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Men’s Lib
Elaine Blair

FEBRUARY 21, 2019 ISSUE
On Henry Miller: Or, How to Be an Anarchist
by John Burnside
Princeton University Press, 175 pp., $22.95

Pity John Burnside. It’s not the best time to publish an appreciation and defense of Henry Miller, whose Tropics trilogy, written in the 1930s, was banned for decades in the US for obscenity, and then indicted by feminist critic Kate Millet in her book Sexual Politics (1970) as a paramount example of chauvinist
attitudes toward women. Burnside, a poet, points out that Miller is a romantic who devoted over a thousand pages (the Rosy Crucifixion cycle) to chronicling his narrator’s relationship with the great love of his life (based on Miller’s second wife, June). More specifically, Miller was one of the early-twentieth-century writers— with Lawrence and Joyce—who brought the explicitly carnal, so-called lower functions into the literary language of heterosexual romantic love.

Written in an autobiographical first person, Miller’s dirty books are intimate and ardent. “O Tania, where now is that warm cunt of yours, those fat, heavy garters, those soft, bulging thighs? There is a bone in my prick six inches long. I will ream out every wrinkle in your cunt, Tania, big with seed,” Miller’s narrator croons in his infamous address to a married lover in the opening pages of Tropic of Cancer—reason alone for the book to be unpublishable in his home country until 1961, when it was vindicated as a legitimate work of art in an obscenity trial.

I shoot hot bolts into you, Tania, I make your ovaries incandescent. Your Sylvester is a little jealous now? He feels something, does he? He feels the remnants of my big prick. I have set the shores a little wider, I have ironed out the wrinkles. After me you can take on stallions, bulls, drakes, St. Bernards. You can stuff toads, bats, lizards up your rectum. You can shit arpeggios if you like, or string a zither across your navel. I am fucking you, Tania, so that you’ll stay fucked.

It may be hard to hear the romance and dash of Miller’s address when parts of it (“I will ream out every wrinkle in your cunt”) sound like something an angry gamer might have tweeted to Brianna Wu, the video game developer who received numerous threats after criticizing the sexist nature of her industry (actual example: “I’ve got a K-bar and I’m coming to your house so I can shove it up your ugly feminist cunt”). Fifty years after the last obscenity trials cleared the way for sexually explicit content in art, Miller’s writing still violates community standards, as they say, but for a reason other than its being explicit. Alongside our general acceptance of sexual and profane language, a public language of violent, misogynist intimidation has also arisen. “Take her off the stage and fuck her,” some men from Students for a Democratic Society jeered while Shulamith Firestone was speaking about women’s issues at a New Left anti-Nixon rally in 1969. In 2015 Samantha Bee, who was about to become the first woman to have her own late-night show, joked that she’d created a separate “rape threatline” for all the people sending her sexually violent comments. “Whore” doesn’t have much power as a dirty word, but it does have startling power as the last word in Kristen Roupenian’s story “Cat Person,” texted by a man whose attitudes toward the main character have been ambiguous and freighted with potential menace.

Our contemporary obscenities are the racist, sexist, homophobic language of hate speech, language that reminds us of our ability—our desire, we have to conclude—to dismiss and brutalize whole categories of people. Hate speech is of course not banned within works of art, but its usage is contested depending on who’s speaking in what context. A wish to ream out every wrinkle in someone’s cunt is, for today’s reader, possibly as vexing an expression of heterosexual love as it was when Miller wrote it, “cunt” occupying that narrow, cunt-shaped part of the Venn diagram where explicitly sexual terms overlap with terms of potential hate speech, where the old obscenity is also the new obscenity. “Cunt” can’t get a break. For similar reasons, neither can Henry Miller.

To generations of American readers who got their hands on a forbidden copy of Tropic of Cancer, Miller’s voice sounded like freedom itself. Miller was born in 1891, the son of a tailor, and grew up in a lower-middle-class German-American family in Brooklyn. Until his forties he lived mostly in New York (with short stints in California and the South) and wrote prolifically but fruitlessly for decades, supporting himself with a variety of jobs until he came to rely entirely on June, who found them patrons by striking up flirtations with rich-ish men at the dance hall where she worked as a waitress and dancing girl.
Despite June’s belief in his genius, his stories and novels weren’t coming out right, and publishers weren’t interested. (At this stage, he was writing third-person, lightly fictionalized accounts of his day job as a personnel manager at Western Union and his relationship with June, material he would later rework for Tropic of Capricorn and The Rosy Crucifixion.) He left for Paris as a last-ditch effort to change things up, make something happen with his writing. He bummed around Montparnasse, cadging meals, cash, and living quarters from other artists and a few sympathetic benefactors—and from June, who wired him money from New York.

The escape trick worked. At the age of forty, he found a way to write that sounded true. First-person, loosely autobiographical, freewheeling, drawing on such various guiding spirits as Whitman and Céline (whose Journey to the End of the Night Miller read in manuscript while working on Tropic of Cancer), Miller’s Paris novels did away with a lot of the narrative machinery that he saw, in retrospect, had been weighing down his earlier work. Tropic of Cancer is about the narrator’s vagabond life in Paris, the city that had recently worked its magic and set his voice free. The discovery of his writing voice is an event that feels so big that Miller casts it as a renunciation, a total break with his past, a break—in the going style of modernist grand gestures—with literature itself: “Everything that was literature has fallen from me. There are no more books to be written, thank God.” But Miller was not a revolutionary or a movement man. He was a writer finally settling down to play. As George Orwell wrote, Tropic of Cancer “is the book of a man who is happy.”

Orwell too was once poor in bohemian Paris, and wrote of the peculiar satisfaction of hitting bottom:

It is a feeling of relief, almost of pleasure, at knowing yourself at last genuinely down and out. You have talked so often of going to the dogs—and well, here are the dogs, and you have reached them, and you can stand it. It takes off a lot of anxiety.

Orwell’s narrator in Down and Out in Paris and London gives the sense of having taken the exact measure of a situation, seen it clearly, described it precisely. Having nailed it, he goes to look for a job.

Miller’s narrator, by contrast, doesn’t describe, he sings. “I have no money, no resources, no hopes,” he tells us on the first page—“I am the happiest man alive.” Though he too will eventually get a job (as a newspaper proofreader), he will first revel in finding himself at the bottom:

My last problem—breakfast—is gone. I have simplified everything. If there are any new problems I can carry them in my rucksack, along with my dirty wash. I am throwing away all my sous. What need have I for money? I am a writing machine. The last screw has been added. The thing flows.

His narrator drinks, writes, gains and loses small amounts of money, has sex with Tania, with whores, and with his wife when she visits from the States. He makes the social rounds in Montparnasse, among the artists, grifters, Russian exiles, and would-be writers. The book is full of comic incidents and anecdotes unfolding in a continuous present. The big thing that happens to the narrator—his finding a way to write—has already happened at the start of the book, and in any case it can’t be narrated directly. All the book can do is point to the conditions that enabled the narrator’s newfound freedom: his exile, his poverty, his submission to the waywardness of his life, his going with the flow. In Tropic of Cancer’s last scene, the narrator, temporarily flush with cash, takes a cab to a beer garden for a drink by the Seine: “The sun is setting. I feel this river flowing through me—it’s past, its ancient soil, the changing climate. The hills gently girdle it about: its course is fixed.”

Miller proceeds by colloquial exaggeration, hyperbole, and provocative overstatement, spiced with earthy frankness and surreal comic metaphor:
It was only this morning that I became conscious again of this physical Paris of which I have been unaware for weeks. Perhaps it is because the book has begun to grow inside me. I am carrying it around with me everywhere. I walk through the streets big with child and the cops escort me across the street. Women get up to offer me their seats. Nobody pushes me rudely any more. I am pregnant. I waddle awkwardly, my big stomach pressed against the weight of the world.

We are so used to the first-person comic-oratorical (thanks in part to Miller himself) that it hardly needs explanation today, but no one had quite done it like that in English before. He dares us to disbelieve him, knowing full well he has gotten at the truth without having taken the exact measure of anything at all. Measuring is for bureaucrats. “Even if my distortions and deformations be deliberate, they are not necessarily less near to the truth of things,” Miller wrote several years after completing the Tropics, in an essay called “Reflections on Writing.” “One can be absolutely truthful and sincere even though admittedly the most outrageous liar.”

After he moved back to the US and settled in Big Sur in 1944, Miller had a steady trickle of visitors—pilgrims, really—mostly young white men in flight from middle-class ideals or working-class dead-end jobs, who had been moved by his books to reconsider their ways of life. By this time Miller, an anarchist since his twenties, had not only published the Tropics novels and Black Spring, but also several books of critical and personal essays in which he laid out a worldview that valorized individual liberation from social rules, materialism, and spurious national values, while advocating the pursuit of inner freedom and a self-guided life. Tropic of Capricorn’s narrator dreams of a stateless, lawless, borderless world, a vision more suggestive than prescriptive, where “you wouldn’t own anything except what you could carry around with you and why would you want to own anything when everything would be free?” Miller wrote numerous essays and passages in his novels broadly condemning Western culture, colonialism, capitalism, and the extraction of the earth’s resources. He also considered himself a kindred spirit of the Dadaists, and he captures more in his witty glancing riffs than in his broad direct attacks. Here is the fevered reverie of Tropic of Capricorn’s narrator on a cold night in New York:

To walk in money through the night crowd, protected by money, lulled by money, dulled by money, the crowd itself a money, the breath money, no least single object anywhere that is not money, money, money everywhere and still not enough, and then no money or a little money or less money or more money, but money, always money, and if you have money or you don’t have money it is the money that counts and money makes money, but what makes money make money?

Burnside, who loves and lives by some of the anarchist principles that Miller advocated, argues that “in an age of environmental crisis” these principles are newly relevant: “What we need, each of us, is to become our own anarchists—which is to say, unlearn our conditioning and refuse to be led, thus transforming ourselves into freethinking, self-governing spirits.” But Miller is vague on the question of how liberated spirits are to coexist, and Burnside doesn’t explain how we get from refusing to be led to the kind of large-scale collaboration that seems almost certainly required by the climate crisis. Miller’s vision doesn’t easily mesh with today’s skepticism toward personal transformation, or with the growing conviction that even the most productive and salutary forms of self-liberation can’t serve as substitutes for collective action.

