitors. Alphabet might use the projects at X to argue that it is a benevolent giant

willing to spend its surplus on inventions that enrich humanity, much like AT&T did with Bell Labs.

All of that said, X’s soft benefits and theoretical valuations can go only so far; at some point, Alphabet must determine whether X’s theories of failure, experimentation, and invention work in practice. After several days marinating in the company’s idealism, I still wondered whether X’s insistence on moonshots might lead it to miss the modest innovations that typically produce the most-valuable products. I asked Astro Teller a mischievous question: Imagine you are participating in a Rapid Eval session in the mid-1990s, and somebody says she wants to rank every internet page by influence. Would he champion the idea? Teller saw right through me: I was referring to Page-Rank, the software that grew into Google. He said, “I would like to believe that we would at least go down the path” of exploring a technology like Page-Rank. But “we might have said no.”

I then asked him to imagine that the year was 2003, and an X employee proposed digitizing college yearbooks. I was referring to Facebook, now Google’s fiercest rival for digital-advertising revenue. Teller said he would be even more likely to reject that pitch. “We don’t go down paths where the hard stuff is marketing, or understanding how people get dates.” He paused. “Obviously there are hard things about what Facebook is doing. But digitizing a yearbook was an observation about connecting people, not a technically hard challenge.”

X has a dual mandate to solve huge problems and to build the next Google, two goals that Teller considers closely aligned. And yet Facebook grew to rival Google, as a platform for advertising and in financial value, by first achieving a quotidian goal. It was not a moonshot but rather the opposite—a small step, followed by another step, and another.

Insisting on quick products and profits is the modern attitude of innovation that X continues to quietly resist. For better and worse, it is imbued with an appreciation for the long gestation period of new technology.

Technology is a tall tree, John Fernald told me. But planting the seeds of invention and harvesting the fruit of commercial innovation are entirely distinct skills, often mastered by different organizations and separated by many years. “I don’t think of X as a planter or a harvester, actually,” Fernald said. “I think of X as building taller ladders. They reach where others cannot.” Several weeks later, I repeated the line to several X employees. “That’s perfect,” they said. “That’s so perfect.” Nobody knows for sure what, if anything, the employees at X are going to find up on those ladders. But they’re reaching. At least someone is. ■

X may initially seem like a paradise of curiosity and carefree tinkering. But it is also a place immersed in failure.

Derek Thompson is an Atlantic senior editor and the author of Hit Makers.

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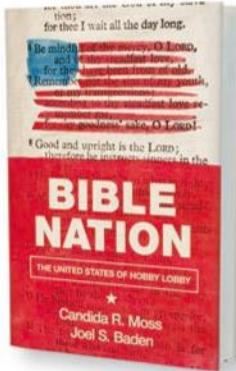
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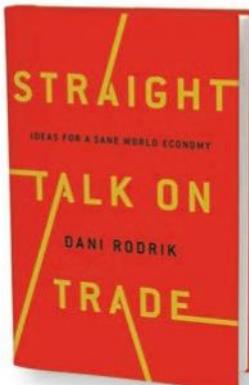
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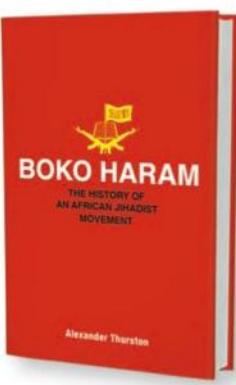
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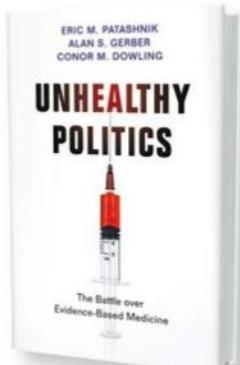
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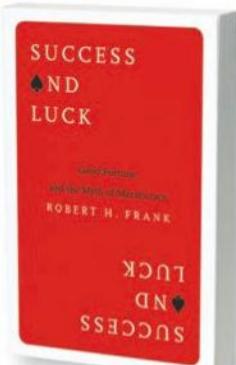
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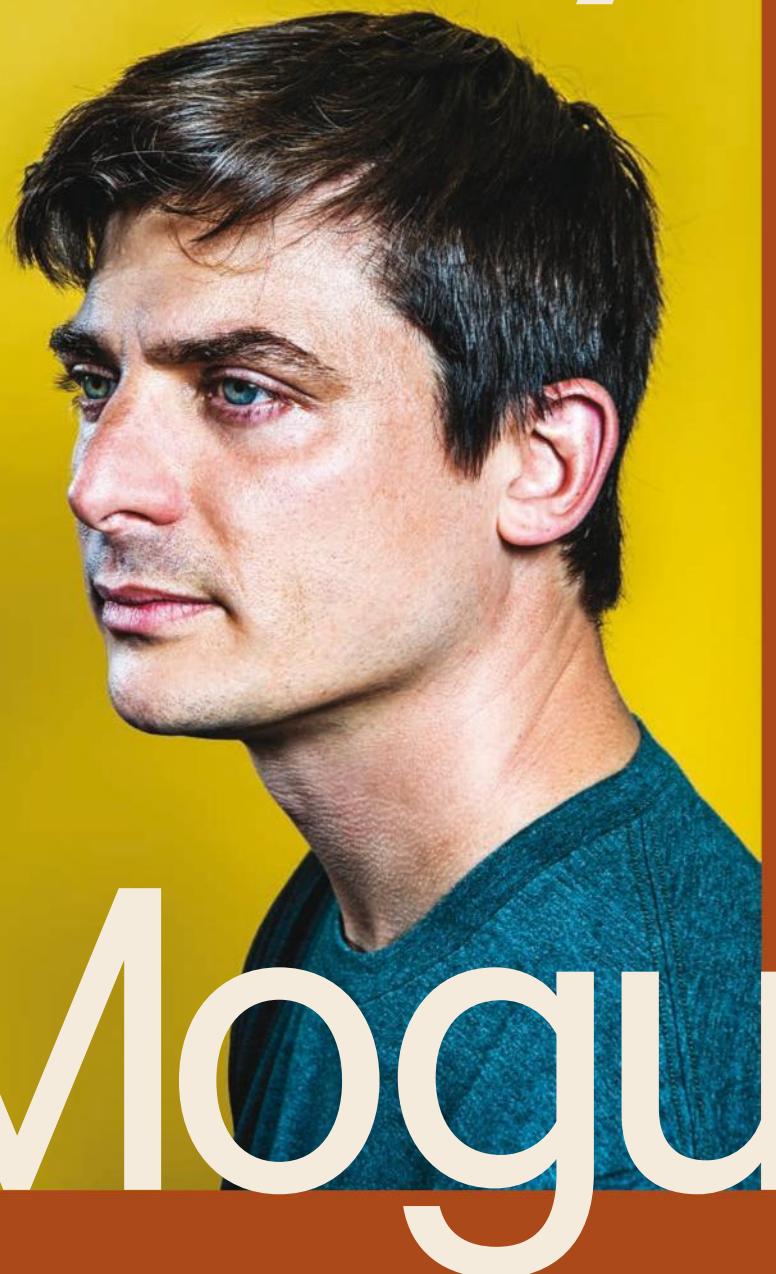
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How did Josh Tetrick's vegan-mayonnaise company become a Silicon Valley darling—and what is he really selling?



The Mayo



Mogul

By Bianca Bosker
Photographs by Christie Hemm Klok



On a recent Friday morning,

Josh Tetrick, the 37-year-old CEO and co-founder of Hampton Creek, fixed his unblinking blue eyes on a job candidate. The pair was sitting at a workstation near the entrance to the company's warehouselike San Francisco headquarters, where Tetrick frequently holds meetings in plain view of the company's more than 130 employees. Around Tetrick—a muscular ex-linebacker in jeans and a T-shirt—was even more Tetrick: a poster of him watching Bill Gates eat a muffin, a framed photograph of him with a golden retriever, an employee's T-shirt emblazoned with "What would you attempt if you knew you could not fail?"—one of Tetrick's many

slogans. (Others include "What would it look like if we just started over?" and "Be gorilla.")

The interviewee, who was applying for a mid-level IT job, started listing his qualifications, but Tetrick seemed more interested in talking about the company's mission—launching into what he promised was a "non-consumer-friendly" look at the "holy-fuck kind of things" Hampton Creek is doing to ensure "everyone is eating well." He gestured to a slide deck on a flatscreen TV showing photographs of skinny black children next to one of an overweight white woman. They represented, he said, a handful of the 1.1 billion people who "go to bed hungry every night," the 6.5 billion "just eating crappy food," and the 2.1 billion from both groups "being fucked right now" by micronutrient deficiencies. "This is our food system today," Tetrick said. "It's a food

system that is failing most people in the world. And these pillars of our food system today, we think, need to be rethought from the ground up."

So far, the most prominent manifestation of Tetrick's plan to rethink the pillars of our food system is a line of vegan mayonnaise, sold in plain, sriracha, truffle, chipotle, garlic, and "awesomesauce" flavors. Hampton Creek also sells vegan cookies and salad dressings, which are marketed, like the mayo, under the brand Just—a reference to righteousness, not simplicity—in venues ranging from Whole Foods to Walmart. And it sells a powdered egg substitute to General Mills for use in baked goods.

Tetrick insists that Hampton Creek is not a vegan-food producer. He has called it a "tech company that happens to be working with food" and has said, "The best analogue to what we're doing is Amazon." Using robotics, artificial intelligence, data



science, and machine learning—the full monty of Silicon Valley’s trendiest technologies—Hampton Creek is, according to Tetrick, attempting to analyze the world’s 300,000-plus plant species to find sustainable, animal-free alternatives to ingredients in processed foods.

This pitch has captured the imagination of some of Silicon Valley’s most coveted venture capitalists. Since Hampton Creek’s founding, in 2011, the company has attracted \$247 million from investors including Salesforce CEO Marc Benioff, Yahoo co-founder Jerry Yang, and Peter Thiel’s Founders Fund. It was lauded by Gates in 2013 as a hopeful example of “the future of food” and named a World Economic Forum Technology Pioneer two years later. In 2014, Tetrick was cheered as one of *Fortune*’s 40 Under 40. He wooed a star-studded stable of advisers, including former Health

and Human Services Secretary Kathleen Sebelius, and A-list fans such as John Legend and the fashion designer Stella McCartney. Last fall, Hampton Creek was valued at \$1.1 billion—surely the first time a vegan egg has hatched a unicorn.

Peter Thiel instructs start-up entrepreneurs to take inspiration from cults, advice that came to mind when Tetrick told me, after the job interview, that he screens for employees who “really believe” in his company’s “higher purpose,” because “I trust them more.” But buying into the mission has become a more complicated proposition, as Hampton Creek has recently been besieged by federal investigations, product withdrawals, and an exodus of top leadership. Silicon Valley favors entrepreneurs who position themselves as prophetic founders rather than mere executives, pursuing life-changing missions over mundane business plans. That risks rewarding story over substance, as the swift implosion of once-celebrated disrupters such as Theranos and Zenefits has shown. Fans of Hampton Creek say that Tetrick is “one of our world’s special people” who “will guide us into the abundant beyond.” Critics allege that he is leading a “cult of delusion.” Either way, he seems to be selling far more than mayo.

The story of how

Tetrick founded Hampton Creek, as he has recounted it on numerous conference stages, shows his instinct for a good narrative. As he tells “folks” in his slight southern drawl, he was raised in Birmingham, Alabama, by a mother who worked as a hairdresser and a father who was often unemployed, which meant his family was “on food stamps for most of our life.” (His mother remembers it as “maybe like two weeks or three weeks.” His father could not be reached for comment.) He had dreams of playing professional football (even changing the pronunciation of his surname from *Tee*-trick to *Teh*-trick because it “felt more manly,” he told me) and was a linebacker at West Virginia

University before transferring to Cornell, where he earned a Fulbright to work in Nigeria. He has said he drew inspiration for Hampton Creek from his seven years in sub-Saharan Africa (three of which he passed, for the most part, in law school at the University of Michigan). Motivated by being raised on “a steady diet of shitty food” in Birmingham and seeing homeless children relying on “dirty-ass water” in Africa, Tetrick launched Hampton Creek to “open our eyes to the problems the world faces.”

Employees can repeat parts of Tetrick’s story from memory, like an origin myth, describing for visitors the Burger King chicken sandwiches and 7-Eleven nachos that Tetrick ate as a kid. (New hires participate in a workshop where they practice reciting their own personal journey toward embracing the company’s mission.)

In his public remarks, Tetrick usually skims over the years prior to launching Hampton Creek, when he, by his own admission, was “lost.” He graduated law school in 2008, joined a firm, then parted ways with it after less than a year—in part, he told me, over an

op-ed he published in the *Richmond Times-Dispatch* in which he critiqued factory farming. (According to Tetrick, the law firm, McGuireWoods, counted the meat processor Smithfield Foods among its clients. The law firm declined to comment.) A vegetarian since college, he had been writing fiery editorials in his spare time calling out the “disgusting abuses” of the industrial food system.

Leaving law allowed Tetrick to throw himself into motivational speaking, which had already been competing with his day job. Two or three times a week, he visited high schools, colleges, and the occasional office to preach the virtues of social entrepreneurship and describe the big money to be earned by doing good. “Selflessness is profitable!” booms Tetrick to a class of graduating seniors in a 2009 video. “Because solving the world’s greatest needs is good for you! Solving

**Josh Tetrick at
Hampton Creek’s
headquarters in San
Francisco, August 2017**

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According to his speaking agency at the time, Tetricks credentials included his prior work in President Bill Clinton's office (a two-month gig); for the government of Liberia (four months); for the United Nations (four months); in Citigroup's corporate-citizenship group (four months); at McGuireWoods (nine months); and at the helm of his crowdfunding start-up, 33needs (which petered out after less than 11 months). Prior to becoming the CEO of Hampton Creek, Tetricks had held no job for more than a year.

In 2011, Tetricks was largely itinerant and drawing on savings when his childhood friend Josh Balk intervened. Balk, then working on food policy for the Humane Society of the United States, had first gotten Tetricks thinking critically about industrial agriculture back in high school. It was under Balk's influence that Tetricks became a vegetarian and, in his 20s, set a goal of donating \$1 million to the Humane Society by his 33rd birthday. Balk now urged Tetricks to throw himself into a new venture that would draw on his insights about doing well by doing good, and suggested that they launch a start-up that would use plants as a substitute for eggs.

With Balk's help, Tetricks enlisted David Anderson, the owner of a Los Angeles bistro, whose vegan recipes for foods like cheesecake

and crème brûlée helped inform Hampton Creek's early work. To raise money, they decided to approach Khosla Ventures, which seemed inclined to invest in companies with a social or environmental bent. In a pitch to Samir Kaul, a partner at Khosla, Tetricks spoke of a "proprietary plant-based product" that was "seven years in the making" and "close to perfection."

Despite his current emphasis on Hampton Creek's technical chops, Tetricks says he never expressly founded Hampton Creek as a tech start-up. "I didn't go in and meet with Samir and say, 'Hey, Samir, just so you know, I'm a technology company,'" he recalled. "I went in to him and I said, 'Food's fucked up, man. Here's why. Here's an example. Here's what we're thinking about doing.'"

The pitch netted the company \$500,000—its first investment.

A video on

Hampton Creek's website shows a creamy white substance being smeared on a piece of toast. Then the camera cuts to scenes of an engineer running computer models and a robot zipping pipette trays around a laboratory. By turning plants into data, a voice-over explains, the company is working to combat both chronic disease and climate change.

This utopian message took some time to evolve. As the company was getting off the ground, Tetricks

challenge to the industrial food system had a more subversive tone. "To say that we've launched a global war on animals just sells the word 'war' so pathetically short," he wrote in 2011 for *HuffPost*. In a 2013 TEDX Talk, shortly before the rollout of Just Mayo, he described the horrors of chicks being fed into "a plastic bag in which they're suffocated" or "a macerator in which they're ground up instantaneously."