Miller’s own inclinations, in any case, were strongly bohemian, and for most of his life he lived practically hand to mouth. After he and June divorced in 1934, he relied on handouts from Anaïs Nin (whose rich husband and rich psychiatrist-lover provided personal funds as well as financing for the European publication of Miller’s first book), from a few close friends, and from other supporters of his writing. He published short pieces in obscure, low-paying magazines, and he took up watercolor painting and sold his work for badly needed cash. He had a daughter from his first marriage whom he did not support (or see much of after the
divorce) and two children with his third wife. Only when his books were published in the US in 1961, when he was seventy, did he finally make a comfortable living from his writing.

When Burnside decided to write about Miller, he tells us, he had been thinking for some time what it means, not to write the odd poem or two, but to work as a writer, trapped in a seemingly unending struggle to render unto Caesar just enough to buy an hour or two each day to sit in a narrow room and confess, to a sheet of cold white paper, the inner workings of a botched heart.

Burnside—born in Scotland, growing up in England, the son of a steelworker in the East Midlands—had come to Miller’s books as a young man in the 1960s in search of permission and the validation of his desire to write:

Growing up, I had not intended to take up writing as a métier. In fact—as my father frequently told me, whenever I expressed an interest in anything other than manual labor or the armed forces—I knew all too well that “people like us” did not presume to “go into” the arts, where only one in a million “made it,” and that one in a million came from an entirely different background from the gray, uninspiring streets of the impoverished coal and steel towns where I was attempting, despite my father’s derision, to grow up as a different kind of man from the specimen he wanted me to be (tough, hard, ready for anything, devoid of trust).

Miller has so thoroughly been cast as a sexist writer, Burnside points out, that readers may not realize how much his writing upends the early-twentieth-century ideals of manhood that he would have grown up with—and that Burnside also grew up with, one generation removed:

My father’s notions of manliness were mostly to do with physical prowess and the ability to endure hardship—work, pain, mental fight—without complaint. Though he was somewhat younger than Henry Miller, he would probably have been exposed to similar idealizations of manly life, of the kind to which Theodore Roosevelt subscribed: “We need the iron qualities that go with true manhood. We need the positive virtues of resolution, of courage, of indomitable will, of power to do without shirking the rough work that must always be done.” What the industrial society wanted from my father was physical endurance in the coal mine or the steel mill, and reasonable courage in warfare. It had no use for his narrative gifts. Like Miller, my father saw through the societal rhetoric, but he did not know how to avoid his fate as a piece of industrial cannon fodder.

Miller’s own father was judged and hounded by his mother for being a failure at his business, a subject Miller elaborated in Black Spring and Tropic of Capricorn. Refusing his mother’s standards, obscurely keeping faith with his father, Miller too failed to earn a living—a circumstance that caused him some shame (especially with his parents) even as he flaunted it defiantly at other times. He did not, however, ultimately fail as a writer, and his belated, spectacular discovery of his voice allowed him to rewrite the story of supposed failure into a triumph over the tyranny of social expectations and economic pressures. You can be a man without property, he insisted, you can be a man without a wife (in the traditional, respectable sense of the word), you can be a man without a home, and you can be a man while talking about the pleasure of emptying your bladder in a Paris public urinal.

In Tropic of Cancer (unlike the subsequent books, where self-mythologizing and sexual bravado creep in), much of the sex is actually failed sex, or sex that doesn’t go the way it’s supposed to. The narrator and his friends are more likely to fail to get erections, or come at the wrong time, or in the wrong place, than they are to brag about a conquest. His friend Van Norden, the most ardent (we would say compulsive) seducer of women, tells a story of how one of his girlfriends shocked him by revealing that she had shaved her pubic hair:
His curiosity aroused, he got out of bed and searched for his flashlight. “I made her hold it open and I trained the flashlight on it. You should have seen me…it was comical. I got so worked up about it that I forgot all about her. I never in my life looked at a cunt so seriously…. And the more I looked at it the less interesting it became…. When you look at it that way, sort of detached like, you get funny notions in your head. All that mystery about sex and then you discover that it’s nothing—just a blank. Wouldn’t it be funny if you found a harmonica inside…or a calendar?

As a portrait of man vainly trying to trace his appetites to their source, this is pretty funny. By the end of the book, Van Norden—on whom the narrator looks with bemused, condescending fondness—gives up women, deciding it just as pleasing and more convenient to masturbate into a cored apple. But the episode isn’t simply about man, it’s about a man and a woman—who, by the way, is doing what while Van Norden is peering into her vagina? Laughing? Hating? Who knows. Miller’s highly subjective first-person (in this case, Van Norden’s first-person-within-first-person) allows him to write rich comedy about sex in which the woman need not be in on the joke.

Does Miller’s freethinking man have a counterpart in freethinking woman? Miller would surely have said yes—the kind of inner freedom he was after is by definition improvised, often in straitened circumstances, and therefore theoretically available to almost anyone yet difficult for almost everyone to attain. In his novels, however, he doesn’t much care to consider the particular matrix in which women had to make their choices and compromises with a moralistic, property-based, and patriarchal society. The novels are taken up with observing and articulating male ways of being in the world, male styles, male attitudes toward sex and love.

He is very good on men, especially the working men of New York making their way in an unforgiving city. There are great passages in the Tropics and Black Spring about the narrator’s father, the Brooklyn boys and men the narrator grew up with, the lowly bicycle messengers whom he was in charge of hiring and firing for a large New York company (based on Miller’s days at Western Union). The narrator’s manager at the company asks him to write “a sort of Horatio Alger book about the messengers,” sending the narrator into a fugue of indignation (he calls Horatio Alger “the dream of a sick America”) on behalf of the many desperately poor men he interviews who don’t have a prayer of advancing in the company: “You shits,” the narrator imagines telling his managers, “I will give you the picture of twelve little men, zeros without decimals, ciphers, digits, the twelve uncrushable worms who are hollowing out the base of your rotten edifice.”

Women also apply to be messengers at the company, but they inspire a different kind of feeling:

The game was to keep them on a string, to promise them a job but to get a free fuck first. Usually it was only necessary to throw a feed into them in order to bring them back to the office at night and lay them out on the zinc-covered table in the dressing room.

Miller believed in amorality when it came to sex. For him, “sexual morality” could only mean the prudery and hypocrisy and zealotry of his elders, which he hated. Nothing could be more foreign to Miller’s narrator than to have regret or misgivings about a sexual encounter based on a woman’s response or her circumstances. But the narrator’s commitment to sexual amorality leaves him unable to size up the plight of those would-be messengers who are both poor and female, or to perceive himself, when he exacts sex for the promise of job, as an instrument of that exploitative corporation that he derides.

Miller did not, in other words, see the subordination of women as one of his society’s many cruelties and stupidities. It could have been otherwise. He moved for some years in the Village bohemia of the 1920s before he left for Paris, in the setting where feminists and suffragists had mixed with other Progressives, anarchists, socialists, and artists of all kinds. Questions of women’s rights and status, alongside questions of free love, were still in the air. And for two centuries, most of the great Anglo-American novelists had been interested specifically in the question of how women could, or should, make their way in the world, given a
set of sexual, social, and economic restrictions that would have seemed intolerable to men of the same class. But this was not Miller’s canon—he loved Rabelais, Boccaccio, Dostoevsky, Nietzsche—and these were not his questions.

Nonetheless, his books are full of female characters. Through his narrator’s social and sexual encounters with prostitutes, secretaries, teachers, dancers, desperate job applicants, and other men’s wives, Miller ends up showing us a great variety of women subject to the kinds of economic pressures, narrow prospects, sexual exploitation, and double standards elaborated—and lamented—by Samuel Richardson, Thomas Hardy, George Gissing, and Edith Wharton (most of whom were in their own time notably candid about sex). The difference and the shock of Miller is this: here is a novelist registering the same conditions that two centuries of great English-language writers taught readers to find absorbing, urgent, and unjust, but he has no moral response to them. He sees female characters from the other side, as it were, with cool indifference to their sense of themselves and to their fate, thus seeming to cut off a long-established, artistically fertile current of sympathy in prose fiction for the circumstances and constraints of people born female.

Van Norden’s—and the main narrator’s—attitude of essential aloofness from the woman with whom he’s having sex would be picked up in the work of many (heterosexual) writers and artists Miller inspired: it’s in Kerouac, in Lenny Bruce, in Mailer and Bellow and Roth, and in the work of later writers who make great comedy of male sexual appetites and failures. Miller became a guiding spirit of the 1960s sexual revolution, a movement whose public intellectuals and popular promoters—Wilhelm Reich and Herbert Marcuse, Hugh Hefner, and Helen Gurley Brown—ascribed sexual inhibition to a variety of sources (capitalism, property relations, bourgeois values, religion) without considering that a major factor in heterosexual sexuality might be what we now call sexism. They did not take account of the ways in which women’s lower status and limited scope for self-determination might also affect sexual expression—for all parties involved, and not necessarily for the better. The women’s movement would soon sweep in to correct them, and then get corrected itself through decades of intramural and extramural debate about sexual ethics.

There still sometimes seems a gap in our public discourse when it comes to these fault lines of heterosexuality, a hesitancy to suggest that the prevalence of sexual harassment, violence against women, and hiring discrimination have an effect not only on particular victims, but on intimate relationships between men and women. These relationships form and dissolve in a society that has long been sexually permissive without exactly being—or seeming, or feeling—sexually free. In his best flashes of writing about sex, Miller shows us how it might feel to be free and easy. But he can’t imagine what it would actually take to get us all there.