Tetricks love for animals was on display during a recent visit I made with him to a dogpark—chaperoned, as I was at all times, by Hampton Creek's head of communications. As Tetricks refueled with a four-espresso-shot Americano and a seitan bagel sandwich, we watched his golden-retriever puppy, Elie, run around on the grass. He'd purchased her from a breeder specializing in life extension in dogs, after the death of his beloved eight-year-old retriever, Jake, the previous spring. "Far and away the hardest thing that I've ever been through in my life was that," Tetricks said. Elie, whom Tetricks named after the Holocaust survivor Elie Wiesel because he considers it a "cool name," flies internationally with Tetricks on long-weekend getaways, dines on dog food made of locally sourced organic vegetables, and accompanies him to work. (Tetricks's free-roaming pets have been a point of contention for some of Hampton Creek's food scientists: Jake ate researchers' cookie prototypes on at least one occasion. Back at Hampton Creek headquarters, I watched Tetricks wipe Elie's vomit off the floor adjacent to the research kitchen.)

When I brought up the TEDX Talk, Tetricks told me he regretted it. "I was too much in my own head in thinking about what motivates me, as opposed to thinking from the perspective of everyone else who's listening or could see that talk," he said. "My primary motivator is alleviating animal suffering. For me. For me," he said, in a conversation he initially wanted off the record,

Employees analyzing proteins (*left*) and testing gelation rates for the forthcoming Just Scramble product line

over concerns that it might be a “turnoff” to partners. He paused for a moment, and seemed conflicted about what he’d divulged: “I don’t know if I’ve ever said that to the full company.”

Though he said he still believes “every single word” of his past entreaties, Tetrick has largely sanitized his public remarks of references to animal abuse since finding that they fell flat with the broad group of retailers and shoppers he hopes to attract. He now hews closer to lines such as “We’ve made it really easy for good people to do the wrong things.” Though

less emphasis on the product than on the scope of the ambition and the promise of tech-enabled efficiencies. Hampton Creek offered idealism that could scale.

Once he’d secured funding from Khosla Ventures, Tetrick leaned into start-up culture. He ditched the couch he’d been crashing on in Los Angeles and rented a renovated garage in San Francisco. In an early press release, Hampton Creek touted Bill Gates—a limited partner in Khosla Ventures—as an investor. Tetrick recruited executives from Google, Netflix, Apple, and Amazon to join his staff, and highlighted their tech backgrounds to backers.

He also started promoting Hampton Creek’s biotech-inspired “technology platform”: labs that could automate the extraction and analysis of plant proteins, examining their molecular features and functional performance (including gelling, foaming, and emulsifying properties) and then applying proprietary machine-learning algorithms to identify the most-promising proteins for use in muffins, spreads, and other foods. “We are seeing things that no chef, no food scientist, has ever seen before,” the company declares on its website.

Hampton Creek earned glowing press, as Tetrick proclaimed that mayo was merely the beginning of a broader food revolution. David-and-Goliath moments—like a lawsuit brought by Unilever, the producer of Hellmann’s, against Hampton Creek arguing that only spreads containing eggs should be labeled “mayo,” or revelations that members of the American Egg Board and its affiliates had joked about hiring someone to “put a hit on” Tetrick—burnished Tetrick’s disrupter status. (Unilever later dropped the lawsuit.)

Food-industry celebrities joined investors in celebrating Tetrick’s approach. He “will win a Nobel Prize one day,” raved the chef and TV host Andrew Zimmern. He is an underdog (“a tough, gritty guy,” said Kaul) and “already is changing

the world,” as the celebrity chef José Andrés marveled after a visit to Hampton Creek. According to friends, family, and associates, Tetrick is an “incredible salesman,” “one of the heroes of our generation,” and possibly a future president.

Lately, the glow around

Tetrick and his company has been overtaken by an unforgiving spotlight. In 2015, a *Business Insider* exposé based on interviews with former employees alleged, among other claims, that Hampton Creek practiced shoddy science, mislabeled its ingredients, and illicitly altered employees’ contracts to slash their severance pay. (In a Medium post, Tetrick dismissed the story as “based on false, misguided reporting.” He did admit that employment agreements had been altered, though he added that he had since “fixed” the situation.) Last year, Bloomberg asserted that Hampton Creek operatives had bought mass quantities of Just Mayo in an attempt to artificially inflate its popularity—prompting investigations by the Department of Justice and the Securities and Exchange Commission, which were eventually dropped. (Tetrick said that the buybacks were in part for quality control and accounted for less than 1 percent of sales.) Bloomberg also reported on claims by a Hampton Creek investor named Ali Partovi—an early backer of Facebook and Dropbox who lasted nine days as Tetrick’s chief strategy officer before leaving the company and severing all ties—that the company was exaggerating profit projections to deceive investors.

More recently, Target pulled Just products from its shelves after an undisclosed source raised food-safety concerns, including allegations of salmonella contamination. (Though an FDA review cleared Hampton Creek, Target—previously one of the brand’s best-performing outlets, according to Tetrick—announced that it was ending its relationship with the company.) In the span of a year, at least nine executive-level employees parted ways with Hampton Creek

“The best analogue to what we’re doing is Amazon,” Tetrick has said.

Tetrick has been a vegan for the past seven years, he discourages his marketing team from using the word *vegan* to describe Just products. The term, he says, evokes arrogance and wealth and suggests food that “tastes like crap.” Instead he promises customers a bright future where they can eat better, be healthy, and save the environment without spending more, sacrificing pleasure, or inconveniencing themselves. “A cookie can change the world,” Hampton Creek has asserted in its marketing materials.

The message is a rallying cry for a particular kind of revolution. Tetrick launched Hampton Creek in an era when investors were reaching beyond traditional tech companies, and businesses that might otherwise have been merely, say, specialty-food purveyors could leverage software—and grand mission statements tapping into Silicon Valley’s do-gooder ethos—to cast themselves as paradigm-breaking forces. Venture capitalists have poured money into start-ups aiming to disrupt everything from lingerie to luggage to lipstick, with

CONNECTED. HOME.
CHAPTER 1

The Rise of the Connected Family

WORKING PARENTS OFTEN FEEL LIKE THEY are missing out on quality time at home, with 75 percent reporting not having enough time to spend with their children.*

Seemingly, though, help is on the way, as a new wave of home technologies is emerging that may alleviate some of these family-centric stress points, by improving human relationships and creating more connected, simpler, and safer homes. Adoption of these technologies—from home assistants and telepresence robots to intelligent cameras, virtual-reality apps, and beyond—may also allow us to reexamine the very idea of what it even means to be “home.”

To put it another way: We may have entered the age of the connected family.

In the connected family, technologies don’t just bridge the distance between family members, but eliminate it completely, remotely re-creating fundamental home-life experiences, like bedtime routines and other traditional bonding moments. Another benefit is the way in which these products can lower anxiety levels. After all, one of the biggest stressors of being away from home is feeling disconnected as a protective presence.

“Our vision is to go beyond the smart home. It should be a thoughtful home, and a



thoughtful home should do more for you than you have to do for it,” says Maxime Veron, Head of Product Marketing at Nest, which recently launched the Nest Cam IQ, a new intelligent indoor security camera that interprets and filters data, delivering the most important and actionable information to the user, like person alerts (i.e. recognizing a human vs. a pet), familiar-face alerts (which, with a subscription, allow a user to train the camera to recognize known people), and other deviations from household norms.

But smart security technologies aren’t just

about providing a protective layer. “There’s also a pretty strong emotional connection that connected products can bring,” says Veron, citing as one example the comfort a parent will feel knowing he’ll be able to witness his baby’s first steps, wherever he is in the world, thanks to a camera that’s continuously recording.

Some social scientists have already been making the case that being physically apart doesn’t necessarily mean feeling like you are not emotionally together, thanks to concepts like “apart togetherness.” And, as we look to the future of home life—to the possibilities of the connected family—layering new products on top of preexisting relationships may help to further enhance meaningful connection across any distance.

53%

OF SMART-CAMERA OWNERS USE THEM TO MONITOR PETS AND KIDS.

as rumors swirled that it was losing as much as \$10 million a month. (Tetrick declined to comment on Hampton Creek's finances but said that its turnover was typical of other high-growth companies.)

When I first arrived at Hampton Creek headquarters, in June, I expected to find Tetrick in crisis mode. Frankly, I was a little surprised that I'd been allowed to come: Four days before my visit, Tetrick had fired his chief technology officer, his vice president of R&D, and his vice president of business development over a purported coup attempt that seemed to suggest a lack of confidence in the CEO. (None responded to requests for comment.) By the time I arrived, the entire board save Tetrick had resigned.

Yet Tetrick was bubbling about his plans for the future. "I just got done with—and you're welcome to see it—writing my 10-year vision," he told me after saying goodbye to the IT-job candidate, as we joined some half a dozen newly hired Hampton Creekers for their inaugural product-tasting in the company's research kitchen.

Amid gleaming mixers and convection ovens, the cheerful group of 20- and 30-somethings dipped crackers and crudités into ramekins of vegan salad dressing and mayonnaise arranged on a table along with spheres of cookie dough. While I could have easily polished off most of the cookie-dough samples myself, and the dressings were on par with other bottled ranch and Caesar offerings, Just Mayo—which has earned high marks from foodies—tasted to me like a slightly grassier, grainier version of Hellmann's.

Tetrick was dissatisfied with the array of samples. "Where's the butter? WHERE'S THE BUTTERRRRRR?" he asked the chef who'd organized the tasting. "You've got to get the butter!"

Hampton Creek's plant-based butter was still a prototype, the chef reminded Tetrick. "The usual protocol for this thing is we show

Top: Lab coats hang in one of Hampton Creek's R&D areas. **Bottom:** Hampton Creek's plant library, where promising samples are stored for additional research.



the products that are live on shelves, so that everybody understands what we—"

"What about the Scramble Patty?" Tetrick interrupted. The patty, a breakfast-sandwich-ready product from their forthcoming egg-replacement line called Just Scramble, was dutifully delivered alongside the butter. Their vegetal aftertaste made clear to me why they had not yet been brought to market.

Hampton Creek has been promising the impending release of Just Scramble for years: In a presentation to potential investors cited by Bloomberg, Tetrick forecast that the mung-bean-based product line would bring in \$5 million in sales in 2014—but three years later, it has yet to launch.

Tetrick told me that Hampton Creek will debut both a liquid version of Just Scramble and the Scramble Patty early next year, to be followed shortly by a new

category of plant-based foods—possibly the butter, or ice cream. Or maybe yogurt or shortening. That's in addition to the expansion of what Tetrick has branded Just OS (short for "operating system"), an arm of the company focused on licensing its ingredients and methods to food manufacturers. As Tetrick sees it, replacing eggs with his blend of vegan ingredients, which can be regularly tweaked and improved, makes it possible to continuously upgrade everything from cookies to condiments. "While a chicken egg will never change, our idea is that we can have a product where we push updates into the system, just like Apple updates its iOS operating system," Tetrick has said.

Former Hampton Creek employees, including several involved in its research efforts—all of whom declined to be named for fear of retribution—suggested that the company focused on the

CONNECTED. HOME.

CHAPTER 2

UNMARRIED COUPLES**ACROSS THE COUNTRY**

are moving in together at record rates. But as we choose to live with a romantic partner, we are also encountering stresses and negotiations—everything from design choices to household chores—that add tension to an already awkward situation, as we learn to share space with another person.

What if we could defuse those often fraught negotiations? That's the question seemingly posed by an up-and-coming crop of responsive home technologies, which could help navigate the early-day tensions of cohabitation. Such technologies—including artificial-intelligence systems, digital assistants, and other smart devices that adapt to our behaviors and lifestyles—are designed to create a truly customized home environment that might just stop the fight before it happens, by mediating personal differences, anticipating individual needs, streamlining routines, and outsourcing routine tasks.

And then, of course, there's the matter of the thermostat, perhaps the most common source of domestic division. Incredibly, one in four couples

Is This the End of Couple's Therapy?

cite temperature control as a primary source of arguments, with 42 percent of men admitting to having turned down the temperature without consulting their partner.*

"People want a home that can make their life easier," says Gene LaNois, Head of Professional Channel at Nest, which recently launched the Nest Thermostat E, an

affordable and easy-to-use smart thermostat, which requires zero programming, thanks to its "simple schedule," blends into the background of your home, and can pay for itself—and then some—with energy savings.**

Adds Maxime Veron, Head of Product Marketing at Nest: "Just knowing how much

2/3
OF NEW MARRIAGES ARE PRECEDED BY AN AVERAGE OF TWO AND A HALF YEARS OF COHABITATION.

Council on Contemporary Families, 2014

energy you're using, and whether you actually could save more—all these features are a great way to bring you more peace of mind."

For cohabiting couples, in particular, peace of mind is critical, according to Theresa DiDonato, an associate professor of psychology at Loyola University Maryland, whose research focuses on romantic partnerships. As she explains, miscommunication can wreak havoc on the mental aspect of a relationship, especially when small frustrations begin to mount. "So much of our relationship happens in our heads," she says.



* YouGov

** Independent studies showed that Nest saved U.S. customers an average of 10–12 percent on heating and 15 percent on cooling. Individual savings are not guaranteed.

appearance of innovation and disruption to the occasional detriment of tangible, long-term goals. They expressed frustration at being asked to reallocate resources from developing digital infrastructure to designing “cool looking” data-visualization tools that seemed like they would be primarily useful for impressing visitors; at having to leave their desks to don lab coats and “pretend to be doing something, because they had VIP investors coming through”; and at being instructed to set up taste tests for members of the public that took time away from product development. “We could’ve done really good science, and instead we were doing performances and circus acts,” one ex-employee told me.

The pursuit of Uber-size valuations has arguably resulted in some start-ups offering technological “solutions” more complicated than the problems they purport to solve. The founder of Juicero, for example, positioned himself as the Steve Jobs of juice when he launched

protein—a common ingredient in vegan packaged foods—came because he “brought in some biochemists and they ran tests, looking at the molecular weight of plant proteins, the solubility, all sorts of different properties.” Bob Goldberg, a former musician whose company, Follow Your Heart, has sold a vegan mayo called Vegenaise since 1977, told me that his inspiration to replace eggs with soy protein came in a dream. Follow Your Heart debuted its own plant-based egg substitute, VeganEgg, in 2016, after less than a year of development.

In response to ex-employees’ accounts of being derailed by visitor presentations, Tetrick said that communicating the company’s projects to potential investors and partners is essential to its work. But he rejected allegations that Hampton Creek was making fantastical promises or emphasizing image over substance, and suggested that detractors were seeking to subvert the company’s mission for their own gain. He told

me that Partovi, his former chief strategy officer, who accused the company of misleading investors, was a dissatisfactory employee who had found the “chaotic” atmosphere of a start-up a “huge shock,” and had back-channel conversations about selling off the company. (Partovi declined to comment.) As

for the three recently fired executives, Tetrick said their desired changes would have given more control to investors, whose incentive to go public or accept an acquisition offer might undermine Hampton Creek’s “higher purpose.” When I asked him about the board departures, which were made public after my visit, Tetrick told me that some members had been asked to step down; others “chose to remain members of the advisory board and help the company achieve its mission.”

“There’s one critical filter beyond all the other filters that’s most important,” he told me. “Will this particular decision—whatever that

decision is—increase the chances that we will achieve the mission?”

It is difficult

to resist being charmed by Tetrick. He is self-deprecating, joking that it took him six months to learn how to pronounce *protein surface hydrophobicity*. He exudes confidence, religiously maintains eye contact, and seems disarmingly open: He spoke with me for hours in the office long after his colleagues had gone home and repeatedly volunteered personal text messages for me to read. But his constant emphasis on where Hampton Creek is heading deflects attention from where it is now.

One afternoon during my visit, two Chinese visitors arrived at Hampton Creek for a meeting and joined Tetrick at his customary workstation at the front of the office. The pair had emailed the company’s customer-service department three days earlier, and Tetrick knew little about them besides their vague interest in “alternative proteins.” One of the men, Lewis Wang, now introduced himself as the founder of a venture-capital fund and his companion, who carried a Prada briefcase, as the chairman and CEO of one of China’s largest meat producers. The magnitude of the opportunity was not lost on Tetrick. He immediately summoned a colleague, whom he presented as “one of our lead scientists,” and instructed an employee with the nebulous title of “advocacy” to make sure the men had “the full experience.”

The visitors listened intently while Tetrick teased the company’s forthcoming patents and products, gradually building to the most cutting-edge undertaking of all: Project Jake (named after Tetrick’s deceased dog), Hampton Creek’s push into growing meat and fish in a lab. Tetrick explained how, rather than slaughtering a chicken, scientists could extract stem cells from a bird’s fallen feather and grow them into muscle cells.

Other start-ups in this field, including one co-founded by the creator of the first lab-grown burger

CONTINUED ON P. 90

“A cookie can change the world,” Hampton Creek has asserted.

a \$699 microprocessor-enabled kitchen appliance that could press packets of chopped fruits and vegetables with enough force to “lift two Teslas”—but a Bloomberg reporter found that squeezing the packets with her hands worked just as well. (In early September, the company—which had attracted more than \$100 million in venture-capital funding since its founding four years prior—announced that it was shutting down.)

To be sure, artificial intelligence is not crucial to making vegan mayonnaise: Tetrick has said his inspiration to replace eggs with Just Mayo’s Canadian-yellow-pea

IT'S EASY, THESE DAYS, TO ELIMINATE physical distance as a barrier to meaningful relationships. Even when our friends and loved ones are thousands of miles away, we can reach them instantly, anywhere, with a few taps on our phones.

That might also be making us less inclined to talk with the people who are literally closest to us: the people who live next door. A recent report found that only 20 percent of Americans regularly spend time with the people who live next door—and a third have never even interacted with their neighbors.*

Scholars (and common sense) have pointed out that there are deeper implications when we spend less time with those in our physical proximity. Casual, spontaneous conversations with neighbors and friendly acquaintances play an important role in broadening our perspectives and expos-

ing us to new, different ideas that we might not encounter otherwise. It's tempting to condemn a new era of "disconnection" and blame our smartphones. But as technology scholar and artist Jason Farman says, the ubiquity of technology doesn't have to tear down the neighborhood: We can actually harness it to revive and rebuild it in surprising ways.

Take Nextdoor, an app and social-media network

CONNECTED. HOME.

CHAPTER 3

The Rebirth of the Neighborhood

that allows neighbors to do everything from organize meetups to form neighborhood-watch groups. And [murmur], an international project that marks sites with a symbol and phone number, allows passersby and residents to listen to recorded, user-sourced stories about that location.

Technology can also help make neighborhoods more secure, relieving residents' anxieties. Products like Nest's outdoor camera, paired with something like Nest's upcoming smart doorbell, offer a fuller view of the surroundings of a house that's intelligent enough to make the home more open, as well as more secure.

Farman says that the role of technology as mediator of our relationships isn't something that needs to be

36%

OF AMERICANS DON'T FEEL SAFE IN THEIR COMMUNITY, SAYING THEY WOULD BE AFRAID TO WALK ALONE THERE AT NIGHT.

Connected Home Automation Report.
The NPD Group, 2016

frightening or damaging. "Human relationships have often been shaped by the objects in our lives," he says. A new app or website or camera can do the same: "A technology can shape a person's relationship to their community."

*City Observatory



A Connected Home Should Be a Thoughtful Home

Research firm PSFK examined the latest home technologies. Here, adapted from that report, the Head of Product Marketing at Nest shares his vision for the future of the connected home.

On Changing the User Experience

"Customers who are really thinking about their homes—and how they could make the smart home a reality—don't just want the ability to control their products using their phone; they expect their products to work together."

On Creating a Truly Intelligent Home Ecosystem

"We don't believe you should be the one that has to control your home. We need to do more for you than you have to do for us, which is why we created a platform called 'Works with Nest.' There are literally hundreds of integrations that are possible."

On the Importance of Design

"A design is not just how the hardware looks, but also how consumers interact with that product over time. When customers set up their product through the app and subsequently discover that product, it must not be a daunting task. It has to be simple."



Visit nest.com for more information on connected homes.

Quotes by Maxime Veron,
Head of Product Marketing at Nest

Nest Cam IQ

A best-in-class security camera
with top-of-its-class brains.



Nest Cam Indoor

Plug-in-and-go security.
On your phone, 24/7.



Nest Cam Outdoor

Security, rain or shine.
On your phone, 24/7.



prototype, have targeted 2020 as the earliest date for selling so-called cultured meat. Tetrick declared that his goal was to release lab-produced meat before the end of this year. "This is over our expectations," Wang said. "It's very exciting."

Tetrick led the two Chinese men through a spacious room housing Hampton Creek's team of designers and settled them

in a windowless office with a large TV. Tetrick's filmmaker, one of his longest-serving employees, cued up footage with a *Kinfolk*

vibe: a farmer lovingly cradling a white chicken, a Hampton Creek employee in a field contemplating a single feather as wind rustled his curls. The last shot showed gloved hands snipping the base of a feather into a test tube.

"You are probably the only company that has a media studio here," Wang remarked. "Other companies, I don't think they have a communications studio." But he

Model grocery aisles at Hampton Creek display Just products.



in their homes. "You've got to be able to see it," he explained. "I want them to envision the future."

The future of Hampton Creek that Tetrick would have the world envision is consistently, dazzlingly bright. Besides lab-grown meat and an increasing list of grocery-store staples, he promoted numerous milestones on the cusp of being realized: imminent deals with food manufacturers; patents set to receive approval; the removal of palm oil from Hampton Creek products; the launch of a long-overdue e-commerce site; and the introduction of Power Porridge, a nutrient-rich cereal he said would be in Liberian schools this fall.

When I asked Tetrick why he was embarking on so many risky, expensive endeavors even as product deadlines slipped by, he acknowledged that a "better entrepreneur" might

wait until the company was on more solid footing—but, he told me, "the difference between doing this [now versus] five years from now—or 10 years from now—is literally the difference of billions of animals suffering or not."

Start-up CEOs frequently exaggerate their ambitions in an effort to attract more cash and justify large valuations: As Oracle's billionaire co-founder, Larry Ellison, once quipped, "The entire history of the IT industry has been one of over-promising and underdelivering." In

the insular culture of Silicon Valley, where those who know the score often have a vested interest in keeping it hidden, it can be difficult to determine whether a company is poised for breakthrough or breakdown until the very moment of collapse.

Tetrick deposited his guests in the kitchen, where his chefs—"Michelin-star chefs," Tetrick's head of communications reminded me—had set a table with elegant earthenware pottery and proper silverware. "Here we have a steamed *tomago*, a little bit of smoked black sesame, pea tendrils, and *togarashi*," murmured one chef, setting down a Japanese-style omelet made with the liquid Just Scramble prototype. A vegan feast followed: Japanese *chawanmushi* custard with smoked *kombu* seaweed and sake-poached mushrooms, homemade brioche, butter and crackers, and ice cream. So did a live demonstration of the Just Scramble liquid being scrambled like eggs.

"We are very interested to invest if possible," Wang announced after the meal. "I think Josh looks like a leader," he told me later. Tetrick, in a rush to get to another meeting, left the two men to continue their tour of the headquarters: past researchers operating robotic arms, chefs laboring over scales, and other employees typing at laptops—a perfect vision of industry. ■

Back at headquarters, I watched Tetrick wipe his dog's vomit off the floor adjacent to the research kitchen.

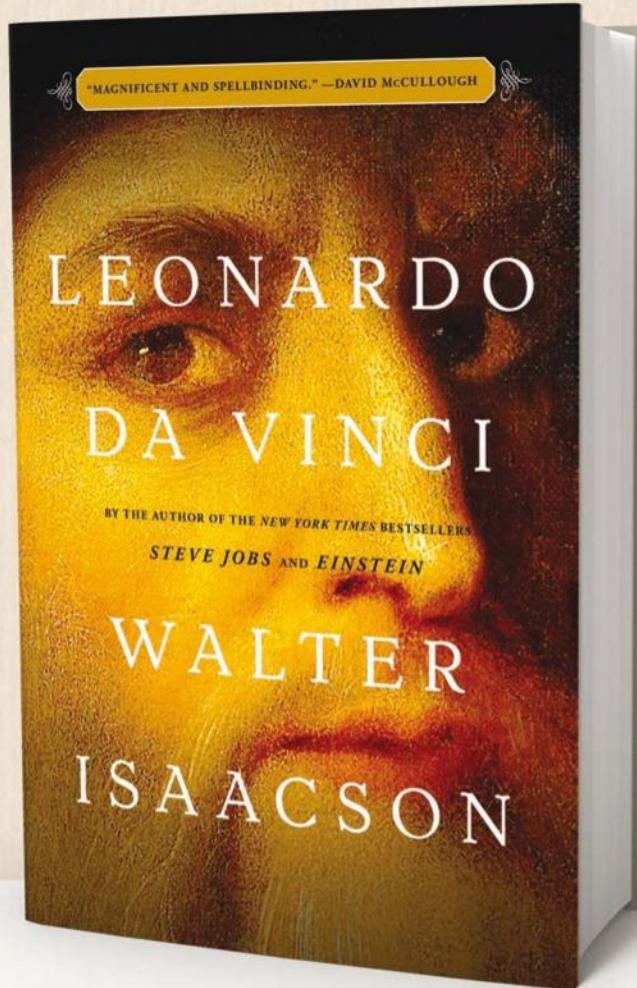
also noted that the videos hadn't shown how the stem cells would be transformed into meat: "Where is the growth?"

By way of response, Tetrick whisked the pair back to the design studio to behold another of his visions: a poster-size illustration of families admiring a hangar full of lab-grown hamburger patties—Tetrick's farm of the future. Trusting in the logic that seeing is believing, he'd distributed framed versions to members of his staff and advised them to mount the drawing

Bianca Bosker is the author of *Cork Dork and Original Copies*. She is the former executive tech editor at HuffPost.

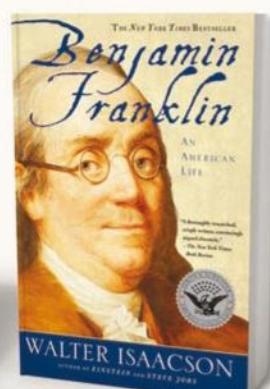
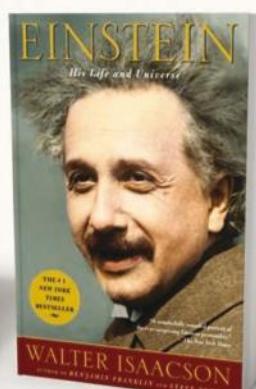
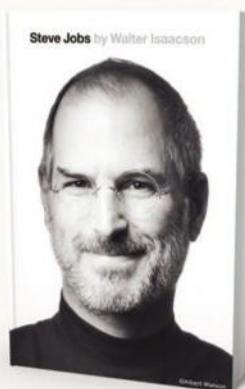
“To read this magnificent biography of Leonardo da Vinci
is to take a tour through the life and works of
one of the most extraordinary human beings of all time.”

—David McCullough



He was history's most creative genius. What secrets can he teach us?

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THE BETA
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PENN STATE

**TIM PIAZZA
FOUGHT
FOR HIS
LIFE FOR
12 HOURS
BEFORE HIS
FRATERNITY
BROTHERS
CALLED 911.
BY THEN,
IT WAS
TOO LATE.**

**BY
CAITLIN
FLANAGAN**

A T A B O U T 3 P . M . O N F R I D A Y ,

February 3, Tim Piazza, a sophomore at Penn State University, arrived at Hershey Medical Center by helicopter. Eighteen hours earlier, he had been in the kind of raging good health that only teenagers enjoy. He was a handsome, redhead kid with a shy smile, a hometown girlfriend, and a family who loved him very much. Now he had a lacerated spleen, an abdomen full of blood, and multiple traumatic brain injuries. He had fallen down a flight of stairs during a hazing event at his fraternity, Beta Theta Pi, but the members had waited nearly 12 hours before calling 911, relenting only when their pledge “looked fucking dead.” Tim underwent surgery shortly after arriving at Hershey, but it was too late. He died early the next morning.

Every year or so brings another such death, another healthy young college man a victim of hazing at the hands of one of the nation’s storied social fraternities. And with each new death, the various stakeholders perform in ways that are so ritualized, it’s almost as though they are completing the second half of the same hazing rite that killed the boy.

The fraternity enters a “period of reflection”; it may appoint a “blue-ribbon panel.” It will announce reforms that look significant to anyone outside the system, but that are essentially cosmetic. Its most dramatic act will be to shut down the chapter, and the house will stand empty for a time, its legend growing ever more thrilling to students who walk past and talk of a fraternity so off the chain that it killed a guy. In short order it will “recolonize” on the campus, and in a few years the house will be back in business.

The president of the college or university where the tragedy occurred will make bold statements about ensuring there is never another fraternity death at his institution. But he knows—or will soon discover—that fraternity executives do not serve at the pleasure of college presidents. He will be forced into announcing his own set of limp reforms. He may “ban” the fraternity from campus, but since the fraternity will have probably closed the chapter already, he will be revealed as weak.

The media will feast on the story, which provides an excuse to pay an unwarranted amount of attention to something viewers are always interested in: the death of a relatively affluent white suburban kid. Because the culprits are also relatively affluent white suburban kids, there is no need to fear pandering to the racial bias that favors stories about this type of victim. The story is ultimately about the callousness and even cruelty of white men.

The grieving parents will appear on television. In their anger and sorrow, they will hope to press criminal charges. Usually they will also sue the fraternity, at which point they will discover how thoroughly these organizations have indemnified themselves against culpability in such deaths. The parents will try to turn their grief into meaningful purpose, but they will discover how intractable a system they are up against, and how draining the process of chipping away at it is. They will be worn down by the endless civil case that forces them to relive their son’s passing over and over. The ritual will begin to slow down, but then a brand-new pair of parents—filled with the energy and outrage of early grief—will emerge, and the cycle will begin again.

Tim Piazza’s case, however, has something we’ve never seen before. This time the dead student left a final testimony, a vivid, horrifying, and inescapable account of what happened to him and why. The house where he was so savagely treated had been outfitted with security cameras, which recorded his long ordeal. Put together with the texts and group chats of the fraternity brothers as they delayed seeking medical treatment and then cleaned up any traces of a wild party—and with the 65-page report released by a Centre County grand jury, which recommended 1,098 criminal charges against 18 former members and against the fraternity itself—the footage reveals a more complete picture of certain dark realities than we have previously had.

Once again, a student is dead and a family is shattered. And all of us are co-authors of these grim facts, as we grant both the fraternities and their host institutions tax-exempt status and allow them to carry on year after year with little change. Is it time we reconsidered what we’re doing?

In 2004, a Penn State alumnus from the class of 1970 named Donald Abbey visited his old fraternity house, Beta Theta Pi. He had been a star fullback in the early years of the Joe Paterno era, and gone on to become a billionaire real-estate investor and builder in California who remembered the Beta house as a central part of his college experience. But when he visited, he was shocked—it was, he recalled, “repulsive,” and he felt compelled to bring his experience in “repositioning properties” to bear on 220 North Burrowes Road. He would spend a total of \$8.5 million on what would be the most extensive renovation of an American fraternity house in history.

Abbey’s taste does not run to the economic or the practical. One of the mansions he built for himself in California, in the San Gabriel Valley, has



an underground firing range; a million-gallon, temperature-controlled trout pond; an oak-paneled elevator; and “Venetian plaster masterpieces throughout.” Similarly, his vision for the refurbished Beta house was like something out of a movie about college. (*Exterior: the frat where the rich bastards live.*) The bathrooms had heated floors, the two kitchens had copper ceilings, the tables were hand-carved mahogany imported from Colombia. At the entrances were biometric fingerprint scanners.

Abbey seems not to have considered why the house might have become so “repulsive” in the first place. A simple trip through the archives of *The Daily Collegian* might have revealed to him that the

**TIM PIAZZA
WAS A
SOPHOMORE
AT PENN STATE
WHEN HE
PLEDGED
BETA THETA PI.**

Alpha Upsilon chapter of Beta Theta Pi was hardly the Garrick Club. This was an outfit in which a warm day might bring the sight of a brother sitting, with his pants pulled down, on the edge of a balcony, while a pledge stood on the ground below, his hands raised as though to catch the other man’s feces. At the very least, this might not have been the crowd for anything requiring a fingerprint.

The renovations were largely complete by the winter of 2007, and almost immediately the members began to trash the house. Abbey was justly furious, and at some point he had at least 14 security cameras installed throughout the public rooms, an astonishing and perhaps unprecedented step. The cameras were in no way secret, and yet the brothers continued to engage in a variety of forbidden acts, including hazing, in clear view of them. In late January 2009, the national fraternity put the chapter on probation. But the young men continued to break the rules. A few weeks later, the chapter’s probation was converted to the more serious “interim suspension.” Incredibly,

with the pressure on and the cameras still recording, the behavior continued. By the end of February, the chapter had been disbanded.