Strange as it is to say, he did not think hard enough about women.

https://www.nybooks.com/articles/2019/02/21/henry-miller-mens-lib/
Smoked Out

McKenzie Funk

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- BUY Extreme Cities: The Peril and Promise of Urban Life in the Age of Climate Change by Ashley Dawson
  Verso, 384 pp, £20.00, October 2017, ISBN 978 1 78478 036 4

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Last spring, my wife, wanting to change career, was accepted by nursing school, and our family – the two of us, two young boys, a middle-aged dog – suddenly had to move house. We were leaving Seattle, where we had lived for a decade, a city with ample rain, though one within range of volcanoes and earthquakes, for a small town in the mountains of southern Oregon. I put the climate change books I had agreed to write about for this paper in a cardboard box and put the box on top of the others starting to fill our garage, and soon spring turned to endless, destructive summer.

The town we were moving to is called Ashland. It’s beautiful, a surprise cluster of civilisation just north of Oregon’s border with California, where restaurants and shops and stately wooden houses sit at the foot of a forested mountain range called the Siskiyous. It has twenty thousand residents but swells during the academic year with students and in warmer months with tourists, many of them here for the summer-long Oregon Shakespeare Festival. There are flower-filled parks, excellent schools, people riding carbon-fibre mountain bikes, retirees driving luxury cars, travellers with dreadlocks, nice dogs reliably on leashes. Restaurants and real estate agencies line Main Street. People in Ashland are often from somewhere else, and they pay good money to be here. The town’s economy relies, above everything else, on its quality of life.

I first heard about the smoke problem from a publisher of religious and philosophical books who had lived in Ashland for 24 years, raising his three children in a blue, three-bedroom house near the business district. Now they were grown up and publishing was dying and he found he had trouble breathing in the summer months because there were an increasing number of fires in the surrounding hills. The forests here are dense and dry.
The valley is shaped like a trough. When wildfires burned, the smoke lingered in the valley for weeks, and he had to stay indoors. It had happened almost every summer for the previous six years: it was the ‘new normal’, people in Ashland said, an effect of climate change. The publisher was moving to Los Angeles, a metropolis once famed for its smog, partly because the air there was sure to be better. When I visited him one rainy May evening during a house-hunting trip – his home was supposedly a steal because it was selling for under half a million dollars – we drank tea at his kitchen table, surrounded by his boxes and furniture and former life, him at the end of something and me at the beginning. The house wasn’t quite right for us. I decided we should rent instead and found a place a few blocks away, across the creek.

Jenny liked the old house we ended up with. We moved her in one June weekend, the boys crawling in and out of the doors of the secret closet in their new bedroom. She would live here alone for the first month, riding her bike to and from the university, eating at the grocery co-op, revelling in the fact that in a small town everything is ten minutes from everything else. The boys and I returned to Seattle, and wrapped up our existence there. ‘We’re going to need new sunglasses for the boys,’ Jenny told me early on. It was always sunny. The air was so crisp. It was so easy to get around. We’d be spending a lot of time outside. Then, a week before we were to drive the nine hours down Interstate 5 and finally join her, bad news: ‘The smoke started,’ she said. ‘It came early this year.’ Although there was little imminent danger of its spreading to Ashland, the nearest fire – the result of a lightning strike near Hells Peak – was just nine miles from our new home.

When a building is burning, firefighters usually try to extinguish every last flame. It’s a fight to the death, over in a matter of hours. When thousands or tens of thousands of acres of forest are burning, the major goal is containment, a kind of negotiated peace with a force greater than man. Wildland firefighters try to halt a blaze’s progress, encircling it with natural or manmade firebreaks. They work to keep the flames away from people and property, hoping to hang on until environmental conditions – humidity, wind speed and direction – change and the autumn rains finally arrive. Many wildfires are left to smoulder, and to smoke, for weeks or months on end, causing little newsworthy damage. Disasters like the conflagration that consumed Paradise, California, in November, killing 81 people – the deadliest and most destructive wildfire in the state’s history – do happen. But the climate disaster facing millions of other residents of the American West is more insidious. In a town like Ashland, the smoke blots out the colour of the houses and the hills, rendering everything in grayscale, a slow-burn diminution of the way life here used to be.

On the afternoon the boys and I arrived the town and the Rogue Valley where it sits were surrounded by nine separate wildfires. The next day, Ashland registered the worst air quality in the United States: 321 on the Air Quality Index. The AQI scale is colour-coded – green-yellow-orange-red-purple-maroon – to denote health risk, and we were well into maroon, or ‘hazardous’. Outside, the air was totally still and the temperature had hit 100°F. It looked like dusk in the middle of the day. Inside, the boys’ upstairs room was like a furnace, but we couldn’t open the skylights for fear of letting the smoke in. We rushed out to buy an air-conditioning unit. At the hardware store down the road, we got the last child-size smoke masks on the shelves, the ones rated N95 for the particulate matter the internet said we really needed to keep out of their lungs. Prepping for the unknown, we ordered a dozen more masks from China on Amazon.

The boys’ first summer camp was in a nature area five minutes from our house. They were meant to spend the whole week outside. Instead they spent it in the cramped quarters of the visitors’ centre, where they sang songs about the forest and built fairy houses out of bark and moss and acorns. Some days, the AQI dropped
into the orange zone, and at least once into the yellow, but the smoke always returned when the wind shifted. I tried to walk the dog whenever the air looked best, helped by the AQI app I’d downloaded to my phone, and I grew used to wearing my smoke mask in public, grunting muffled hellos to other pedestrians in masks of their own, fellow travellers in the apocalypse. It began to feel normal. In the café where I went to work on my laptop, I noticed how routine this existence was becoming for others, too. Walk in, take off mask, order coffee. Put mask back on, walk out. In Seattle, I had always taken my rain jacket when I went outside. Here, one had to remember the smoke mask. Your baselines shift. You adapt.

By the end of the week, however, our younger son, then three, had developed a rough cough. I took him to a clinic, and the next day we decided to get him and his brother out of Ashland until the smoke had gone. I loaded up the car again and drove the boys and the dog four hours north-east to the other side of the Cascade Mountains, where my extended family had a cabin. We were climate refugees, I joked, escaping to higher elevations and latitudes in search of a more hospitable environment. The six-year-old asked me what ‘refugee’ meant, and I had to explain, but told him I didn’t really mean it. All we could honestly claim was a new-found feeling of dislocation, of being stuck between lives. I had brought the long neglected box of climate change books with me, and now, safe in the mountain air, I began reading.

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There were four books in the box. They are very different from one another, but as a whole they represent a generational break with the climate change books before them. This is because not one of them is strictly about the topic at hand. Not one of them bothers to argue that climate change is real. Not one bothers to explain how societies can work to cut greenhouse gas emissions. Not one gets hung up on atmospheric science or computer models or the Paris Agreement. Instead, they simply take for granted that temperatures will rise and that the world as we know it will soon be fundamentally altered. The migration scholar writes about migration and the seed scientist about seeds and the ecosocialist about urban capitalism, but climate change – the biggest, most pervasive ongoing event in the world – is always present in the background. This is by necessity. Climate change is and will be everywhere. It doesn’t stand apart from our daily existence, not any more.

Edward Struzik’s Firestorm is about the coming age of ‘megafires’ – wildfires covering an area of 100,000 acres or more. The phenomenon isn’t new, but megafires now occur with unprecedented frequency, and are uprooting more and more people from their homes. In Canada, the average area affected annually has doubled since global temperatures began their abrupt rise in the 1970s, and it is likely to double again by 2050. Quoting a favourite scientist, Mike Flannigan, Struzik lays out the three simple reasons for this. First, warmer temperatures mean drier forests. Second, warmer temperatures mean more lightning strikes. Third, warmer temperatures mean longer fire seasons. Struzik centres his story on the Horse River Fire, also known as the ‘Beast’, which struck Fort McMurray in Alberta, Canada’s tar-sands capital, in 2016. It spread across 1.5 million acres, destroyed 2500 homes and 12,000 vehicles, and forced 88,000 residents to flee. The firestorm was of such ferocity it created its own weather patterns, including lightning strikes that set off smaller fires to herald its approach. The irony of the fire’s location wasn’t lost on Struzik. ‘Behind us glowed the lights of fossil fuel-driven human activity,’ he wrote of a night spent in the burned-out forest not far from the site of the $7.3 billion tar-sands project, ‘emitting greenhouse gases that are warming the climate and triggering atmospheric disturbances, driving wildfire to burn bigger, faster, hotter, and more often.’

Struzik describes how Fort McMurray residents escaped from the Beast while bureaucrats were still fighting over how to respond; dives into the scientific mystery of the fire’s lightning-producing pyrocumulonimbus
clouds, or pyroCbs; describes how politics have caused forest managers to retreat from the practice of controlled burning, allowing forests to become choked with unburned fuel; explains how drought and invasive beetles have made trees more susceptible to fire; explores the way people’s encroachment on woodland has made more homes susceptible to fire; and underscores the fact that water supplies which may already be facing climate stress are further threatened through contamination by wildfires. He dedicates an entire chapter – bless him – to the dangers unsuspecting people face from smoke inhalation from distant fires. But when the book concludes with a quiet call for better evacuation planning and more research – in both Canada and the United States federal budgets go overwhelmingly to firefighting rather than fire science – the reader is left with an uncomfortable realisation: it’s too late. From here on it’s triage. Some future fires may be allowed to burn so as to clear out accumulated fuel, and some may be suppressed as they are today, even if this increases the risk of later megafire. Either way, our forests will burn.

This human knack for increasing long-term risk by trying to diminish it in the short term doesn’t apply only to fires. In Extreme Cities, Ashley Dawson, a New York-based activist and scholar of postcolonialism, argues persuasively that cities are becoming ground zero for climate change. They are home to most of the world’s people and the source of most of its emissions. We have built our megacities – 13 of the largest twenty are ports – in sinking river deltas. Half of the world’s population already lives close to the sea, and now more people, fleeing rural drought or poverty, are moving there. ‘Two great tides are converging on the world’s cities,’ Dawson writes. ‘The first of these is a human tide. In 2007, humanity became a predominantly city-dwelling species.’ The second tide, of course, is the literal one: the rising seas, which may be metres higher by the end of the century.

Dawson’s book is about the way responses to climate change are being shaped by the entrenched interests of capital. He takes aim at the comfortable notions of ‘resilience’ and ‘green growth’ pushed by – among others – the former mayor of New York Michael Bloomberg and his cast of visiting Dutch architects, questioning post-Hurricane Sandy projects like the Big U seawall proposed for lower Manhattan: it would attract tourists and protect Wall Street, but displace storm surge waters to surrounding, poorer neighbourhoods. ‘Under present social conditions,’ he writes, such schemes are ‘likely to be employed by elites to create architectures
of apartheid and exclusionary zones of refuge’. For Dawson, New York is the ‘extreme city’ problem in microcosm. The affluent invest their money in such places because real estate is where the big returns lie as people move into cities – 60 per cent of global wealth, he claims, is in real estate – and because under capitalism investments must grow in value. City planners are then compelled to protect these growing investments, which gives speculators confidence that the city is a safe harbour for yet more investments, and thus overall risk creeps up with the tides.

The $40 billion, Dutch-built Great Garuda seawall in Jakarta, soon to be the biggest in the world, will displace thousands of shack-dwellers on an existing seawall and put tens of thousands of fishermen out of work – but it will give developers a chance to profit from selling luxury homes on artificial islands. The Eko Atlantic development on a peninsula off the coast of Lagos is patrolled by heavily armed guards and surrounded by shanty towns built on stilts where the chefs and nannies live. ‘Both Eko Atlantic and the Great Garuda,’ Dawson writes, with excusably escalating rhetoric, ‘offer visions of the extreme social injustice of emerging neoliberal urban phantasmagoria in a time of climate change.’ Just as Struzik makes it plain that some forests will just have to burn, Dawson asserts that some cities – Miami, for example – will have to be abandoned. Eventually, taking a page from Naomi Klein’s concept of disaster capitalism, he calls for ‘disaster communism’ in the face of climate change – a radical redistribution of wealth that liberates poor and rich alike from our cult of growth before it literally sinks us.

Before the boys and I had to leave the cabin I had time to read the third book, Cary Fowler’s Seeds on Ice. It is a retelling of the creation of the Svalbard Global Seed Vault, commonly known as the ‘doomsday’ seed vault. Built into an Arctic mountainside to safeguard key crops – rice, wheat, sorghum, maize, beans – from climate change or terrorist attack, the vault holds almost 900,000 seed varieties from almost every country in the world. Fowler explains that he and a colleague at the international agricultural research organisation CGIAR became afraid for the world’s seedbanks after the 9/11 terrorist attacks. He describes his first visit to Svalbard, where he ate polar bear carpaccio in an old hotel in the coal-mining town of Longyearbyen. The island’s political and climatic stability added to its appeal, and the Norwegian government was persuaded to pay for the project. To make the vault impregnable it was decided to tunnel into solid stone and permafrost rather than repurpose an old mining shaft.

Fowler explains why this all matters. ‘Agriculture faces its most severe set of challenges since the Neolithic period,’ he writes. One problem is the need to grow more food for more people with less water and land and phosphorus. The other problem is climate change: warmer average temperatures, warmer extreme temperatures, warmer nights, longer heatwaves, variable rains. ‘We are headed towards climates that our crops have never before experienced. Global warming will give us climates that are pre-rice, pre-wheat, pre-potato, pre-agriculture.’ Even if Germany’s future temperature range becomes like that of Italy today, Italian crops are not guaranteed to grow in German fields. Soil and pests will remain different, and so too will the length of the days. What plant breeders and farmers will need is a stockpile of heat-tolerant traits so they can produce new crop varieties, and this is what the seed vault was designed to be. When I looked up the vault online, however, I found that it had suffered a breach soon after Fowler’s book was published. No seeds were damaged, but a dramatic Arctic warm spell during what had been Earth’s warmest recorded year had brought heavy rain to Svalbard instead of the usual light snow, and the vault’s entrance had been flooded with meltwater. Norway has recently pledged one hundred million kroner – about £10 million – to build a new entrance tunnel and revamp the vault’s emergency power and refrigeration systems: a Plan B for civilisation’s Plan B.
I didn’t do much reading after that one, not for a while. The boys and I had to drive to our next destination – my parents’ house, two hours from the cabin – and as soon as we were halfway settled I had to complete another late writing assignment that might at first seem unrelated to this one, an investigation into immigration enforcement in the age of Trump. Jenny was still stuck in class in Ashland in the smoke. Now she drove an air-conditioned car to and from the university with the windows rolled up, and her bike sat idle. I kept checking my AQI app. Smoke was still choking the Rogue Valley, and haze spread from other fires to the rest of the Pacific Northwest as the summer dragged on. The boys and I stayed away from Ashland until the end of August, when the AQI edged more frequently into the yellow zone and their school year began and I dressed them in smoke masks and new shoes and took them to meet their teachers.

There was no distinct moment when the smoke stopped. But in September it was more often the case that when the wind blew it away, it didn’t get blown right back again. We went outside with sunglasses on. We kept waiting for the hills to disappear again, for our fragile string of yellow and green days to turn orange, but eventually we realised it was over. Now we could assess the damage. That month, regional vineyards got a letter from a major buyer, a California winery, saying that their contracts were cancelled due to ‘smoke taint’. The Oregon Shakespeare Festival, engine of the local economy, announced that the smoke had cost it at least $2 million in lost ticket revenue. The knock-on effects on hotels, shops and restaurants amounted to many millions more, and a few businesses closed down. For me, it hadn’t been nearly that bad. I’d lost some savings and some time, but suddenly the air was crisp and the boys were at school and I could sit and type for uninterrupted hours.

I thought I might find a moment to read the last book in my pile during our reunited family’s first trip together, a long weekend in California to attend a friend’s wedding. But the day before we were meant to leave, a wildfire just south of the state border jumped over Interstate 5, the major north-south artery. The news showed images of abandoned trucks, smoke still spiralling up from their blackened shells. To get to the wedding, we took a detour through the mountains on a series of minor roads, driving late into the night behind an endless line of cars and trucks. The drive was long, and the drive back even longer – 12 hours – and I didn’t read a thing.

In early October, the Intergovernmental Panel on Climate Change, meeting in South Korea, issued its worst report yet: the consequences of even a 1.5°C rise in global temperatures, as opposed to the previously studied threshold of 2°C, would be widespread catastrophe. The worst effects – a mass die-off of coral reefs, coastal flooding, widespread food shortages – could come as soon as 2040, well within the lifetimes of most people living today. The report’s authors stressed that it was still technically possible to avert this through a massive transformation of our energy economy, but even they admitted that this was according to the laws of physics and chemistry, not politics. When I saw the headlines about the IPCC report, I was at a conference in Florida, where Hurricane Michael – one of the strongest storms ever to hit the continental United States, soon to be responsible for dozens of deaths – was bearing down. I headed to the airport to fly home less than 24 hours before Michael made landfall, the sky already dark and the rain battering the windscreen of my taxi and flooding the streets. Back in Ashland, things seemed pretty normal for a week or so, but then residents began catching glimpses of a mountain lion. It was seen near the theatres. It was beside the supermarket. It was by the university. It was roaming outside the library, with two cubs. Biologists suggest that mountain lions may increasingly follow their favourite prey – deer – into urban areas as the hinterlands go dry. While there was nothing definitively to tie this particular cat to climate change, you can forgive me for having my suspicions. It was that kind of year.
When I finally turned to Todd Miller’s Storming the Wall: Climate Change, Migration and Homeland Security, the mid-term elections were approaching and Trump had dispatched US troops to the Mexican border to repel a caravan of hungry asylum-seekers from Central America. In the news, there had been little attempt to explain why farmers from Guatemala and Honduras – two ‘dry corridor’ countries wracked by consecutive years of drought – were trekking to the United States. Miller’s book was a welcome antidote. ‘Just like super-typhoons, rising seas and heatwaves, border build-up and militarisation are by-products of climate change,’ he writes. ‘Just as tidal floods will inundate the streets of Miami and the Arctic ice sheets will melt, if nothing changes we will find ourselves living in an increasingly militarised world of surveillance, razor wire, border walls, armed patrols, detention centres and relocation camps.’

One important revelation in Miller’s book is that climate change science is wholly uncontroversial inside the military and security establishment, even high up in the Trump administration. It’s widely accepted that the warming world will soon see many more refugees – 50 million, 250 million, a billion, nobody can say for sure – even if climate migrants can’t formally be called refugees under present international law. Miller attends security conferences and border-tech exhibitions on two continents, and traces the use of the term ‘threat multiplier’, which has been employed by governments and analysts since 2004 to describe the way climate change adds to the usual array of threats against our financial and political order. He shares Dawson’s concern that we’re hurtling ever more rapidly towards a world of haves and have-nots. ‘More dangerous than climate disruption was the climate migrant. More dangerous than the drought were the people who can’t farm because of the drought. More dangerous than the hurricane were the people displaced by the storm.’

Miller tells the story of Yeb and A.G. Saño, two Filipino brothers whose hometown was largely destroyed by 2013’s Super Typhoon Haiyan and whose home region was arguably destroyed by the police state that rose in the typhoon’s wake. The brothers marched a thousand miles on foot across the Alps to arrive in Paris for the start of the 2015 UN Climate Summit, with Miller joining them for the last few kilometres. But the climate talks took place just weeks after Islamic State’s attack on the Bataclan concert hall, and Paris was in a state of emergency when the marchers entered the city. The brothers – foreign, brown, idealistic – put their arms around each other outside a café for a photo op, and a man came out and yelled at them, thrusting a newspaper with an image commemorating Bataclan in their faces. ‘People here in France are not concerned about climate change,’ he told them. ‘The people of France are concerned about terrorism.’ The next day, Miller walked alongside protesters demanding carbon cuts, running when they were attacked by riot police. It’s a blunt but effective metaphor. ‘As I ran,’ he writes, ‘I realised I had arrived at the true climate summit.’