The public often interprets the “closing” of a fraternity as a decisive action. In fact, it is really more of a “reopening under new management” kind of process. The national organization grooms a new set of brothers—a “colony”—and trains them carefully so that the bad behavior of the previous group will not be replicated. The first few years typically go very well. Indeed, not two years after the Penn State chapter of Beta Theta Pi reopened in the fall of 2010, it won a Sisson Award, one of the highest honors the national fraternity can confer. But just as typically, the chapter reverts to its previous behavior. Alumni visit their old house and explain how things ought to be done; private Facebook groups and GroupMe chats are initiated among brothers of different chapters, and information about secret hazing rituals is exchanged. This time, when the brothers of the newly reconstituted Beta chapter reverted to type and started hazing, the national organization did not intervene.

I wanted to learn more about the cameras, and also about something called the “Shep Test,” so in June I called the North-American Interfraternity Conference, the trade association for social fraternities, which is located in Carmel, Indiana. I asked to schedule an interview with the CEO, Jud Horras, who was also a Beta, a former assistant secretary of the fraternity’s national organization, and someone who had been intimately involved in the disbanding and recolonization of the Penn State chapter.



IN 1998, A YEAR AFTER Tim Piazza was born, Beta Theta Pi launched something it called Men of Principle, intended to be a “culture-reversing initiative.” What culture was it seeking to reverse? This was best answered in the four planks of the campaign. The first was administrative: create “a five-person trained and active advisory team.” The other three were the crux of the matter: commit “to a 100% hazing-free pledge program,” institute “alcohol-free recruitment,” and eliminate the “Shep Test,” which it described as “the rogue National Test.”

The last one caught my attention, so I Googled around to find out what it was. Most fraternity secrets—their handshakes and members’ manuals and rituals—have gone the way of everything else in the time of the internet, and even those customs that members want to hide aren’t too hard to track down. But there really wasn’t anything at all about the Shep Test—except for this, from the national Beta organization:

Some chapters conduct the “Shep Test.” If Francis W. Shepardson, Denison 1882, one of the greatest leaders in our great and good fraternity knew that this practice was named after him he would be disgraced. This act is in direct violation of our third principle and second and third obligations. It contradicts everything Beta Theta Pi stands for.

It seemed to me—based on the fact that I could find nothing else about it—that the Shep Test had truly been eliminated. Or so I thought, until I read the grand jury’s presentment of the Piazza case. Text messages from members’ cellphones had been entered into evidence, and included this exchange between two brothers at the time of the fall 2016 initiation:

CASEY: We were setting up
TORRYE: Setting what up?
CASEY: Like the shep test and the fake branding
TORRYE: Ohh
CASEY: I in charge of administering the shep test
TORRYE: What happens first
CASEY: Fake branding

And from the next night:

CASEY: It starting ... We have them wait in the boiler room after the shep test until we set up paddling

As people have since explained it to me, the Shep Test itself is little more than a quiz about Beta Theta Pi history, but it’s one part of a night of mind games and physical punishments. A former Beta told me that pledges were held down on a table as a red-hot poker was brought close to their bare feet and they were told they were going to be branded. With pillowcases over their heads, they were paddled, leaving bruises and, on at least one occasion, breaking the skin. They were forced to eat and drink disgusting things, denied sleep, and terrorized in a variety of other ways.

Jud Horras called me back and proposed something surprising: He would fly to Los Angeles for a day to meet with me in the lobby of an airport hotel. I said it was a pity to come all that way and not see the beach, so I would pick him up and take him to breakfast at Hermosa Beach, where he couldn’t shake me if my questions got too difficult. He was coming out to show that he had nothing to hide, but I knew he was not prepared for the hardest question I had for him, which I would return to over and



over again: Why hadn’t Beta Theta Pi taken the simple, obvious steps that would have saved Tim Piazza’s life?

Jud Horras is a young man with a wife and a small son and daughter, and if Tim Piazza were alive and well—if he’d gone home to his apartment that night plastered but with a story to tell—I would have fully enjoyed my time with him. He grew up in Ames, Iowa, and spent summers working on a farm—rare for fraternity members, who are more often suburban kids of relative affluence. His parents divorced, and he lived with his father and brother; by his own estimation, he “made mistakes” in high school. When he began at Iowa State, he was a lost young man, arrogant and insecure. But Beta Theta Pi turned his life around. He learned—via, of all things, a college fraternity—how to exert self-control. Mentors—among them Senator Richard Lugar, a fellow Beta, who brought him to Washington as an intern the summer before his senior year—took him under their wing, and Horras’s gratitude to these men is immense. He loves his fraternity the way some men love their church or their country.

Horras was eager to walk me through a list of talking points that he had written on a yellow legal pad during his flight. He wanted me to understand that changes were coming to the fraternity industry, that the wild drinking could not go on indefinitely. In many regards, our conversation was like other such conversations I’ve had with fraternity executives over the years. He was willing to acknowledge problems in the fraternity,

EIGHTY PERCENT OF FRATERNITY MEMBERS REPORT BEING HAZED. IT'S NOT AN ABERRATION; IT'S THE NORM.



Clockwise from top left:
PENN STATE'S CAMPUS, TIM PIAZZA'S BEDROOM, AND HIS HIGH-SCHOOL LETTERMAN JACKET

but not to connect certain of its customs to any particular death. At the national level, all fraternities vehemently prohibit hazing, and spend tremendous energy and money trying to combat it. But according to the most comprehensive study of college hazing, published in 2008 by a University of Maine professor named Elizabeth Allan, a full 80 percent of fraternity members report being hazed. It's not an aberration; it's the norm.

I asked Horras why no one at Beta Theta Pi had done anything about all the bad behavior those cameras must have recorded over the years since the reopening of the chapter. He said that no one could be expected to watch every single minute of film. He said that at some point, you have to trust young men to make the right decisions. What Beta Theta Pi had done for him as a young man, he suggested, was allow him to make some poor decisions until he started to turn around and become the man he wanted to be. Giving members the freedom to do that was part of what the fraternity was about. If they screwed up and got caught—well, that was on them. As for the death of Tim Piazza, while it constituted “a tragedy for him and his family,” it would provide the industry with the impetus needed to make some necessary reforms. In fact, his death was a “golden opportunity.”

Then I asked Horras about the Shep Test, and why it endured, despite the effort that had gone into eradicating it. He

interrupted me: “Wait a minute. That test doesn’t happen anymore. We have testimonials instead, where pledges can—”

“But it’s in the presentment,” I said, and he looked at me, baffled. “One kid asks where the pledges were, and the other one says they’re waiting in the boiler room after the Shep Test.”

It was clear in that moment—and as he affirmed in a later email—that Horras hadn’t read the presentment very closely.

In my notebook, I wrote:

Long pause
Long pause—
Long pause

Finally he said, with consummate feeling, “I’m fucking mad that that stuff is going on.”

And then I realized why Horras was able to see the torture and death of a 19-year-old kid as a golden opportunity: He didn’t really know that much about it. I started to ask him another question, but for a few moments he seemed lost.

“Am I just fighting for a bunch of idiots?” he asked.

I VISITED Jim and Evelyn Piazza on a lush New Jersey evening in July, when a summer rain was falling on the wide lawns and large houses of their neighborhood in Hunterdon County, one of the wealthiest areas in the United States.

Jim and Evelyn, who are both accountants, had been at work. Jim is tall and balding and was still dressed for the office, in shirtsleeves and trousers. Evelyn, who is petite and has long, ringleted hair—a lighter shade of red than Tim’s—was in shorts and a T-shirt. Their house, where Tim had grown up since the age of six months, was silent and immaculate. We sat around their kitchen table with bottles of cold water and talked.

A fraternity death is, in some ways, like any other traumatic death of a young person. There is the horrifying telephone call, the race to the hospital, the stunned inability to comprehend basic information. (During cellphone calls on the two-hour drive, the doctor kept telling Evelyn that her son was “a very sick boy.”) But a fraternity death also brings multiple other levels of shock: The young person was killed because of something his friends did to him; his own university quickly backs away from any responsibility for his death; his parents become pariahs to the other members’ parents as they seek justice for their lost son.

In an effort to learn more about fraternities, the Piazzas—who had not taken part in Greek life when they were college students—had attended an information session while at a Penn State parents’ weekend in the fall of 2014 for their older son, Mike, who was then a freshman. Evelyn recalled that a university official told the crowd of parents that there was no hazing at the university. An uncomfortable silence followed, until one by

one, parents informed the man that their sons were currently being hazed.

When I tried to confirm this incident with Penn State, the university denied, in a series of baffling phone calls and emails, that it could have happened. “We don’t doubt the Piazzas’ sincerity,” one of the exchanges begins, before heaping doubt on their assertion. I brought up all of this at the Piazzas’ table.

“We got a letter from another parent who was there,” Jim said. “He remembered it just the way we did.” I now have a copy of that letter, and have spoken with the parent who wrote it; the account verifies everything the Piazzas remember and identifies the man who made the remarks as the university’s then-head of Greek life, Roy Baker.

This is what the past nine months have been like for the Piazzas as they try to get justice for their son: simple requests for information and action on their part, the strangled responses of a massive, inelegant, and transparently self-protecting bureaucracy in reply. When Jim Piazza met with Penn State President Eric Barron a week after Tim’s death, he slid the program from his son’s funeral across the desk: “Since no one had the time to come,” he said.

The Piazzas are still easily unraveled by memories of their son. When I asked whether a spare car in the driveway had been Tim’s, Jim said yes and then suddenly struggled for composure; he had driven it back to the house after Tim’s death. Evelyn told me about a time, not long before Tim died, when the two of them were alone in the house at dinnertime, and he suggested that they go to a restaurant. They did, and they had a typically fun time together; when the check came, Tim reached over and picked it up. “I thought he was kidding around,” Evelyn told me. “But he said, ‘I think I can afford to take my mother out to dinner.’”

The Piazzas and I talked for close to an hour. As they walked me out, I thought of the Catholic funeral that Evelyn had so carefully planned for her son, and the grace with which both had withstood this horror.

“You must have a very strong faith,” I said, and Jim winced a little and glanced at his wife.

“They stole my son,” she said. “And they stole my faith.”

Jim opened the front door for me. It was full night now, and the rain had stopped. The leaves and grass were wet, and soft lights illuminated the trees. I walked out onto the porch, and then Jim took a sudden step toward me. I thought he was going to ask me something, or tell me one last thing.

“Be careful on the street,” he said. At my puzzled look, he explained that there were deer in the area and that they were hard to see at night. And then I got in my car, armed with a father’s good counsel about avoiding the dangers that hid in an ordinary night.

WHEN I ASKED WHETHER A SPARE CAR IN THE DRIVEWAY HAD BEEN TIM’S, JIM SAID YES AND THEN STRUGGLED FOR COMPOSURE.

W

HEN I TALKED WITH PEOPLE about Tim Piazza’s death, many brought up an earlier Penn State crisis, the Jerry Sandusky scandal, in which the longtime assistant football coach was convicted for a decades-long practice of sexually abusing young boys, and the university’s head coach, Joe Paterno, was abruptly fired. Both cases gestured to a common theme: that of dark events that had taken place on or near the campus for years, with some kind of tacit knowledge on the part of the university. There is also the sense that at Penn State, both the fraternities and the football team operate as they please. To the extent that this is true, the person responsible is Joe Paterno.

It’s hard to think of a single person with a greater influence on a modern university than Paterno, who died in 2012. Because of his football team—which he coached for half a century—Penn State went from an institution best known as a regional agricultural school to a vast university with a national reputation. He was Catholic, old-school, elaborately respectful of players’ mothers—and eager to wrest their sons away and turn them into men, via the time-honored, noncoddling, masculine processes of football.

To say he was a beloved figure doesn’t begin to suggest the role he played on campus. He was Heaney at Harvard, Chomsky at MIT. That he was not a scholar but a football coach and yet was the final authority on almost every aspect of Penn State life says a great deal about the institution. He was also a proud Delta Kappa Epsilon man and a tremendous booster of the fraternity system, and—as was typical for men of his generation—he understood hazing to be an accepted part of Greek life.

In 2007, he gave the practice his implicit endorsement. Photographs had surfaced of some members of the wrestling team apparently being hazed: They were in their underwear with 40-ounce beer bottles duct-taped to their hands. “What’d they do?” he asked during an open football practice that week. “When I was in college, when you got in a fraternity house, they hazed you. They made you stay up all night and played records until you went nuts, and you woke in the morning and all of a sudden they got you before a tribunal and question you as to whether you have the credentials to be a fraternity brother. I didn’t even know where I was. That was hazing. I don’t know what hazing is today.” He wasn’t upset that the wrestlers had engaged in hazing; he was scornful of them for doing it wrong.

Looking back at the past two decades at Penn State, we see a university grappling with its fraternity problem in ways that pitted concerned administrators against a powerful system, and achieving little change. In 1997, five members of a fraternity showed up at University Health Services with what the physician there strongly suspected were hazing injuries; in the ominous phrase of the director of Health Services, the injuries had been caused by “something that someone else was doing to them.” The president of the university at the time, Graham Spanier (who is currently fighting a jail sentence resulting from his role in the Sandusky scandal), became involved. “We will not tolerate hazing at Penn State,” he said. Yet an investigation into the fraternity resulted in its complete exoneration, most likely because the pledges

**JIM AND
EVELYN
PIAZZA
AT THEIR
HOME IN
NEW JERSEY**



refused to report what the brothers had done to them, which is typical. The episode, which was covered in the student newspaper, reinforced a message that would have tragic consequences for Tim Piazza: that seeking medical help for an injured pledge invites scrutiny and perhaps serious trouble.

In 2004, the university initiated a program it called Greek Pride: A Return to Glory, which was intended “to eliminate negative behavior within Greek organizations.” Many meetings were held, but nothing much seems to have come of them. Then, in 2009, after a freshman named Joseph Dado got so drunk at a fraternity party that he fell down a set of concrete stairs and died, the university’s student-run Interfraternity Council made what seemed to be a game-changing decision. It contracted with an outside security firm called St. Moritz. The firm would send employees to fraternity parties for unscheduled checks to make sure that they were in compliance with various safety policies. It was a system that should have saved Tim Piazza’s life. Two checkers arrived minutes before he fell down the stairs, and inspected a house rife with policy violations, yet no alarm was raised, and the night raged on.

Who were these checkers, and how could they have missed the obvious violations that were taking place? The IFC claims that neither it nor St. Moritz retains any records from that night. Nor will it comment on a fact that *The Daily Collegian* reported: that the checkers were not full-time security guards, but Penn State kids who were working part-time for St. Moritz. (The company declined to comment.) In the words of Stacy Parks Miller, the district attorney who brought the charges against the Beta brothers, the whole system was an elaborate “sham,” one that was exposed only after Tim Piazza died.

In 2015, a former pledge of Kappa Delta Rho’s Penn State chapter, James Vivenzio, made national news. He told police that his fraternity had kept a secret Facebook page where members could post naked pictures of female students, some of whom were unconscious or being sexually assaulted. He also said that he had been severely hazed two years earlier, and had reported the hazing to the Office of Student Conduct. Danny Shaha, the head of that office,

**KORDEL DAVIS
PLEADED
WITH HIS
FRATERNITY
BROTHERS TO
GET HELP FOR
TIM PIAZZA.**



took the report seriously enough to visit Vivenzio in his Virginia home. Tellingly, his fraternity was the same one that had been investigated after the five injured students went to Health Services 18 years earlier. Yet Vivenzio claims that Student Conduct did not investigate his allegations until he went to the police.

Vivenzio is currently suing both the fraternity and the university. His suit describes the hazing he endured: cigarette burns; “late-night line-ups that featured force-feeding bucketfuls of liquor mixed with urine, vomit, hot sauce and other liquid and semi-solid ingredients”; being told to “guzzle hard liquor without stopping until vomiting was induced.” (Penn State claims that it could not address Vivenzio’s hazing because he declined to provide documentation or pursue a formal disciplinary process, an assertion Vivenzio’s attorney disputes. After he went to the police, the university suspended the fraternity for three years.)

Another piece of ongoing Penn State litigation involves a student at the Altoona campus named Marquise Braham, who pledged Phi Sigma Kappa as a freshman in 2013. His parents' civil suit describes what he experienced:

Among other things, being forced to consume gross amounts of alcohol, chug bottles of Listerine, swallow live fish, fight fellow pledges; being burned with candle wax, deprived of sleep for 89 hours, locked in a room with other pledges, alcohol, and a trashcan to catch their vomit; having a gun held to his head; and being forced to kill, gut, and skin animals.