In Ashland, the mountain lion disappeared from town and the Shakespeare festival laid off a few dozen employees. State and federal fire officials traded barbs in the local newspaper, which started running a countdown clock to the 2019 fire season. A local lawmaker proposed that college students should take a year off to work on tree-thinning projects. The bookstore I frequented was put up for sale, but I overheard two long-time patrons predicting that there would be no serious bids. ‘Ashland’s not what it used to be,’ one said. My younger son learned to ride a bike in the sun in the park just down the block. My older son started playing soccer, and by the pitch one morning another parent told me about a campsite near the Pacific that filled with local families every summer once the smoke began. ‘Maybe we’ll be like Europeans,’ he said. ‘Everyone will just leave every August.’ It almost sounded reasonable.

https://www.lrb.co.uk/v41/n03/mckenzie-funk/smoked-out
The Moon’s Magical Mythology Captured in an Illustrated Book by David Álvarez

LAURA STAUGAITIS

In Noche Antigua (Ancient Night) an opossum and a rabbit work together—and against each other—to create and maintain the sun and the moon. The book, written in Spanish and illustrated by Mexico-based artist David Álvarez (previously) is based on elements from ancient myths in several Central American cultures. Álvarez captures a sense of quiet magic with the simplified forms and hushed tones of his illustrations, which seem to glow from the illumination of the moon. You can see more of the artist’s work on Instagram and his Etsy shop, and find a hardcover copy of Noche Antigua on Amazon.
https://www.thisiscolossal.com/2019/01/noche-antigua/?mc_cid=fc6c7e8039&mc_eid=2d0f5d931f
The Star of the Silken Screen

David Salle

Andy Warhol: From A to B and Back Again

Andy Warhol: Mao, 1972. Acrylic, silkscreen ink, and graphite on linen, 14 feet 8½ inches x 11 feet 4½ inches.
an exhibition at the Whitney Museum of American Art, New York City, November 12, 2018–March 31, 2019; the San Francisco Museum of Modern Art, May 18–September 2, 2019; and the Art Institute of Chicago, October 20, 2019–January 26, 2020

Catalog of the exhibition edited by Donna De Salvo
Whitney Museum of American Art, 400 pp., $70.00 (distributed by Yale University Press)

In the 1970s, impecunious and unknown, the only way I could get into the legendary Studio 54 was under the sponsorship, so to speak, of someone older and more established. The velvet rope parted only one time; it wasn’t the night Bianca Jagger rode across the dance floor on a white horse, but it was close.

There was a balcony where you could go if you were seriously tripping, as I was, to get out of the mayhem. That night the rows of theater seats were empty except for a few couples making out in the back. I collapsed into a chair. When my eyes adjusted to the dark, I became aware of someone else in my row. There he was, solitary in the shadows, standing with his arms crossed and one hand to his chin, staring at the revelry below. The trademark wig, in the pulsing light of the dance floor, looked not so much silver as made of straw. He glanced at me briefly, seemed about to speak, changed his mind. I was of no interest to him, just another stoned kid.

Andy Warhol combined social and pictorial intelligence in a way not seen in this country since John Singer Sargent. In one of the most unexpected artistic transformations of the last century, he found a way to make a highly synthetic, semimechanized kind of painting feel authentic. His attitude and posture, his public persona, and his forays into filmmaking and other media were radical in the world of high art, but his aesthetic inclinations were more traditional. They harked back to, and partially bridged, two widely divergent tendencies in American art: social realism and abstraction, the Yankee peddler and the Transcendentalist.

Warhol was many things, but at heart he was a salon artist with acute instincts for social engagement. The complexity of his persona, the sociocultural upheaval of the 1960s that he helped to advance, and his impact on generations of activists and aesthetes have been discussed at length. And while central to the Warhol mythology, they are not the reason why his best paintings still pull us into their aura. We’re looking at them today because of their unique amalgamation of photographic facticity with a painterly directness and stylishness that stops just short of aggression. Warhol understood the visual power of rhythm and repetition—minimalism before it had a name. He also sensed that the relationship between content and style could be deliberately misaligned to create a new kind of pictorial irony.

At the beginning of the 1960s, Warhol’s work looked new because of a technique new to art—the half-tone silkscreen. It was the ultimate low-to-high inversion. Screen printing uses the method by which photography’s gray scale, its range of lights and darks, is translated into a pattern of tiny dots, known as benday; it’s what allows photographs to be reproduced in newspapers. The same dot pattern, expressed as tiny, pin-prick holes, can be bonded to a piece of silk, which is then stretched taut on a frame of wood or metal. When ink is forced through the silk using a rubber squeegee, the photographic image, reconstituted by the tiny dots, appears on the printed surface—in Warhol’s case, the canvas. The print can be repeated any number of times, and the amount of ink used, as well as the degree of force applied to the squeegee, will produce variations in the resulting image.

Warhol was the first artist to grasp the potential for pattern and rhythm released by the screen-print process; it could be both mechanical and expressive at the same time. This pictorial rhythm was tied to a feature of the silkscreen: it exaggerates the contrast in a photographic image between light and dark, amplifies their power to convey a sense of form, and also makes the dark areas of a photograph feel almost animated. In a profound act of poetic equivalency, Warhol further realized that the true substance of photography is the shadow cast...
by and on its subject. This was the essence of his major innovation, which still reverberates today: the reciprocity between painting and printing. What was his alone was the identification with the fatalistic glamour of a shadow.

Most importantly, the silkscreen brought the world outside the studio—the unfiltered world of headlines, of heartbeat, stardom, and catastrophe—into the heart of painting. Warhol hitched his sensibility to the values of the picture press, to hard-luck stories of exceptional bathos, and to an emotionality and sensationalism not previously welcomed into the upper echelons of art. The work got interesting when he boldly, and also a little fatally, tried to integrate that sensibility with the sweeping grandiosity, aloofness, and froideur of a painting by Clyfford Still or Barnett Newman. He did this by letting the weights and rhythms of the black silkscreen ink, as it accumulated or thinned out, move one’s eye through the picture at the same time that it absorbed the image. What those artists accomplished with a palette knife or a brush, Warhol approximated using his squeegee. His paintings work best when you can feel him reaching for the grandeur and clear-eyed sorrow of classical art. To these qualities he added a sweetness that was not common in formalist art, and that was all his own. The underlying drama in a painting by Warhol is the nerve and daring to say, “Why not this? Can’t this be art too?”

Andy Warhol was born in Pittsburgh in 1928, the youngest child of Slovak emigrants. His father was a coal miner. They were poor; it was the Depression. He was a sickly, introvert and adored child who liked movie fan magazines, the icons at his Greek Orthodox Church, and other boys. His early flair for drawing won him a place at the Carnegie Institute of Technology, where he excelled in the traditional course of study, drawing from plaster casts and the like. After graduating in 1949, Warhol came to New York to make his name as a commercial artist.

In the early 1950s, before photography changed the look of print advertising, illustration was used to enchant and seduce the consumer. An illustrator with a distinctive style could go far, and Warhol rapidly established himself as one who could confer wit and sophistication on consumer products. His whimsical drawing style and elegant, fanciful typography (often the work of his mother, who was, at times, a creative partner) made him a favorite of art directors and clients, and eventually led to a steady gig drawing the ads that the I. Miller Shoe Company ran weekly in The New York Times. I. Miller was Warhol’s grad school, an efficient education in how to focus the reader’s gaze and keep her from turning the page. Certain things worked, others not so much, and Warhol learned to eliminate anything that didn’t contribute to the desired effect.

Having reached the top of the commercial art world, Warhol had a much bigger idea of his own talent, or of his own drive; his sights were always on the world of elite galleries and museums. At first he didn’t understand the difference between illustration and art—why a drawing by Jasper Johns cost so much more than one of his own. He eventually figured it out. If anything, it was a surfeit of personality that cast his work in a different, lesser light. Warhol wasn’t born cool; he became so.

The Whitney Museum of American Art has mounted a large, mostly buoyant survey of Warhol’s immense output, “Andy Warhol: From A to B and Back Again,” and it expands our understanding of the origins and evolution of his sensibility. The exhibition presents the artist in full: he was not only, or even primarily, a painter but also, at various times, a filmmaker, magazine editor and publisher, author, illustrator, photographer, diarist, TV show host, stage designer, and political activist. The veteran curator Donna De Salvo has done a real service in examining heretofore neglected aspects of Warhol’s oeuvre: not just the films, but also his early drawings and witty erotica, the many commercial illustrations and book designs, the paintings made in collaboration with Jean-Michel Basquiat, and the late forays into abstraction. The overall impression is that throughout his life Warhol was always an exceptionally hard worker who adapted as times changed, but one who largely confined himself to the surface of life. After 1968, he produced a steady stream...
of paintings on any number of themes and subjects, but didn’t deeply inhabit more than a few of them, the same as most artists. He preferred to keep the carousel moving at a steady clip.

It might be difficult, in this time of critical approval and market adulation, to grasp just how devalued Warhol had become by the early 1980s, even among his own inner circle. In 1985, when the Saatchi Gallery opened with a small survey of 1960s paintings, Warhol’s business manager, the sartorially peerless Fred Hughes, confided to a friend that it was the first time he took Andy seriously as an artist. When Warhol died in 1987, an appreciation in The New York Times by John Russell struck a less than sanguine note: “Posterity may well decide that his times deserved him.” Parts of the art world had grown weary of the “Warholization” already underway, and some critics were pushing back. The art historian Barbara Rose had recently begun a review with this zinger: “Andy Warhol has sunk back into the commercial ooze from which he emerged.”

If he was the artist America deserved in 1987, it now seems that each era shall have the Warhol it deserves, and the version that emerges from the Whitney show is much more up front about queer culture’s contribution to the visual arts and to the evolution of our current sensibilities. In tandem with presenting queerness as a category of experience and identity in art, the Whitney show gives us an insight into the young Warhol: Andy with a sketchbook, Andy the fan, the fashion Andy, Andy the ardent youth dreaming a life of style and erotic possibilities.

Perhaps as a result of emphasizing the “artist as a young striver” version of Warhol’s life and times (a version he would likely have approved of), the show feels rather light on masterpieces, though it more fully fleshes out how his lifestyle informed his development. De Salvo points out the links between Warhol the precocious teenager, making charming, romantic pencil portraits of his friends, and the Pop artist who painted portraits of Coke bottles and other products.

A large retrospective exhibition often tells a story about an artist influenced by other artists as well as the broader culture, about how and to what extent artists adapt and evolve. The story can also be about an artist’s relationship to his materials. This show’s arc is the story of line supplanted by image. Warhol’s early sensibility was expressed almost exclusively through line. He showed only passing interest in academic modeling, shading, creating volumes, relational composition, and the like. He was a display artist who thought in column inches, not in paint. The young Warhol had instead a feeling for how to style his line so that it drips with personality, and also how to use line to imply a narrative. The two qualities together define a current that, while not exactly suppressed in the macho art world of the 1960s, was hardly valorized. Today, that aspect of Warhol’s art feels irresistible, something happily passed forward to our time.

The exhibition’s first couple of rooms reveal Warhol in possession of a great lyrical charm, to which has been added the graphic punch of superior packaging design. One wall has been given over to a salon-style hanging of twelve gold-leaf drawings of shoes from the 1950s. In these works, the shoes, some with pinched toes and high button uppers or dainty bows, feel Victorian; it’s often the case, and was especially so in the late 1950s and early 1960s, that the look of “sophistication” borrows its appeal from something antique. The drawings are hung on top of black-and-white reprints of the I. Miller ads and other drawn images that appeared in the Times—shoes on top of more shoes. The whole thing looks chic and delicious. You want to have it wrapped up and sent as a present to Eloise at the Plaza.

Apart from his mother’s fanciful, hand-lettered script and Pennsylvania’s robust nineteenth-century folk-art tradition, the biggest influence on Warhol’s early stylized drawings was Ben Shahn, a working-class humanist who today might seem light-years from Warhol’s world but who was, at the time, one of the most popular artists in America, and who provided an example of how to bridge the gulf between fine art and illustration. Warhol’s version of Shahn’s urgent, searching—one wants to say moral—broken line was made by applying ink to wax paper and then blotting the tiny ink blobs with drawing paper, which produced a distinctive graphic insouciance in which every depicted object, even a shoe, seemed to have a pursed cupid mouth. Warhol also made elegant drawings using a ballpoint pen, which gave a more continuous, flowing line. Those drawings are, if anything, even more romantic than their ink-blot cousins, and have more in common with Jean Cocteau than with Shahn.

As time went on, Warhol wanted something more ambitious for his art but was unsure where to look for inspiration. The show’s inclusion of his developmental years allows us to see the small jumps he made in the
progression from illustrator to painter, how the fascination with the picture press and the printed page were
turned into ideas about what to paint and how to paint it. So great is the sense of logical development and
discovery that, walking through the first rooms of the show, we feel that we might finally learn the answer to
the great mystery: How exactly did Warhol make the leap from illustrational, line-based imagery to the first
silkscreen paintings? We can feel him straining at the threshold of Pop art, but we can only imagine what it
must have felt like to grasp that painting and printing could be one and the same. It was subversive and
liberating. It was a new kind of paintbrush.

Almost at the same moment, Robert Rauschenberg also introduced silkscreen images into his paintings, after
first seeing the large industrial screens in Warhol’s studio. He used the screens in a cubist-collage sort of way,
the images often painted over or otherwise altered, and always subsumed into a larger composition. The
images have a scrapbook quality to them; they are often nostalgic, even elegiac, phrases or cantos in
Rauschenberg’s ongoing visual tone poem.

Warhol, by contrast, quickly recognized the sheer graphic power as well as the transformational nature of the
silkscreen image itself—how it confers on any subject a drama of light and shadow, an urgent aesthetic
bounty grounded in the photographic now. Wielding the silkscreen like a shield, Warhol progressed from a
graphic, outlined image to one made by a decisive drag of a big industrial squeegee. You can feel the
expressive currency of the materials coming alive in his hand; the mystery of the photographer’s darkroom is
invoked with each pull. Such was the galvanizing force of photography that it swamped Warhol’s hand-
painted style all at once, and by late 1961 the transition was complete. It would be another twenty-five years,
more or less, before he again chose drawing over photography.

The silkscreen gave his art heft; its use at the grand scale of the New York School conferred gravitas and
turned Warhol into a painter of modern life. It gave him access to an enormous range of subject matter that
could be transferred quickly to the canvas, and at any scale. Movie stars, Mao, violent accidents, society
portraits, skulls, pistols, flowers, ads, and much more—all were delivered up by the same technique.

Warhol’s reliance on the silkscreen’s inherent drama is a good example of an artist turning his liabilities into
an asset. His paintings are, by design, all surface, the image as thin as the layer of ink used to conjure them.
They couldn’t be simpler, or, in a way, more humble. Despite, or because of, these limitations, his work from
the 1960s turns out to be among the most durable painting of the last sixty years.

For decades, Warhol’s paintings were first-class décor, a term that is in no way derogatory; apart from the
image, they have gridded rhythm and great scale and often feature surprising, even sizzling color. They can be
absorbing, but in a way that differs from earlier paintings. They can make any room look smart and chic, but
you wouldn’t want to hang one next to a De Kooning. At the right size they have the unarguable, declarative
quality we associate with major art. Sometimes their presentational decisiveness is the very thing that stops
them short. (Is that all there is?)

At their best, Warhol’s paintings connect us to a state of contemporaneity, of hipness and glamour, of being in
the right place at the right time, and to a feeling of mild transgression. When you’re not in the mood to feel
those things, they can strike you as manipulative, as trying too hard, or, conversely, not trying hard enough.
The curator Henry Geldzahler liked to tell a story about visiting Warhol’s studio in the 1960s and observing
about a painting that Andy had “left the art out,” to which Andy, droll as ever, replied, “I knew I forgot
something.” Humor aside, there was something about Warhol’s working method that made the art component
conditional. The art had arrived as if by magic, and it left open the possibility that it could just slip away
without anyone noticing.

Two rooms after the golden shoes, the exhibition gives us a sampling of the Death and Disaster series on
which Warhol’s reputation largely rests, and which would occupy him through the amphetamine-fueled years
that ended with his near-fatal shooting in 1968. These include the stellar 1963 silkscreen painting Suicide (Fallen Body), which looks like it was made from a police photograph but was in fact from a picture published in Life. With its sixteen frames, it has the implied motion of a sequence by Muybridge, with the stuttering repetitions of the image in a grid, black over silver, creating a kind of image-foam that coats the painting’s surface in inky, iridescent waves.

In those frames we see a young woman, elegantly dressed in a dark skirt suit and white blouse, reclining on what appears, improbably, to be the hood of a car. We are looking from the top of her head, up over her body to her crossed legs, where we notice that one foot is bare. At first, the woman appears to be resting, reaching to touch a string of pearls. Her dark hair is still tastefully swept up from her unblemished forehead. There is, however, something not quite right about her pose.

Warhol’s paintings present the glamour of celebrity on a continuum with nightmarish American imagery: grisly car crashes, electric chairs, race riots. The flashbulb equally illuminated all. His work suggests that they were in fact inextricably linked. Warhol cultivated a radical openness to this world of images, as well as the states of mind and of being that the photographs capture. This openness extends to the Race Riot paintings from 1963–1964, which, along with the suicides and other disasters from around the same time, reveal Warhol to be a trenchant social critic. His Race Riot pictures are still shocking in their casual brutality. They don’t condescend to the audience, and more than any others from that time, they bring the reality of the streets into the museum.

Feelings of outrage and shame still emanate from Mustard Race Riot (1963), a syncopated, stacked grid of three views, made from press photos, of a stylishly turned-out black man being set upon by a police dog. The painting, in freezing the action forever, is both witness and judge: that man with his straw trilby and that cop and that dog enacting their aggrieved appointment with fate. This still strikes me as radical for an artist who consistently courted commercial success. It’s as if Jeff Koons, while turning out balloon animals and other odes to childhood, also made highly refined stainless steel sculptures of unarmed young black men being shot by police. That is something we are not likely to see.

If Warhol had made nothing more than the Race Riot and the Death and Disaster pictures, he would still be a major figure in the history of pictorial art, but there was so much more to come. He was a disciplined artist, and the list of his painted images is long: the car crash and suicide pictures; the electric chairs; Marilyn, Elvis, Brando, and all the other stars and celebrities; the flowers; the large Maos; the skulls; the hammer-and-sickle pictures; the excellent Shadow paintings and the ads—subject matter was never Warhol’s problem. However, his method didn’t evolve much, and as the work continues through the 1970s and 1980s a sameness creeps into it.

Like every artist, Warhol had highs and lows, periods of sustained creativity and longer periods of treading water, waiting for inspiration to strike. Or perhaps his attention was simply elsewhere—he was involved in many non-painting projects at any given time. It’s also possible that he came up against the limits inherent in his technique; the silkscreen translated everything the same way. It was mechanical, after all, which can cut both ways. The unwelcome but undeniable impression made by the Whitney show is that after the 1970s, some of the light goes out of his painting.

Still, innovation continued until the end. In the early 1970s Warhol gave freer rein to his more painterly impulse in the colored grounds underneath the silkscreen images. His paintings of the 1970s take on a more nuanced polychrome palette and more active, vigorous brushwork. I used to think the large portraits of Mao (who was still very much alive in 1972, when Warhol began painting them), with their large blocks of color and brushwork that underlie and surround the Chairman’s countenance, were some of the best things that Warhol made. You feel him putting to work everything he knows about painting and, with their scale and stateliness, they are impressive in their combination of what the paint is doing along with the pattern of lights.
and darks of the silkscreen image itself. The energy of the wet-into-wet painting, alternately contained within the image and set free from it, works in frothy counterpoint to the filigree of tiny black dots that magically reconstitute the face of Mao.

There is one Mao portrait in the Whitney show, but unfortunately it is not completely successful. At fifteen feet tall, it bridges the gaps between Abstract Expressionism, Pop irony, things-as-they-are facticity, and a technologically enhanced image: the attitude that would come to be called postmodern. But the integration of the brushstrokes with the image is not particularly acute; their scale is too small and fussy to act as a counterweight to the Chairman.