Braham had texted with his residence-hall adviser, a young woman, desperately seeking help in understanding what was happening to him, but she only endorsed the system. "Yes it will get worse," she wrote. "I'm sorry to say hahaha but it will."

He made it through the hazing, but the next semester he was expected to haze other pledges, which broke him. He went home to New York for spring break, saying that he needed to see a priest. At lunch with his mother the day before he was to return, he excused himself from the table, climbed to the top of a nearby building, and jumped to his death. A grand jury found no link between his death and the hazing he had endured. Penn State suspended Phi Sigma Kappa's charter for six years.

A

FTER TIM PIAZZA FELL, four fraternity brothers carried him, unconscious, to a couch. He was in obvious need of medical attention, yet the fraternity brothers treated him with a callousness bordering on the sadistic. They slapped and punched him, threw his shoes at him, poured beer on him, sat two abreast on his twitching legs. Precious minutes and hours passed by, the difference between Tim's life and death.

Two hours into the nightmarish security footage, something extraordinary happens. A young man walks into the frame and approaches the couch where Tim is lying, still unconscious. This is Kordel Davis, a recently initiated freshman brother and the chapter's only black member at the time. According to the presentment, he "leans over Timothy's head. Davis then turns to the Beta brothers near Timothy and becomes very animated, again pointing at his head and then at Tim."

The presentment states that when the brothers told Davis that Tim had fallen down the basement stairs, he became

even more concerned—now for Timothy's life. He stressed to them that Timothy needed to go to the hospital since he could have a concussion. Davis told them that if Tim was sleeping they needed to wake him up and call 911 immediately. He screamed at them to get help. In response [Beta brother] Jonah Neuman rose from the couch and shoved Davis into the opposite wall. Neuman instructed Davis to leave and that they had it under control.

Davis then sought out Ed Gilmartin, the vice president of the chapter: "The camera captures Davis gesturing once more, referring repeatedly to his head and pointing at Timothy." Davis testified that Gilmartin told him he was crazy and "claimed the other brothers were kinesiology and biology majors," so Davis's word "meant nothing to him when compared to theirs."

I sat with Kordel Davis this summer in the cacophonous food court in Philadelphia's Reading Terminal Market, and we talked about that moment. "They made you doubt yourself," I

said, and—in as pure an expression of teenage-male anguish as I've ever seen, tears welling in his eyes—he said, "Like I've doubted myself my whole life."

Kordel was born to a 16-year-old single mother in Reading, Pennsylvania, and was removed from her care and placed in two successive foster homes. At age 3, he was adopted by a white couple who had already adopted 9-year-old white twins from foster care, and who would adopt a black infant the next year; they divorced soon after that, at which point family life was further complicated by frequent moves, and the eventual introduction of new stepparents and stepsiblings. Kordel attended a majority-white high school, where he made good friends and had many caring teachers, and where he found a mentor in the football coach. Yet he also says that he was hazed as a freshman on that team, including by an older white player who beat him in front of others, and that he was called a racist nickname by his teammates. When the nickname came to the attention of a teacher and his coach, the other players claimed that it was meant to be affectionate.

"After all that," I asked him, "why would you join an all-white fraternity with these privileged kids?"

"Because I've been around kids like that all my life," he said. "I know how to handle them."

Or at least he thought he did.

The story of black members of historically white fraternities is a complex one. Although the clubs started opening their ranks to African Americans in the 1950s and '60s, they have few black members; nationally, only 3 percent of Beta Theta Pi's members are black, for example. There is reason to believe that official membership policy and actual practice diverge. In 2015, cell-phone video of some Sigma Alpha Epsilon members from the University of Oklahoma singing a fraternity song became public:

There will never be a n—— SAE
There will never be a n—— SAE
You can hang him from a tree
But he'll never sing with me
There will never be a n—— SAE

Any hope that this was the local custom of one rogue chapter disappeared when authorities discovered where the brothers had learned the lyrics: on a 2011 "national leadership cruise" that brought together hundreds of active and alumni members.

When Kordel Davis was interviewed by a police detective after Tim Piazza's death, he had a scar on his forehead, which was still there when I met with him over the summer. It was from an injury sustained during his own bid-acceptance night

AFTER TIM FELL, FRATERNITY BROTHERS SLAPPED AND PUNCHED HIM, THREW HIS SHOES AT HIM, POURED BEER ON HIM, SAT TWO ABREAST ON HIS TWITCHING LEGS.

the previous semester, when he, too, had fallen after drinking heavily. “My shirt, my phone—they were covered in so much blood,” he told me. His fraternity brothers put him to bed, he survived the night, and the next morning they took him for medical care—at a privately owned urgent-care clinic instead of University Health Services, where hazing might have been suspected. Keeping that incident secret was one of the costs of membership. Yet after Kordel was initiated, he did not seem to have the full measure of brotherhood that the others enjoyed. Once, he brought some friends to a party—to which other brothers had also brought guests—but was told he was not allowed to have guests, and so he had to leave, embarrassed, with his friends.

Kordel seemed rootless when I talked with him over the summer. “I lost my future,” he told me. He was seized by remorse over what had happened to Tim, and he had decided not to return to Penn State, although he had loved it there and had been awarded a significant financial-aid package. He’d read enough on online message boards to know what fraternity members on campus thought of him: that he had ratted out his brothers by talking so openly to the police, and thereby ruined Greek life for everyone.

I thought about the summons he had received from the police department, about the day he had gone there, alone, a 19-year-old black kid in a county that is 90 percent white, to report on events surrounding the death of a white college student. Still, the police were kind to him. They had a nickname for him, based on his actions on the tape: the Good Samaritan.

When I dropped Kordel off at his father’s home, I wondered whether this experience would indeed cost him his future. But he is resilient, incredibly so. By summer’s end he had been accepted at Rutgers, and had taken out student loans to pay his tuition. Perhaps he won’t have to pay them back himself. I asked a lawyer with extensive knowledge of fraternity litigation whether Kordel might have his own civil claim against Beta Theta Pi, and he affirmed that—given the hazing he had experienced as well as the scarring—he could indeed have a “deep-six-figure claim.”

IN LATE MAY, shortly after the grand jury’s harrowing presentment was released to the public, Jud Horras appeared on *CBS This Morning*. In a conversation with Gayle King, Charlie Rose, and Norah O’Donnell, he was measured, calm, and so ungraspable—always separating the thugs of one rogue chapter from the larger entity of the fraternity industry—that midway through the interview, O’Donnell lost her patience and interrupted him.

“There have been 60 deaths over eight years involving fraternity activities,” she said angrily. “There should be zero tolerance. There should be immediate action on this. It is unacceptable. This is murder.”

Her sentiment was one shared by many people when they learned about what had happened to Tim Piazza, but

it revealed a common misunderstanding: Fraternities *do* have a zero-tolerance policy regarding hazing. And that’s probably one of the reasons Tim Piazza is dead.

For most of their long history, fraternities pretty much did as they pleased. But in the 1980s, parents of injured and dead children began to fight back: They sued the organizations and began to recover huge sums in damages. Insurance companies dropped fraternities en masse. Because of this crisis, the modern fraternity industry was born, one that is essentially self-insured, with fraternities pooling their money to create a fund from which damages are paid.

The executives realized that even if they couldn’t change members’ behavior, they had to indemnify themselves against it, which they did by creating an incredibly strict set of rules, named for a term of art in the insurance industry: risk-management policies. These policies forbid not just the egregious behaviors of hazing and sexual assault, but also a vast range of activities that comprise normal fraternity life in the majority of chapters. You can’t play beer pong in a fraternity house. You can’t have a sip of alcohol if you’re under the age of 21, or allow anyone else who’s underage to have a sip of alcohol. During a party, alcohol consumption must be tightly regulated. Either the chapter can hire a third-party vendor to sell drinks—and to assume all liability for what happens after guests consume them—or members and guests may each bring a small amount of alcohol for personal use and hand it over to a monitor who labels it, and then metes it back to the owner in a slow trickle.

In an emergency, when the police and an ambulance show up, the national organization will easily be able to prove that the members were in violation of its policies, and will therefore be able to cut them loose and deny them any of the benefits—including the payment of attorneys’ fees and damages—that come with the fraternity insurance the members themselves have paid for.

Fraternity members live under the shadow of giant sanctions and lawsuits that can result even from what seem like minor incidents. The strict policies promote a culture of secrecy, and

**BRENDAN YOUNG,
THE FORMER
PRESIDENT
OF BETA
THETA PI’S
PENN STATE
CHAPTER,
ARRIVES
AT THE
COURTHOUSE
FOR A
PRETRIAL
HEARING.**



when something really does go terribly wrong, the young men usually start scrambling to protect themselves. Doug Fierberg, a Washington, D.C., lawyer whose practice is built on representing plaintiffs in fraternity lawsuits, told me that “in virtually every hazing death, there is a critical three or four hours after the injury when the brothers try to figure out what to do. It is during those hours that many victims pass the point of no return.”

All of these dynamics came into play the night Tim Piazza was fatally injured. The chapter president, Brendan Young, was—get this—*majoring* in risk management. He fully understood that officers of the fraternity face greater liability than do regular members. He became the president in November 2016, and shortly before rush began, in January 2017, he texted Daniel Casey, the pledge master: “I know you know this. If anything goes wrong with the pledges this semester then both of us are fucked.” He wasn’t suggesting they scrap hazing; he was reminding his subordinate that they had better not get caught doing it. (Young’s lawyer declined to comment.)

Even a full day after Tim died, some members were, amazingly, still focused on the consequences that could befall them. “Between you and me,” a member texted Young, “what are the chances the house gets shut down?”

“I think very high,” Young replied. “I just hope none of us get into any lawsuits.”

“You think they are going to sue?” asked the brother, to which Young responded in a way that is chilling and that reveals a sophisticated knowledge of how such events play out: “It depends if they want to go through with it, or just distance themselves from us all together.”

IN FACT, Jim and Evelyn Piazza have not chosen to distance themselves from the men who hazed their late son and left him to a fate that Jim compares to a crucifixion. They attended every day of the pretrial hearings that determined which of the charges against the brothers would go to trial, a grueling process that—with its many continuances and breaks—lasted the entire summer.

It ended, finally, with what looked like a significant defeat: The most-serious charges—of involuntary manslaughter and aggravated assault—were dropped. In the courtroom, the 16 fraternity brothers (two had waived their right to a preliminary hearing) backslapped one another and exchanged fist bumps. The Piazzas quietly left.

Still, 14 of the Beta brothers will face a total of 328 criminal charges—jury selection is scheduled to begin in December—and the Piazzas also plan to file a civil suit after the trial ends. (When asked for comment, the national Beta fraternity stated that members of the Penn State chapter had not met its “expectations of friendship and brotherhood” and that it had “moved to close the chapter in February and expel men charged in the case.” An attorney for the chapter did not respond to a request for comment.)

“IN VIRTUALLY EVERY HAZING DEATH, THERE IS A CRITICAL THREE OR FOUR HOURS AFTER THE INJURY,” ONE ATTORNEY TOLD ME. “IT IS DURING THOSE HOURS THAT MANY VICTIMS PASS THE POINT OF NO RETURN.”

The university has responded to the crisis with some significant steps: It has wrested discipline of the fraternities from the IFC, a group run entirely by frat brothers, and put it firmly in the hands of the Office of Student Conduct; checks on fraternity parties will be conducted not by St. Moritz, but by university employees. It has also permanently banned Beta Theta Pi from campus. The motivation behind these changes may lie as much in an earnest desire for reform as in a panicked need to contain what could become an ever-widening scandal, one with the potential to be as newsworthy as the Sandusky scandal.

At the end of the Piazza presentment, the grand jury issues a stunning condemnation of Penn State’s fraternity culture:

The Penn State Greek community nurtured an environment so permissive of excessive drinking and hazing that it emboldened its members to repeatedly act with reckless disregard to human life ... Timothy Piazza died as a direct result of the extremely reckless conduct of members of the Beta Fraternity who operated within the permissive atmosphere fostered by the Pennsylvania State University Interfraternity Council.

The grand jury is now investigating the broader issue of hazing at Penn State and may recommend criminal charges. It is also reviewing the James Vivenzio and Marquise Graham cases. The presentment that could emanate from those horrific cases will surely be the subject of intense media scrutiny.

As for the university’s permanent ban of Beta Theta Pi from campus, a week after the most-serious charges against the former brothers were dropped, Beta alumni received an email inviting them to stay at their beloved house during football weekends this fall.

The Greek system has powerful allies at Penn State. After Tim Piazza’s death, several prominent trustees of the university vouched for fraternities, which they felt should be reformed but not hobbled. Their logic was sometimes tortured. William Oldsey told *The Philadelphia Inquirer* in May that the story of Tim Piazza—whose parents he pitied mightily—offered not an indictment but an endorsement of Greek life: “This is a good-enough system that it attracted a kid of the high caliber and character of Tim Piazza.”

SO LET US NOW IMAGINE all the forces arrayed against 19-year-old Tim Piazza as he gets dressed in his jacket and tie, preparing to go to his new chapter house and accept the bid the brothers have offered him.



He is up against a university that has allowed hazing to go on for decades; a fraternity chapter that has hazed pledge classes at least twice in the previous 12 months; a set of rules that so harshly punishes hazing that the brothers will think it better to take a chance with his life than to face the consequences of having made him get drunk; and a “checking system” provided by a security firm that is, in many regards, a sham. He thinks he is going to join a club that his college endorses, and that is true. But it is also true that he is setting off to get jumped by a gang, and he won’t survive.

So here is Tim, reaching for his good jacket—in a closet that his mother will soon visit to select the clothes he will wear in his coffin—a little bit excited and a little bit nervous.

“They’re going to get me fucked up,” he texts his girlfriend, and then he pulls closed the door of his college apartment for the last time.

He has been told to show up at exactly 9:07. Inside, the 14 pledges are lined up, each with his right hand on the right shoulder of the one in front of him, and taken into the living room, where they are welcomed into the fraternity with songs and skits. And then it is time for the first act of hazing in their pledge period: quickly drinking a massive amount of alcohol in an obstacle course, the “gauntlet.” Court documents and the security footage provide excruciating detail about what comes next.

About an hour after the gauntlet begins, the pledges return to the living room, all of them showing signs of drunkenness. At 10:40, Tim appears on one of the security cameras, assisted by one of the brothers. The forensic pathologist will later describe his level of intoxication at this point as “stuporous.” He is staggering, hunched over, and he sits down heavily on the couch and doesn’t want to get up. But the brother encourages him to stand and walks him through the dining room and kitchen and back to the living room, where he sits down again on the couch. And then Tim tries to do something that could have saved his life.

He stands up, uncertainly, and heads toward the front door. If he makes it through that door, he may get out to the street, may find a place to sit or lie down, may come to the attention of someone who can help him—at the very least by getting him back to his apartment and away from the fraternity. He reaches the front door, but the mechanism to open it proves too complicated in his drunken state, so he turns around and staggers toward another door. Perhaps he is hoping that this door will be easier to open; perhaps he is hoping that it also leads out of the fraternity house. But it is the door to the basement, and when he opens it—perhaps expecting his foot to land on level ground—he takes a catastrophic fall.

On the security footage, a fraternity brother named Luke Visser points toward the stairs in an agitated way. Greg Rizzo clearly hears the fall and goes to the top of the steps to see what’s happened. Later, he will tell the police that he saw Tim “facedown, at the bottom of the steps.” Jonah Neuman will tell the police that he saw Tim lying facedown with his legs on the stairs.

Rizzo sends a group text: “Tim Piazza might actually be a problem. He fell 15 feet down a flight of steps, hair-first, going to need help.” (Rizzo, who was not charged with any crimes, told the police that he later advocated for calling an ambulance.)

Four of the brothers carry Tim up the stairs. By now he has somehow lost his jacket and tie, and his white shirt has ridden up, revealing a strange, dark bruise on his torso. This is from his lacerated spleen, which has begun spilling blood into his abdomen. The brothers put him on a couch, and Rizzo performs a sternum rub—a test for consciousness used by EMTs—but Tim does not respond. Another brother throws beer in his face, but he does not respond. Someone throws his shoes at him, hard. Someone lifts his arm and it falls back, deadweight, to his chest.