Starting sometime in the 1970s, Warhol introduced another of his pictorial inventions. He began using a new kind of line, one made by tracing around projected images with a brush. The brush follows the contour as well as the interior shapes of an image—say, a face or the facets of a perfume bottle. Lightly loaded with black acrylic paint, it very quickly starts to go dry, producing a skipping kind of brush mark, called “dry-brush,” an update of his original blotted line drawings of the 1950s. First used as an overdrawn line on top of silkscreen images, almost like a second view of the same image, Warhol eventually allowed the brushed line to stand on its own, and finally, at the very end of his life, jettisoned the silkscreen altogether.
The way that he traced a logo, or signage, or a version of Da Vinci’s Last Supper, or an image of Judy or Liza, was as distinctive as the silkscreen, while also achieving a more artisanal, audience-friendly, even jaunty and upbeat result. The casual-seeming brushed, traced line breathed new life into his work and made his images feel as immediate in their way as the silkscreens had felt in the 1960s. Some of the best examples appear in the Last Supper series, which were among the last things Warhol painted, though the one in the Whitney show obscures the dry-brush effect by fusing it with yet another later innovation, an all-over pattern of camouflage color.

There were other developments in the 1980s, most importantly a group of paintings made with Jean-Michel Basquiat. Warhol and Basquiat were friends, they shared a taste for nightlife, and they also shared a dealer, Bruno Bischofberger, whose Zurich gallery was a kind of Warhol outpost and who I believe suggested the collaboration. Although dismissed at the time as a market stunt, the paintings today look vitally alive. The artists’ respective strengths are emphasized, their weaknesses shored up. Basquiat gave Warhol’s work spontaneity, polyphony, and skeins of jumpy marks full of personality; Warhol gave Basquiat structure and mainstream Americana.

Two of their collaborations, Paramount from 1984–1985, and Third Eye from 1985, are in the Whitney exhibition, and they are by far the most energized paintings in the final galleries. Paramount is more Basquiat than Warhol; the Pop master’s contribution is a red-on-white rendition of the Paramount Studios logo, which covers roughly half the canvas. Over this, the younger artist has brushed in areas of green, salmon pink, and cadmium yellow medium—tautly calibrated colors that are overlaid and interwoven with oil-stick drawings of heads, building façades, columns of numbers, rocket ships, and the names of raw materials like sugar, iron, and lead. The whole composition is jumpy, wildly unstable; shapes and marks and images are all swimming in the same turbulent waters, along with the artists themselves.

Artists’ reputations are always being adjusted. Time plus distance lessens the sense of urgency for artists of a younger generation. For the majority of art professionals today, Warhol’s position as an avant-garde colossus is unshakable. And much of the work of the last forty years—that of the “Pictures Generation” in particular, not to mention the art world’s ongoing appetite for painting moguls—would probably have been very different without his example. Perhaps because his legacy has entered visual culture in such a broad and commercial way, many young artists have broken free from his orbit. I have heard from some young painters just how little the whole Warhol phenomenon concerns them. One told me that for her, the Triple Elvis painting in the show, which for collectors would be a diamond as big as the Ritz, is “like wrapping paper,” that is to say, one step down from wallpaper.

Few opinions I’ve heard have been as dismissive, and it’s not a question of right or wrong; the point is simply that all artists are subject to the vagaries of fashion. Warhol’s good early pictures are very good indeed, their originality and pictorial power still stun, but they are no more transcendent of the time in which they were made than is most other art. The later work especially is time-specific, and not always as substantial as one had remembered; it didn’t help that Warhol’s career was cut short. It’s easy to imagine another great flowering—or several—had he been granted more time. Walking through the show, especially as one gets to the later rooms with the last ten or fifteen years of work, one finds that Warhol’s style begins to seem not so much a revolution in pictorial form as simply one artist’s answer to the question of how to paint an image.

So much of Warhol’s art was aimed at capturing a moment of social truth, be it beauty, glamour, camp, or power, in the guise of a portrait, and his assiduously cultivated portrait business partly financed his many other activities. Of the many hundreds of portraits Warhol painted over the years, special attention, even love, seems to have been given to his dealers and fellow artists: Irving Blum, Henry Geldzahler, Leo Castelli, Roy Lichtenstein, and Man Ray. In these and other portraits, Warhol shows all the sensitivity and psychological insight of a traditional portraitist. Eighty-four of the portraits are featured in a separate room of the exhibition,
and it’s fun to point out the faces one recognizes, some of them friends or well-known social figures from another era: Look how young!

There is a knot of pathos in the portraitist’s art: the sitter will never again appear as youthful, as glamorous, as desired as now. This eternal present also comes with the knowledge that it has already slipped into the past. Even Warhol’s portraits of buildings, of symbols like the hammer and sickle, the children’s toys, the perfume bottles, and of course the skulls, are memento mori. In all of these paintings and drawings, Warhol is making a connection to his beloved nineteenth-century folk art, to the theorem stencils of flowers and the embroidery sampler with its common motto: When this you see/think on me.

https://www.nybooks.com/articles/2019/02/21/andy-warhol-star-silken-screen/
A chemistry is performed

Deborah Friedell

- BUY Bad Blood: Secrets and Lies in a Silicon Valley Startup by John Carreyrou

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Elizabeth Holmes in 2015

Elizabeth Holmes was said to be the ‘youngest self-made female billionaire’ of all time. And why not? Her invention was going to be the reason people – Americans first, but eventually everyone in the world – would lead better, healthier, longer lives. Why shouldn’t she have a private jet, a private chef, a team of bodyguards who would say into their mouthpieces: ‘Eagle One is on the move’? She would tell her investors: ‘We’re in a market for people who don’t like having a needle stuck in their arm.’ That is: her market was everyone who isn’t a masochist. She would say that doctors make treatment decisions based on blood tests – that’s inescapable. But what if you could get accurate results from just a few drops of blood – a prick of a fingertip – rather than a full vial from a vein in the arm? And while we’re at it, wouldn’t it be better if pathologists were
able to use the same blood sample to test for hundreds of different conditions simultaneously? Diabetes, sexually transmitted diseases, Lyme disease, heart disease, cancer – all would be detected in their infancies. People should be able to get their blood analysed all the time, like going to Starbucks. ‘We see a world in which no one ever has to say: “If only I’d known sooner.” A world in which no one ever has to say goodbye too soon.’ She would warn anyone who wanted to invest in her company that the established laboratory diagnostics companies, Quest and LabCorp, with their thousands of employees and billions in profits, would probably stop at nothing to prevent a Silicon Valley startup from threatening their businesses. This made her secretive, even paranoid, but then ‘only the paranoid survive,’ she’d say, quoting the president of Intel, who’d liked the saying so much he used it as the title of his memoirs.

She had been only 19 when she dropped out of Stanford, in 2004, to create the company that would become Theranos (‘therapy’ plus ‘diagnosis’), but her mentor, Channing Robertson, the emeritus chair of Stanford’s chemical engineering department, said that she ‘had somehow been able to take and synthesise pieces of science and engineering and technology in ways that I had never thought of’. He had never encountered a student like her, and he’d known thousands. ‘When I finally connected with what Elizabeth fundamentally is, I realised that I could have just as well been looking into the eyes of a Steve Jobs or a Bill Gates.’ Her family wasn’t well connected, but one of her childhood friends was the daughter of Tim Draper, the venture capitalist currently in the news for his vast holdings in bitcoin, and for spending millions of dollars in an attempt to split California into three states. Holmes had gone to him with an idea ‘for an arm patch that would simultaneously diagnose medical conditions and treat them’ – a notion that led to a blood-testing system she referred to as the ‘iPod of healthcare’. Draper staked it for a million dollars, and introduced her to his wealthy friends. The Waltons of Walmart invested early in Theranos, as did the Mexican telecoms billionaire Carlos Slim, and Betsy DeVos, the first secretary of education to own multiple mega yachts. Rupert Murdoch went in for $125 million, and Theranos grew to eight hundred employees, with headquarters in the right part of Palo Alto, on land owned by Stanford. Until they were ready to go public, Holmes ruled that Theranos was to operate in ‘stealth mode’: no published papers open to peer review, no demonstrations to anyone who hadn’t signed a non-disclosure agreement. All visitors had to be accompanied at all times, even to the loo. Holmes’s corner office – modelled on the Oval Office, and with the same arrangement of desks, sofas and armchairs – had windows made from bulletproof glass.

To reporters, to investors, Holmes would say that her technological breakthroughs were a ‘trade secret’, like the recipe for Coca-Cola. And she formed a corporate board ready to go to war with Quest and LabCorp: Henry Kissinger; Sam Nunn, who had served as chairman of the Senate Armed Services Committee; George Shultz, the former secretary of state, one of the begetters of the Bush doctrine of pre-emptive war; William Perry, the former US secretary of defence; James Mattis, Trump’s future first secretary of defence, who thought that Theranos blood tests would be a ‘game changer’ in battlefield medicine. Naturally, all those men would be useful when it came to winning defence contracts. Fortune put her on its cover (‘This CEO Is Out for Blood’), her eyes bigger and bluer than in life, very pretty and terribly young, and so did Forbes (‘The Freshman’). She was a role model now, proof that women could rise to the top in Silicon Valley, though they might have to be the right kind of woman, a woman like her. Her voice was preternaturally deep – she had trained herself to sound like a man – and she was strict about only wearing trousers and black turtlenecks, like Steve Jobs, though she made an exception for dinners at the White House.

After ten years in ‘stealth mode’, Holmes started allowing reporters to see some of the company’s tiny blood analysers, which they called ‘Edisons’. Fortune envisioned ‘one day placing Holmes’s labs right by the operating rooms in hospitals or in military evacuation helicopters or on ships and submarines or in refugee camps or in tents in the African bush’. They would, it was hoped, charge ‘a quarter to a tenth’ of the amount
asked by hospital labs, ‘with still greater savings for expensive procedures’. It was the price saving that interested Fortune most. No country comes close to spending as much money on healthcare as the US – on average $10,739 per person each year, about three times the UK figure. A recent Johns Hopkins study found that this isn’t because Americans get more medical treatment, or better care, than people in other developed countries – they just pay more. This year, for the first time, American hospitals have been required to display price lists for all procedures, in theory to help patients save money by allowing them to shop around, but the information remains hard to come by. (The New York Times reported that the ‘data, posted online in spreadsheets for thousands of procedures, is incomprehensible and unusable’.) Theranos was doing something radical: circumventing hospital billing departments by selling lab tests directly to patients, at fixed prices that were clearly stated in advance.