At this point, the brothers have performed a series of tests to determine whether Tim is merely drunk or seriously injured. He has failed all their tests. The next day, Tim’s father will ask the surgeon who delivers the terrible news of Tim’s prognosis whether the outcome would have been different if Tim had gotten help earlier, and the surgeon will say—unequivocally—that yes, it would have been different. That “earlier” is right now, while Tim is lying here, unresponsive to the sternum rub, the beer poured on him, the dropped arm.

A brother named Ryan Foster rolls Tim on his side, but has to catch him because he almost rolls onto the floor. Jonah Neuman straps a backpack full of books to him to keep him from rolling over and aspirating vomit. Two brothers sit on Tim’s legs to keep him from moving.

This is the moment when Kordel Davis arrives and attempts to save Tim’s life, only to be thrown against the wall by Neuman. Davis disappears from the video, in search of an officer of the club. By now Tim is “thrashing and making weird movements,” according to the grand-jury presentment.

Daniel Casey comes into the room, looks at Tim, and slaps him in the face three times. Tim does not respond. Two other brothers wrestle near the couch and end up slamming on top of Tim, whose spleen is still pouring blood into his abdomen. Tim begins to twitch and vomit.

At this point, Joseph Ems appears “frustrated” by Tim, according to the grand jury. With an open hand, he strikes the unconscious boy hard, on the abdomen, where the bruise has bloomed. This blow may be one of the reasons the forensic pathologist will find that Tim’s spleen was not just lacerated, but “shattered.” (Ems was originally charged with recklessly endangering another person, but that charge—the only one brought against him—has been dropped.) Still, Tim does not wake up.

Forty-five minutes later, Tim rolls onto the floor. The heavy backpack is still strapped to him. He rolls around, his legs moving. He attempts to stand up, and manages to free himself from

THE BROTHERS DID NOT USE THEIR MANY CELLPHONES TO CALL 911. INSTEAD ONE SEARCHED THE INTERNET FOR TERMS SUCH AS COLD EXTREMITIES IN DRUNK PERSON.

the backpack, which falls to the floor. But the effort is too much, and he falls backwards, banging his head on the hardwood floor. A fraternity member shakes him, gets no response, and walks away.

At 3:46 in the morning, Tim is on the floor, curled up in the fetal position. At home in New Jersey, his parents are sleeping. Across campus, his older brother, Mike, has no idea that Tim is not safely in his bed.

At 3:49 a.m., Tim wakes up and struggles to his knees, cradling his head in his hands; he falls again to the hardwood floor. An hour later, he manages to stand up, and staggers toward the front door, but within seconds he falls, headfirst, into an iron railing and then onto the floor. On some level he must know: *I am dying*. He stands once again and tries to get to the door. His only hope is to get out of this house, but he falls headfirst once again.

At 5:08 a.m., Tim is on his knees, his wounded head buried in his hands. Around campus, people are beginning to wake up. The cafeteria workers are brewing coffee; athletes are rising for early practices. It's cold and still dark, but the day is beginning. Tim is dying inside the Beta house, steps away from the door he has been trying all night to open.

Around 7 o'clock, another pledge wanders into the living room, where Tim is now lying on the couch groaning, and the pledge watches as he rolls off the couch and onto the floor, and again lifts himself to his knees and cradles his head in his hands, "as if he had a really bad headache." The pledge lifts his cellphone, records Tim's anguish on Snapchat, and then—while Tim is rocking back and forth on the floor—leaves the house. A few minutes later, Tim stands and staggers toward the basement steps, and disappears from the cameras' view.

The house begins to stir. Some fraternity members head off to class, and in the fullness of time they return. And then, at about 10 a.m., a brother named Kyle Pecci (who was not charged) arrives and asks a pledge, Daniel Erickson (who was also not charged), a question that seems to both of them a casual one: Whatever happened to that pledge who fell down the stairs at the party? They come across Tim's shoes, and realize that Tim must still be somewhere in the house, so they look for him. The search reveals him collapsed behind one of the bars in the basement. He is lying on his back, with his arms tight at his sides and his hands gripped in fists. His face is bloody and his breathing is labored. His eyes are half open; his skin is cold to the touch; he is unnaturally pale. Three men carry him upstairs and put him on the couch, but no one calls 911.

Fraternity brothers with garbage bags appear in the footage and start cleaning up the evidence. Brothers try to prop Tim up on the couch and dress him, but his limbs are too stiff and they can't do it. Someone wipes the blood off his face, and someone else tries, without luck, to pry open his clenched fingers. Clearly the brothers are trying to make this terrible situation appear a little bit better for when the authorities arrive. But they do not use their many cellphones to call 911. Instead one brother uses his phone to do a series of internet searches for terms such as *cold extremities in drunk person* and *binge drinking, alcohol, bruising or discoloration, cold feet and cold hands*.

Where is Tim right now, as his body lies on the couch? Are his soul and self still here, in the room, or have they already slipped away? He has put up a valiant, almost incredible fight for his life, but by now he has lost that fight. When he was a

SMALL AS A SEED

In everything, its opposite.

In the sun's ascendancy,
its downfall.

In darkness, light
not yet apprehended.

At night in bed, I fear the falling-off.

Though falling, I will rise.

I fear. Fall arriving now.

In any word so small, the world.

In the world I walk in, a wild wood.

—Elizabeth Spires

Elizabeth Spires's new collection, A Memory of the Future, will come out next summer.

little boy, he used to make people laugh because he got so frustrated with board games; he didn't like playing those games, with their rules and tricks. He loved sports, and running, and playing with his friends at the beach. But his body is cold now, his legs and arms unbending.

Finally, at 10:48 a.m., a brother calls 911—perhaps realizing that it would be best to do so while the pledge is still technically alive—and Tim is delivered from the charnel house. Soon his parents will race toward him, and so will his frantic brother, who has been searching for him. They will be reunited for the few hours they have left with this redhead boy they have loved so well, and at least it can be said that Tim did not die alone, or in the company of the men who tortured him.

On February 7, the Facebook page of the Beta Theta Pi national organization will report that "Tim Piazza, a sophomore at Penn State who had recently accepted an invitation to join the Fraternity, has passed due to injuries sustained from an accidental fall in the chapter house." Flags at the fraternity's administrative offices in Oxford, Ohio, will fly at half-mast for eight days, "representative of the eight young men of Tim's same age who founded the Fraternity." The Facebook post will encourage collegiate members around the country to "conduct Beta's official Burial Service" on Friday evening, from 4 to 8 o'clock. And with those final rituals of the fraternity, Tim Piazza's 28-hour membership in Beta Theta Pi will come to an end. "Rest in peace, Tim Piazza," ends the post. "Rest in peace." □

Caitlin Flanagan is a contributing editor at The Atlantic; her earlier essay "The Dark Power of Fraternities" appeared in the March 2014 issue.

ESSAY

What Thoreau Saw

His real masterpiece wasn't *Walden* but his 2-million-word journal, in which he discovered how to balance poetic wonder and scientific rigor as he explored the natural world.

By ANDREA WULF
Illustration by Lisel Jane Ashlock



IN LATE 1849, two years after Henry David Thoreau left Walden Pond—where he had lived for two years, two months, and two days in a cabin that he had built himself—he began the process of completely reorienting his life again. His hermit-style interlude at the pond had attracted quite a bit of attention in his hometown of Concord, Massachusetts. “Living alone on the pond in ostentatious simplicity, right in sight of a main road,” his latest biographer, Laura Dassow Walls, writes, “he became a spectacle,” admired by some and belittled by others. Thoreau’s subsequent life change was less conspicuous. Yet it engaged him in a quest more enlightening and relevant today than the proud asceti-

cism he flaunted throughout *Walden*, a book that has never ceased to inspire reverence or provoke contempt.

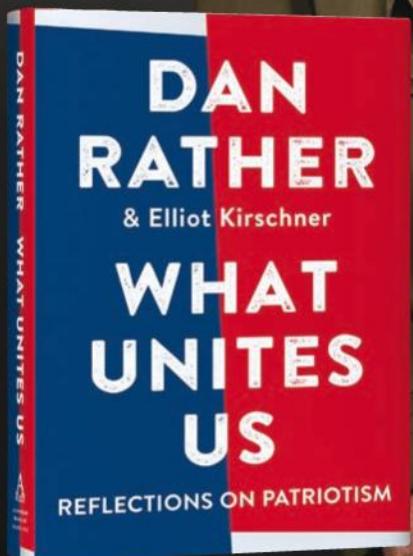
What the 32-year-old Thoreau quietly did in the fall of 1849 was to set up a new and systematic daily regimen. In the afternoons, he went on long walks, equipped with an array of instruments: his hat for specimen-collecting, a heavy book to press plants, a spyglass to watch birds, his walking stick to take measurements, and small scraps of paper for jotting down notes. Mornings and evenings were now dedicated to serious study, including reading scientific books such as those by the German explorer and visionary thinker Alexander von Humboldt, whose *Cosmos* (the first volume was published in 1845) had become an international best seller.

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As important, Thoreau began to use his own observations in a new way, intensifying and expanding the journal writing that he'd undertaken shortly after graduating from Harvard in 1837, apparently at Ralph Waldo Emerson's suggestion. In the evening, he often transferred the notes from his walks into his journal, and for the rest of his life, he created long entries on the natural world in and around Concord. Thoreau was staking out a new purpose: to create a

For Thoreau, a sense of wonder—of awe and oneness with nature—was essential.

continuous, meticulous documentary record of his forays. Especially pertinent two centuries after his birth, in an era haunted by inaction on climate change, he worried over a problem that felt personal but was also spiritual and political: how to be a rigorous scientist *and* a poet, imaginatively connected to the vast web of natural life.

Thoreau's real masterpiece is not *Walden* but the 2-million-word journal that he kept until six months before he died. Its continuing relevance lies in the vivid spectacle of a man wrestling with tensions that still confound us. The journal illustrates his almost daily balancing act between recording scrupulous observations of nature and expressing sheer joy at the beauty of it all. Romantic predecessors like Samuel Taylor Coleridge and, centuries before that, polymaths like Leonardo da Vinci thrived on the interplay between subjective and objective exploration of the world. For Leonardo, engineering and math infused painting and sculpture; Coleridge said that he attended chemistry lectures to enlarge his “stock of metaphors.”

For Thoreau, along with his fellow Transcendentalists, the by-now familiar dichotomy between the arts and the sciences had begun to hold sway. (The word *scientist* was coined in 1834, as the sciences were becoming professionalized and specialized.) Thoreau felt the disjunction acutely, and his journal lays bare both his fascinated scrutiny of the most intricate factual details and his fear of losing his grasp of nature or the cosmos as a whole.



PHOTOGRAPH OF DAN RATHER BY BEN BAKER / REDUX

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Today scientists churn out data-stuffed reports assessing the perils we face—shrinking Arctic ice, rising sea levels, extreme floods and droughts, the acidification of oceans, forest fires. Their daunting graphs, tables, and technical language stir up debates and doubts. Such dry projections, devoid of poetry and imagination, serve as an implicit summons to experts to come up with solutions. Crucial though the data and reports are, they eclipse precisely the sort of immediate, intuitive, sensual experiences of nature that are, in our Anthropocene era, all too rare. For Thoreau, a sense of wonder—of awe toward, but also oneness with, nature—was essential. We will, he understood, protect only what we love.

ON THE BICENTENARY of his birth, Thoreau the journal writer is in the limelight. “This Ever New Self: Thoreau and His Journal,” an exhibit that began at the Morgan Library, in New York, is now at the Concord Museum through early 2018. Eight of a projected 17 volumes of the journal have been published by Princeton University Press so far, and the transcripts and copies of the others are available online. For those daunted by the millions of words, selections of Thoreau’s observations on trees, wildflowers, and animals stand out in the recent flurry of publications and offer a fascinating taster.

In her comprehensive *Henry David Thoreau: A Life*, Walls—who has previously written about Thoreau’s “turn to science”—calls attention to the pivotal moment when he began to use his journal as he never had before. On November 8, 1850, a year or so after his naturalist’s regimen had begun, Thoreau “wrote up everything he noticed and thought during his daily walk as one long entry.” He did the same the next day, and two days later, Walls notes, and then again a couple of days after that, and the next day,

filling pages with a stream-of-consciousness flow of words as if he were writing while walking: “I pluck,” “I heard,” “I saw yesterday,” “I notice.”

“And this is what truly staggers the mind,” Walls goes on. “From this point, Thoreau did not stop doing this, ever—not until,

From the author of *Our Mathematical Universe*

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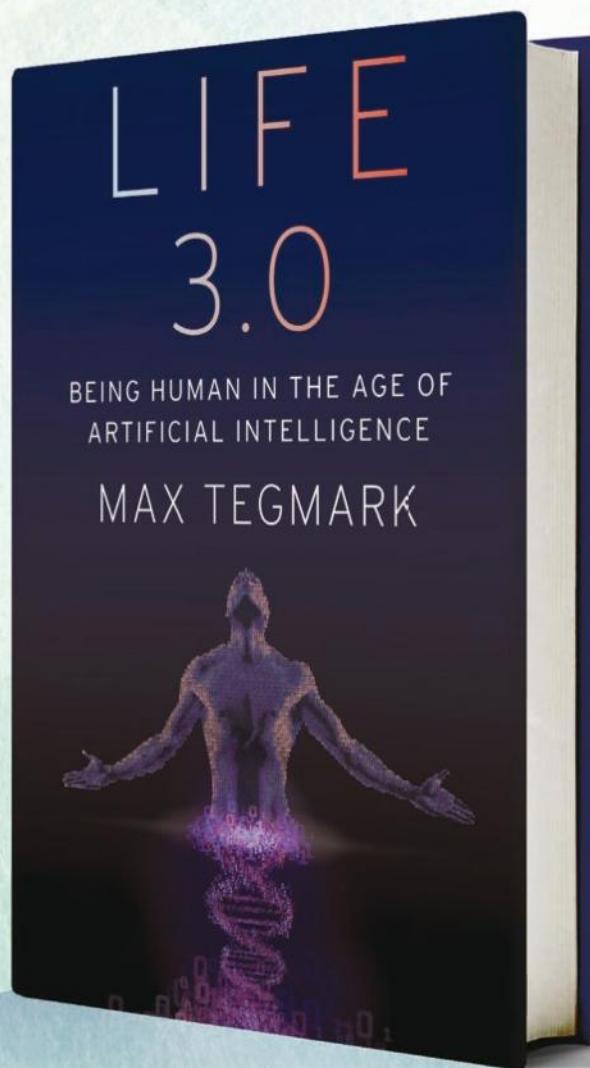
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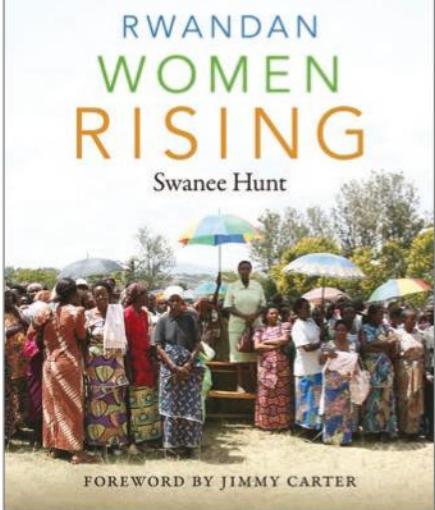
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dying and almost too weak to hold a pen, he crafted one final entry."

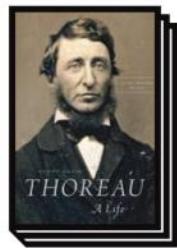
A week after that first extended entry, he wrote, "I feel ripe for something; it is seed time with me—I have lain fallow long enough." Thoreau went on, "My Journal should be the record of my love." At the same time, his journal was a repository of constant measurements, minute and expansive: of the depth of streams, the wingspan of a moth, the number of bubbles trapped beneath the frozen surface of the pond. "What are these pines & these birds about? What is this pond a-doing? I must know a little more," Thoreau had written back in 1846, when his journal had still been a source to plunder for other writing projects, not yet a compendium of exhaustive field notes. Now his quest for unifying order became more focused, and he set out to pursue it by counting the petals on a blossom or the rings in the stump of a fallen tree—hoping not to lose a sense of beauty and mystery in the process.

The tension between the particular and the whole wasn't new. Transcendentalists like Emerson were searching for unity in nature, but resisted what seemed to them the blinkered reliance on deductive reasoning and empirical research enforced by encroaching science. Such methods tended to "cloud the sight," Emerson said, and he endorsed instead a conception of nature as "the symbol of spirit." That Emersonian notion of natural phenomena as the embodiment of what his mentor called "ideas in the mind of God" had once thrilled Thoreau, as Walls writes. But by the time Thoreau reoriented his life, he needed more direct contact with the "marrow of nature." Thoreau had already framed the poet-scientist dilemma in 1842, when he reviewed a series of natural-history reports published by the State of Massachusetts: How could such dry sum-

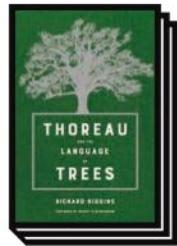
maries hold any interest for the general reader? Where, Thoreau asked in his review in the Transcendentalist literary magazine *The Dial*, was the joy of nature?

READING HUMBOLDT'S MOST popular books, *Cosmos*, *Views of Nature*, and *Personal Narrative*, during his evenings of study, Thoreau learned a way of weaving together the scientific and the imaginative, the individual and the whole, the factual and the wonderful. A vast array of observations, Humboldt insisted, revealed "unity in diversity"—each fact and detail of nature threading together into an interconnected whole. Even before he adopted his systematic regimen, Thoreau's journal—packed with observations about the songs of birds, the chirping of crickets, the careless pace of the fox, the scent of musk, the "dreamy motions" of fish's fins—was proof of his visceral relationship to nature. In *Thoreau and the Language of Trees*, the writer Richard Higgins describes Thoreau sniffing the bark of twigs, listening to the creaking of hardwoods in winter, sampling the taste of lichens (he liked rock tripe and Iceland moss best), delighting in the play of light and shadow in the canopy of trees.

"We must look a long time before we can see," Thoreau had concluded in his *Dial* essay on the "Natural History of Massachusetts," pronouncing that "the true man of science ... will smell, taste, see, hear, feel, better than other men." Moving beyond Emerson's grand and spiritual ideas of nature, Thoreau became part of a lively scientific discourse, aware of the latest discoveries, and he used the libraries at Harvard and the Boston Society of Natural History extensively. He collected fish specimens for the zoologist and geologist Louis Agassiz at Harvard. And though he was a little squeamish about gathering birds' eggs



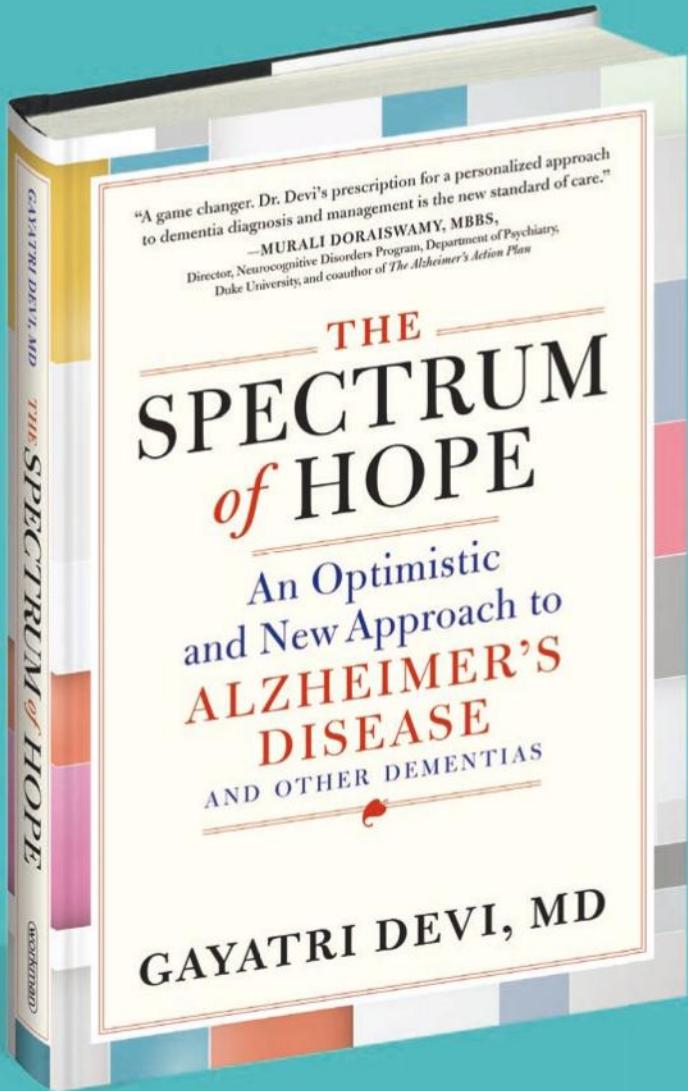
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THOREAU: A LIFE
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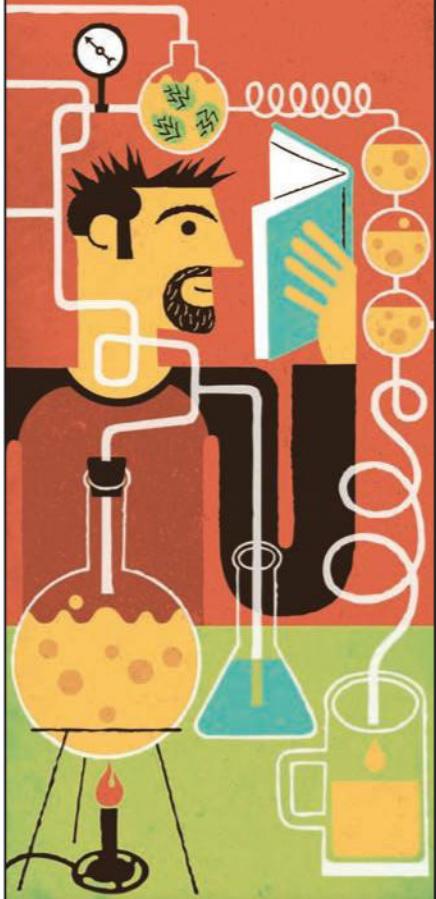
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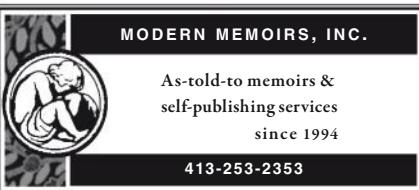
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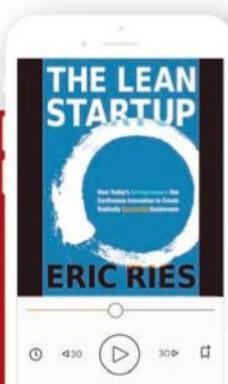
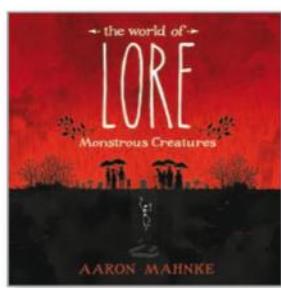
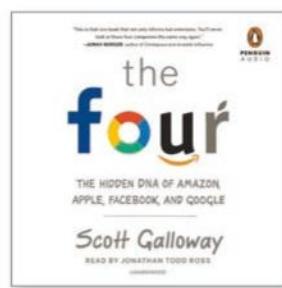
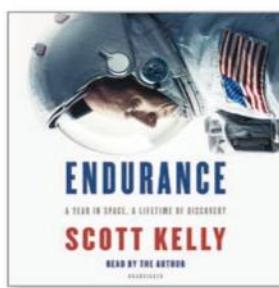
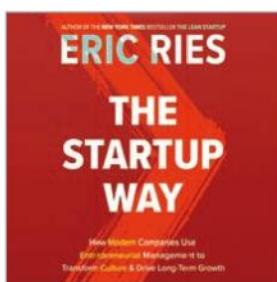
Thoreau was anxious to get the balance right. “This habit of close observation—in Humboldt—Darwin & others. Is it to be kept up long—this science?” he asked himself. As Walls noted in her previous book about Thoreau’s relationship to 19th-century science, *Seeing New Worlds*, his reading of Charles Lyell’s revolutionary *Principles of Geology* in 1840 had given him the insight that small details add up to one bigger truth: Lyell argued that the Earth had been shaped gradually by minute changes, and that these slow forces were still active. Steeped in the sciences, Thoreau emphasized that orderly data needn’t be dead. Carl Linnaeus’s binomial system for classifying plants was “itself poetry,” and in the early 1850s Thoreau jotted in his journal, “Facts fall from the poetic observer as ripe seeds.”

Still, Thoreau felt the limits of disciplined scrutiny. “With all your science can you tell how it is, and whence it is, that light comes into the soul?” he asked in one of his July 1851 entries. In December, when he saw a crimson cloud hanging deep over the horizon on a cold winter day, he wrote, “You tell me it is a mass of vapor which absorbs all other rays,” only to lament that this was not a good enough explanation, “for this red vision excites me, stirs my blood.” What kind of science was this, he wanted to know, “which enriches the understanding but robs the imagination?” The following summer he summed up the dilemma. “Every poet has trembled on the verge of science,” he wrote after a long day at the Sudbury River, even as he also noted, “I wanted to know the name of every shrub.” Was his knowledge becoming so fine-grained “that in exchange for views as wide as heaven’s cope I am narrowed down to the field of a microscope”? He saw “details not wholes,” and feared being “dissipated by so many observations.” Or could the sensual be entwined with the scientific? For Thoreau, in a short entry about frogs, that happened: “They express, as it were, the very feeling of the earth or nature. They are perfect thermometers, hygrometers, and barometers.”

Humboldt had addressed the same issues. Nature, the undaunted explorer



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explained, should be described with scientific accuracy but without being "deprived thereby of the vivifying breath of imagination." The same man who had carried 42 scientific instruments along on his five-year exploration of Latin America, from 1799 to 1804, also wrote that "what speaks to the soul, escapes our measurements." To Goethe he later said, "Nature must be experienced through feelings."

Out of Humboldt's extensive travels and intensive investigation of similarities, differences, and interrelationships among organisms—and among humans and the world they inhabit—emerged his vision of what he called "a wonderful web of organic life," today a given, but then a sweeping new insight. In this interwoven world where "everything is interaction and reciprocal," Humboldt wrote, humans were bound to leave their mark on nature. Half a century before Thoreau wrote about the preservation of the wilderness, Humboldt warned that mankind was "raping nature," and described the devastating environmental effects caused by monoculture, irrigation, and deforestation.

FOR THOREAU, Humboldt's global vision galvanized a more personal, provincial approach to experiencing the vast living organism that was nature. A little stream in Concord was his stand-in for Humboldt's thundering Orinoco River, the neighboring hills became Thoreau's Andes, and according to Emerson, the Atlantic Ocean was for Thoreau "a large Walden Pond." As he surveyed his smaller domain, Thoreau could sound supremely anthropocentric: "What is nature unless there is an eventful human life passing within her?" he wrote at one point. "Nature nought without human experience," he jotted at another. But Thoreau could also adopt a less domineering voice—in *Walden* he famously asked, "Am I not partly leaves and vegetable mould myself?" He was deeply interested in what he called "the mysterious relation between myself and these things."

This relationship between him and the natural world around him—this sense of synchrony—lay at the heart of his daily, monthly, yearly monitoring of the changing seasons. In 1851, he began to compile long lists of leafing-out

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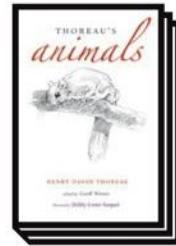
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and flowering times. As summer came, Thoreau wrote that he now thought of the journal as “a book of the seasons.” The full implications of this were gradually revealed to him. “For the first time,” he wrote on April 18, 1852, “I perceive this spring that the year is a circle.” This might not sound very revelatory to us today, and of course painters and poets had for centuries depicted the seasons, portraying wild autumn storms and lush spring meadows. But Thoreau’s tracking of cyclical change was a radically different endeavor, and the beginning of a truly ecological understanding of the natural world, years before the term *ecology* was coined in 1866, by the German scientist Ernst Haeckel (another admirer of Humboldt’s ideas).

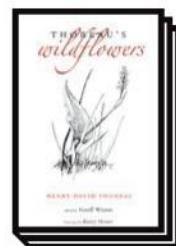
“Make a chart of our life, know how its shores trend, that butterflies reappear and when—know why just this circle of creatures completes the world,” Thoreau noted in 1852. Over time, nature’s interrelationships and the planet’s regenerative power emerged for him. The seasons became a metaphor of Earth as a living organism, a planet thumping with life—even in the darkest depth of winter: “There is nothing inorganic,” he wrote; “this earth is not, then, a mere fragment of dead history ... but living poetry like the leaves of a tree—not a fossil earth—but a living specimen.”

Thoreau the observer was also a passionate participant, and his cyclical attunement comes across vividly in two beautifully illustrated books, *Thoreau’s Animals* and *Thoreau’s Wildflowers*, containing journal extracts selected by the writer Geoff Wisner. Thoreau’s own yearning for rebirth was clear as he listened to a red-winged blackbird “calling the river to life and tempting ice to melt and trickle like its own sprayey notes. Another flies over on high—with a *tschuck* and at length a clear whistle. The birds anticipate the spring—they



THOREAU’S ANIMALS

EDITED BY GEOFF WISNER,
ILLUSTRATED BY DEBBY
COTTER KASPAKI
Yale



THOREAU’S
WILDFLOWERS

EDITED BY GEOFF WISNER,
ILLUSTRATED BY BARRY
MOSER
Yale

come to melt the ice with their songs.”

Always alert to the bonds that connected each individual plant, bird, and frog to the greater cosmos, he was stirred by the sound of the first bullfrog in May—the sign for him that summer had finally arrived: “I hear in his tone the rumors of summer heat. By this note he summons the season... it reminds me at once of tepid waters—and of bathing. His trump is to the ear what the yellow lily or spatterdock is to the eye.”

Thoreau was deeply affected by the rhythm of the natural world, and his urgent anticipation of renewal is everywhere. His moods, he said, were “periodical” and “the seasons and all their changes are in me.” He worried in mid-August about winter: “How early

in the year it begins to be late.” And then in late October, it was almost as if he had to remind himself of the beauty of scarlet oaks’ fiery foliage in order to escape his impending winter melancholy: “Look at one completely changed from green to bright dark scarlet—every leaf, as if it had been dipped into a scarlet dye, between you and the sun. Was this not worth waiting for?” When the darkness arrived, his mood sank, and on a cold mid-November afternoon, he wrote:

The landscape is barren of objects—the trees being leafless—and so little light in the sky for variety. Such a day as will almost oblige a man to eat his own heart. A day in which you must hold on to life by your teeth. You can hardly ruck up any skin on nature’s bones. The sap is down—she won’t peel ... Truly a hard day, hard times these. Not a mosquito left. Not an insect to hum. Crickets gone into winter quarters. Friends long since gone there—and you left to walk on frozen ground, with your hands in your pockets.

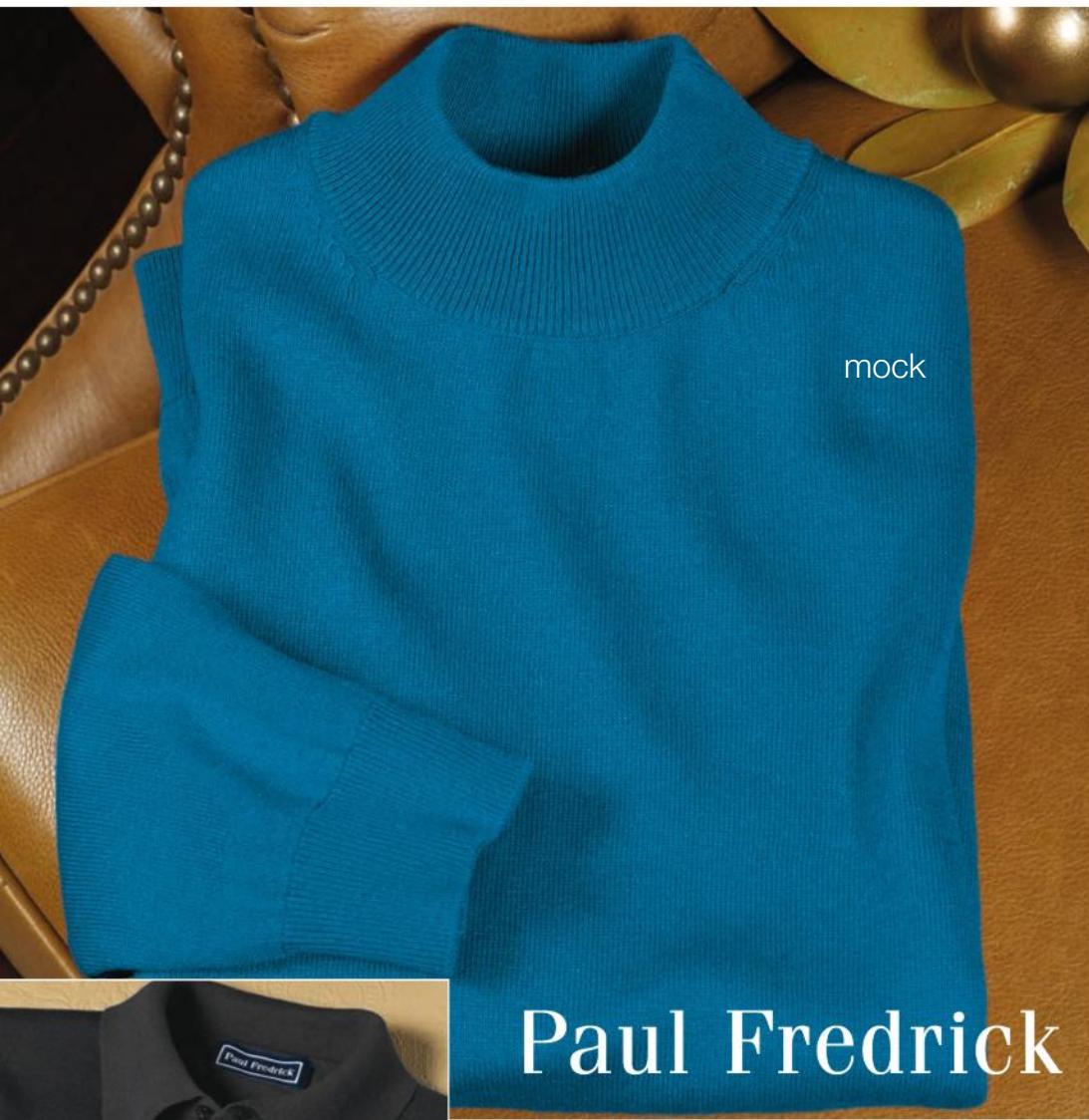
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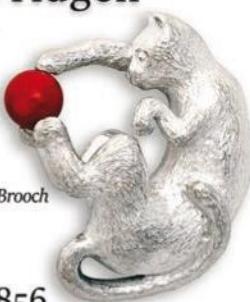
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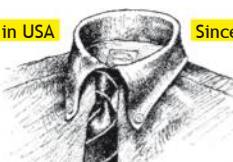


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of the natural world, the ecological community—a lonely traveler missing his old friends from summer. There is nothing reminiscent here of the haughty and sanctimonious Thoreau who is folded into the pages of *Walden*. In his journal, the punctilious scientist revealed himself as an observer whose soul was open to immediate connection with the big messy web of life: The sounds, colors, and smells of the seasons triggered emotions without a need for elaborate explanations. Nature, he wrote in January 1852, “is a plain writer, uses few gestures, does not add to her verbs, uses few adverbs, uses no expletives.” He aspired to do the same.

Thoreau wondered whether anything he ever wrote could be better than his journal, comparing his words in those pages to flowers that were freely growing, not transplanted or rearranged:

I do not know but thoughts written down thus in a journal might be printed in the same form with greater advantage—than if the related ones were brought together into separate essays. They are now allied to life—and are seen by the reader not to be far fetched—it is more simple—less artful—I feel that in the other case I should have no proper frame for my sketches. Mere facts & names & dates communicate more than we suspect—Whether the flower looks better in the nosegay—than in the meadow where it grew—and we had to wet our feet to get it! Is the scholastic air any advantage?

To me the answer is clear. Thoreau’s love for nature sings off his journal pages in spring. His winter writing slices right into the heart. His entries, day after day, are testimony to the power of renewal and rebirth—and to the importance of harnessing the human sense of wonder to better understand and protect the Earth. In our age of the Anthropocene, as we distance ourselves from the cyclical rhythms of nature, we are disconnecting from our planet. Thoreau’s journal is a reminder of what is at stake. 

Andrea Wulf is the author, most recently, of The Invention of Nature: Alexander von Humboldt’s New World.

An excerpt from Thoreau’s writing for this magazine follows on page 122.

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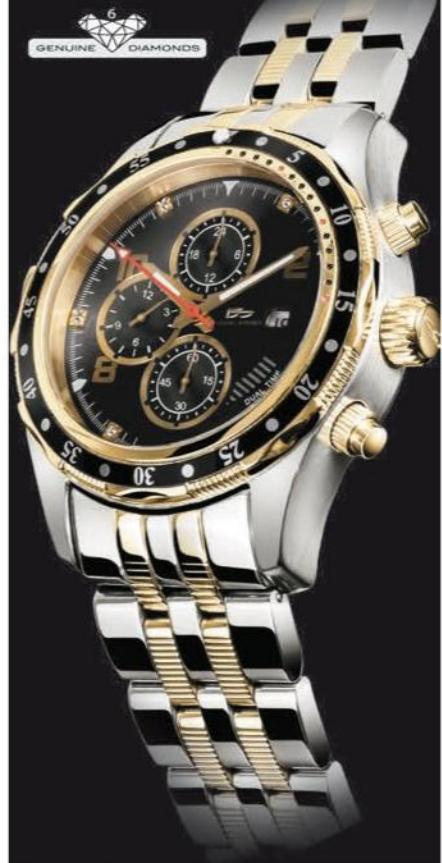
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The Swamp Lover

A number of writings by Henry David Thoreau appeared in The Atlantic in its early years. The month after his death from tuberculosis in May 1862, the magazine published "Walking," which extols the virtues of "sauntering through the woods and over the hills and fields, absolutely free from all worldly engagements," and laments the inevitable expansion of private property into the wilderness. In the following excerpt, Thoreau describes his special love of swamps.

HOPE AND THE FUTURE for me are not in lawns and cultivated fields, not in towns and cities, but in the impervious and quaking swamps. When, formerly, I have analyzed my partiality for some farm which I had contemplated purchasing, I have frequently found that I was attracted solely by a few square rods of impermeable and unfathomable bog,—a natural sink in one corner of it. That was the jewel which dazzled me. I derive more of my subsistence from the swamps which surround my native

town than from the cultivated gardens in the village. There are no richer parterres to my eyes than the dense beds of dwarf andromeda (*Cassandra calyculata*) which cover these tender places on the earth's surface. Botany cannot go farther than tell me the names of the shrubs which grow there,—the high-blueberry, panicled andromeda, lambkill, azalea, and rhodora,—all standing in the quaking sphagnum. I often think that I should like to have my house front on this mass of dull red bushes, omitting other flower

plots and borders, transplanted spruce and trim box, even graveled walks,—to have this fertile spot under my windows, not a few imported barrow-fuls of soil only to cover the sand which was thrown out in digging the cellar. Why not put my house, my parlor, behind this plot, instead of behind that meager assemblage of curiosities, that poor apology for Nature and Art, which I call my front-yard? It is an effort to clear up and make a decent appearance when the carpenter and mason have departed, though



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done as much for the passer-by as the dweller within. The most tasteful front-yard fence was never an agreeable object of study to me; the most elaborate ornaments, acorn-tops, or what not, soon wearied and disgusted me. Bring your sills up to the very edge of the swamp, then, (though it may not be the best place for a dry cellar), so that there be no access on that side to citizens. Front-yards are not made to walk in, but, at most, through, and you could go in the back way.

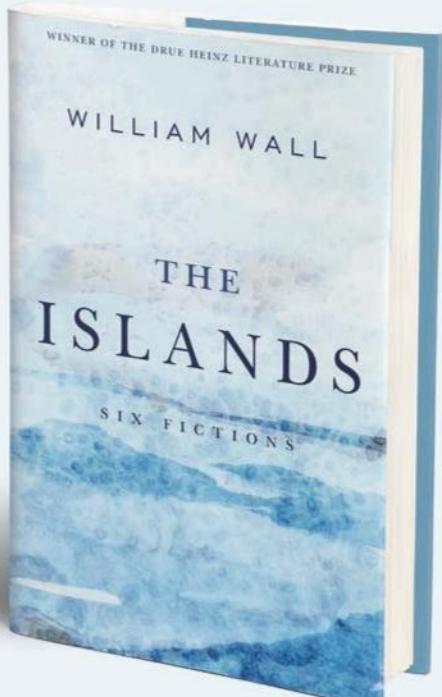
Yes, though you may think me perverse, if it were proposed to me to dwell in the neighborhood of the most beautiful garden that ever human art contrived, or else of a dismal swamp, I should certainly decide for the swamp. How vain, then, have been all your labors, citizens, for me!

My spirits infallibly rise in proportion to the outward dreariness. Give me the ocean, the desert, or the wilderness! In the desert, pure air and solitude compensate for want of moisture and fertility. The traveller Burton says of it,—“Your *morale* improves; you become frank and cordial, hospitable and single-minded ... In the desert, spirituous liquors excite only disgust. There is a keen enjoyment in a mere animal existence.” They who have been travelling long on the steppes of Tartary say,—“On re-entering cultivated lands, the agitation, perplexity, and turmoil of civilization oppressed and suffocated us; the air seemed to fail us, and we felt every moment as if about to die of asphyxia.” When I would recreate myself, I seek the darkest wood, the thickest and most interminable, and, to the citizen,

most dismal swamp. I enter a swamp as a sacred place,—a *sanctum sanctorum*. There is the strength, the marrow, of Nature. The wild-wood covers the virgin mould,—and the same soil is good for men and for trees. A man’s health requires as many acres of meadow to his prospect as his farm does loads of muck. There are the strong meats on which he feeds. A town is saved, not more by the righteous men in it than by the woods and swamps that surround it. A township where one primitive forest waves above while another primitive forest rots below—such a town is fitted to raise not only corn and potatoes, but poets and philosophers for the coming ages. In such a soil grew Homer and Confucius and the rest, and out of such a wilderness comes the Reformer eating locusts and wild honey. **A**

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Adam and Eve were responsible, literally or metaphorically, for—in no particular order—the subservience of women; the pain of childbirth; the concepts of sin, shame, and clothing; a lot of great artwork; and oh yes, procreation, without which there would have been no one else to influence.

Jeffrey Eugenides, author, *The Marriage Plot*

I nominate Adam and Eve. My second choice is Voltaire and Émilie du Châtelet, the woman often referred to as his mistress but who was more like a collaborator. They performed critical analyses of the Bible, from which Voltaire concluded that our first parents never existed and therefore weren't powerful at all.

Stephanie Coontz, author, *Marriage, a History*

Marc Antony and Cleopatra had a claim to rule both Rome and Egypt, and were a couple in pursuit of power. They lost, but transformed, an empire.

Riese Bernard, co-founder, *Autostraddle*

Gertrude Stein and Alice B. Toklas: The dynamic Jewish lesbians hosted an all-star cast of influential, era-defining artists at their salon in Paris. Their union was inspirational for many outsiders and continues to inspire literature, art, theater, and actual relationships.



Karley Sciortino, sex and relationships columnist

Simone de Beauvoir, whose writing shaped feminist philosophy, and **Jean-Paul Sartre**, one of the fathers of existentialism, admired, criticized, and stimulated each other's work. They also never married, had kids, or lived together—which seems ideal, really.

Erik Newton, host, *Together* podcast

The ritualized balancing of polarities dates as far back as history can reach. **Inanna and Dumuzi**—royal gods of ancient Sumer—are perhaps the first representation. Their annual sacred union balanced the cosmos and brought a fertile harvest.

Nicola Yoon, author, *Everything, Everything*

Barack and Michelle Obama, not only for the representational power of being the first black first family, but also because they showed us how joyous and powerful love can be. They showed us their friendship and mutual respect. We are better people for having witnessed it.

READER RESPONSES

Phillip Welshans, Baltimore, Md.

Marie and Pierre Curie discovered two elements, and collaborated to conduct pioneering research on radioactivity that paved the way for the development of nuclear physics.

Stephen Azzi, Ottawa, Canada

Theodora and Justinian I, who ruled the Byzantine empire, built some of Con-

stantinople's greatest landmarks and helped advance women's rights, instituting the death penalty for rape, forbidding the killing of women who had committed adultery, banning forced prostitution, and allowing women more control over their property.



Roisin A. Costello, Dublin, Ireland

King Ferdinand II of Aragon and Queen Isabella I of Castile established a model for shared power in marriage, re-asserted the Catholic Church's power in Spain, financed Columbus's voyage to the Americas, and produced five children, who continued to shape Europe's history long after their parents' deaths—most famously Catherine, through her second marriage, to Henry VIII.

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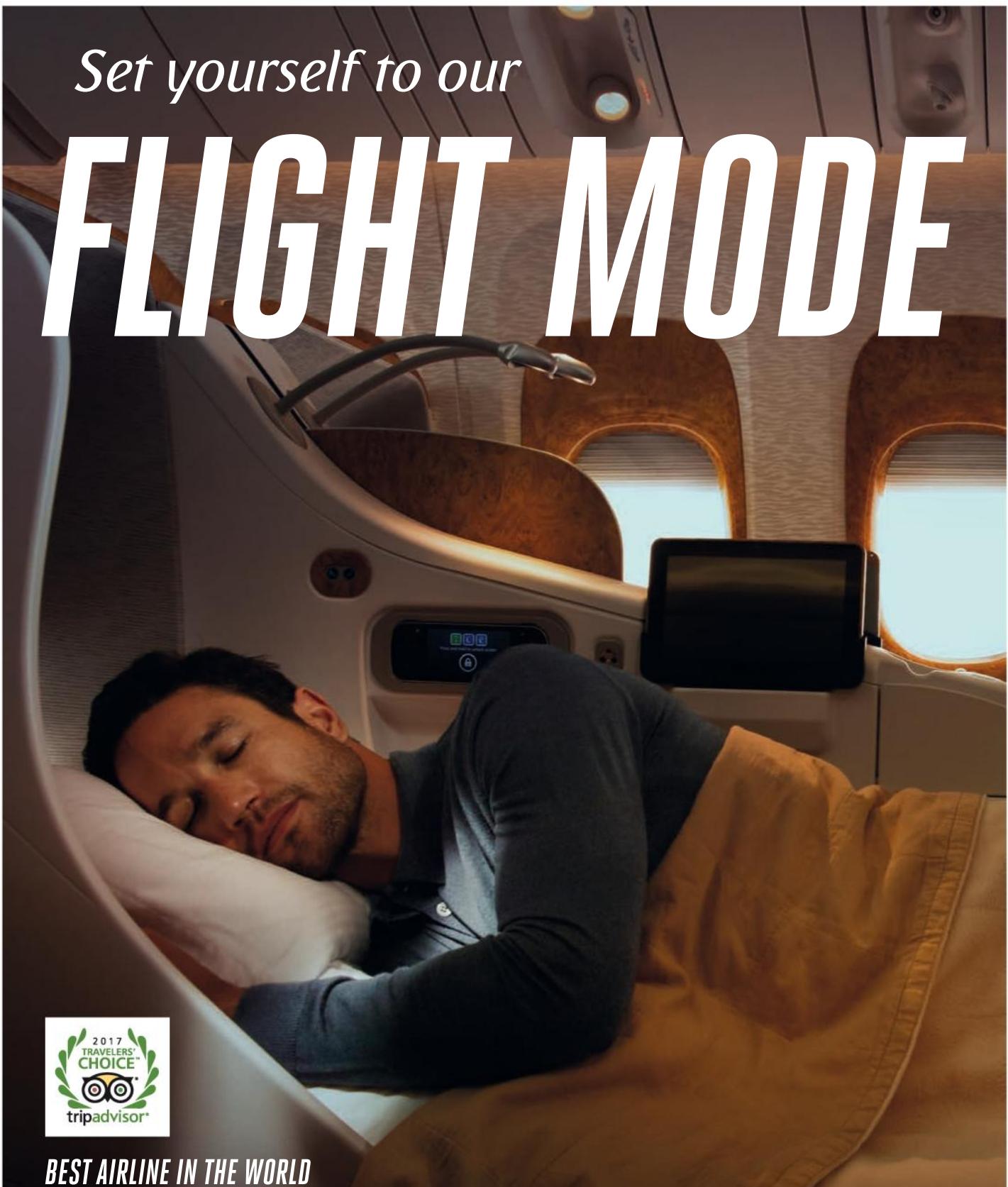
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