In 2015, Theranos persuaded the Arizona state legislature to drop a law that required a doctor to order lab work. ‘This is a great day for Arizona and the future of healthcare in our state,’ the governor announced. By ‘lessening the burdensome regulations that hinder success’ Arizona was acting as a ‘model for the nation’. TV commercials directed by Errol Morris introduced the company to Arizonans: cheap, fast, no surprise bills. And, of course, no big needles: ‘Breakthrough advancements have made it possible to quickly process the full range of laboratory tests from a few drops of blood.’ Forty Theranos ‘Wellness Centres’ opened in Phoenix inside Walgreens pharmacies; Safeway spent $350 million on putting Theranos clinics in its supermarkets. Partnerships with drug companies, research institutes and health insurance providers were in the works. The goal was to perform a million blood tests in 2015, with Theranos devices ‘within five miles of every American’. The advertising agency Chiat/Day, which had made the ‘1984’ commercial for Apple to mark the emergence of the Macintosh, was put on a $6 million annual retainer to create Theranos’s campaign: ‘One tiny drop changes everything.’

An advertisement for Theranos
In December 2014, in a New Yorker article with the subtitle ‘one woman’s drive to upend medical testing’, Ken Auletta wrote about the ‘austere life’ of Elizabeth Holmes, who ‘could quote Jane Austen by heart’, but ‘no longer devotes time to novels or friends, doesn’t date, doesn’t own a television, and hasn’t taken a vacation in ten years’.

Even her board worried that she was working too hard. Henry Kissinger had ‘tried, without success, to fix her up on dates’. She told Auletta: ‘I would much rather live a life of purpose than one in which I might have other things but not that.’ He had his blood taken in a Theranos Wellness Centre, and it was just as promised: he felt no more than ‘a slight pinch’ as a phlebotomist took two drops. But as for how it all worked, Holmes would only say that ‘a chemistry is performed so that a chemical reaction occurs and generates a signal from the chemical interaction with the sample, which is translated into a result, which is then reviewed by certified laboratory personnel.’ Quite.

When Auletta’s article, ‘Blood, Simple’, was published, Holmes had just turned thirty. Another article in the same issue of the New Yorker was about the millennials who were getting rich by filming themselves playing video games. The ‘biggest star’ was a ‘Swedish gamer who goes by PewDiePie and live-snarks as he battles mutants or navigates the virtual reality of Dinotown. “Oh, God, now he’s eating my beautiful face!” he cries, on meeting a Carnotaurus. “I bet I was delicious!” PewDiePie has 32 million subscribers and earns $4 million a year.’ Auletta’s Holmes stood as a rebuke: here was a woman the same age who was also rich and becoming famous, but for the best of reasons. These other millennials – frenetic, sexist (‘Most of what’s popular is how dumb girls are’), inexplicably self-regarding – seemed to resemble her less than they did the man who, that month, would announce that he was ‘seriously considering’ running for president. To root for her seemed like picking a side.

Adam Clapper, a pathologist in Columbia, Missouri, read the New Yorker article, and – instead of bemoaning his own life choices, or pulverising ‘cucumber, parsley, kale, spinach, romaine lettuce and celery’ to make what Holmes had told Auletta was her favourite green juice – called John Carreyrou, an investigative reporter at the Wall Street Journal. Clapper thought the whole thing was preposterous. Had no one demanded proof that Holmes’s blood analyser actually worked? Silicon Valley adores its techie university dropouts – Jobs, Gates, Zuckerberg – but had anyone in the modern era ever made a breakthrough in medicine without actually having studied something? And just because Theranos centres were in Walgreens didn’t mean that any government agency had ever tested them: Auletta made it clear that the ‘labs are effectively left to police themselves.’ The grandees on her board were well equipped to plan the invasion of Liechtenstein, but none of them knew anything about blood science.

Channing Robertson, the Stanford professor who might have been able to put the kibosh on the whole enterprise, would later tell the New York Times that mentoring Holmes had been like ‘teaching Einstein’ – but it was unclear how closely he had ever actually worked with her. The company also paid him $500,000 a year as a ‘consultant’. Clapper had published a short, sceptical post on his blog (‘Pathology Blawg [sic]’, now defunct), and was receiving emails from people he thought Carreyrou should interview. Clapper had been Carreyrou’s source for a previous article: he called Carreyrou because he trusted him, and because he knew that going after Theranos might well require the resources of (as it happened) Rupert Murdoch’s Wall Street Journal.

*
Carreyrou’s book tells the story of Theranos and of how he painstakingly took it down, which means that it’s the story of how he painstakingly found sources, and painstakingly persuaded them to talk to him on the record. One of them was Rochelle Gibbons. Her husband, an English biochemist in his mid-sixties, had been the ‘first experienced scientist Elizabeth had hired after launching Theranos’. Gibbons told Carreyrou that a non-disclosure agreement had forbidden her husband to discuss his work with her, but shortly before his suicide, he had told her that ‘nothing was working.’ She thought that whatever was happening at Theranos was the reason he’d killed himself. Another man, a former Theranos lab director, would agree to be quoted in Carreyrou’s stories only under a pseudonym. ‘Alan Beam’ said that the company had been running most of its blood samples through the standard large commercial analysers made by the German conglomerate Siemens. Theranos had to dilute their tiny samples so that they could run through the machines, but the dilution process changed their composition – the results couldn’t be trusted.

Holmes’s device, the Edison, could only run a few tests, and its ‘results were no better than guesswork’. When employees ran their own blood through it, 20 per cent of them tested positive for syphilis. An engineer said that they kept trying to improve the Edison, but it was ‘like trying to build a bus while you’re driving the bus. Someone is going to get killed.’ There was no point in complaining to Holmes, who would say: ‘If anyone here believes you are not working on the best things humans have ever built, or if you’re cynical, then you should leave.’ When she sought investors, she avoided the biotech venture capital firms that would have demanded due diligence in favour of the charmable global rich.

When she led a prospective investor through the lab, one scientist mumbled: ‘Someone is about to lose their inheritance.’ It also wasn’t true that she was ascetic. She lived with her boyfriend, the company’s chief operating officer and second in command, who was in charge of security. He put Carreyrou’s sources under surveillance (they noticed they were being followed) and had them threatened with litigation; one biochemist spent $400,000 on legal fees after he was accused of violating his confidentiality agreement. The scientists who stayed at Theranos longest tended to be Indians on work visas: if they quit, they could be deported.

In the end, more than sixty people who’d worked for Theranos talked to Carreyrou, on and off the record. He was never able to get an interview with Holmes, but in 2015 she visited the NewsCorp building in Manhattan, where the Wall Street Journal and Murdoch both keep offices, and asked Murdoch to end the investigation. The Dirty Digger ‘declined to intervene’. After Carreyrou published his first article about the company a few months later, Holmes appeared on television, serene, unflappable, only slightly resentful that she had to waste her time to address what was obviously nonsense. ‘This is what happens when you work to change things. First they think you’re crazy, then they fight you, and then all of a sudden you change the world.’ She went quiet after she was arrested for fraud.

She is now awaiting trial. Theranos went under, and Murdoch took a very big tax write-off. There’s no point in anyone suing Holmes – she was only a billionaire in Theranos stock – but a class-action suit against Walgreens is pending, brought by customers who say that because of their test results they underwent medical procedures they didn’t need, or were taken off medication they did need; one plaintiff says he had a preventable heart attack after being tested at a Wellness Centre for heart disease and told he had nothing to worry about. Walgreens executives had feared that if they hesitated to go into partnership with Theranos, they would lose out to their rivals.

Nothing that Carreyrou has uncovered about Holmes’s life before Theranos suggests that she had the makings of a world-class scam artist. The best he can come up with is that, as a child, she was too competitive at Monopoly: ‘When she occasionally lost, she stormed off in a fury.’ She told Auletta that she had kept ‘a
notebook with a complete design for a time machine that I designed when I must have been, like, seven. The wonderful thing about the way I was raised is that no one ever told me that I couldn’t do those things.’ The old anecdotes, meant to tell one kind of story, now coldly service a different one. She thought she could do anything.

‘I think the minute that you have a backup plan, you’ve admitted that you’re not going to succeed.’ She figured that once she got the Edison to work, her lies wouldn’t matter; she’d probably win the Nobel Prize. On her desk, the one custom-designed to look like the president’s, she kept a paperweight that said: ‘What would you attempt to do if you knew you could not fail?’

She gave copies of Paulo Coelho’s novel The Alchemist to her employees, because it had taught her that ‘when you really want something, all the universe conspires in helping you to achieve it.’ Bad Blood wasn’t written to be a parable for our current moment, but it may as well have been.

https://www.lrb.co.uk/v41/n03/deborah-friedell/a-chemistry-is-performed
The Fake Threat of Jewish Communism

Christopher R. Browning

FEBRUARY 21, 2019 ISSUE

A Specter Haunting Europe: The Myth of Judeo-Bolshevism

by Paul Hanebrink

Belknap Press/Harvard University Press, 353 pp., $29.95
'Behind the Enemy Powers: The Jew'; a poster created by the Reich Propaganda Administration and displayed in the Grand Anti-Masonic Exhibition in Nazi-occupied Belgrade, which focused on the alleged Jewish-Communist-Masonic conspiracy to achieve world domination, 1941

One of the great merits of Paul Hanebrink’s A Specter Haunting Europe is its demonstration of how Europe’s most pervasive and powerful twentieth-century manifestation of anti-Semitic thought—the myth of Judeo-Bolshevism—emerged before the rise of National Socialism and has continued to have a curious life long after the Holocaust and the defeat of Nazi Germany. Hanebrink’s approach is not to repeat what he considers an error of the interwar era—the futile attempt to refute a myth on the basis of historical facts and statistical data. A small kernel of truth underpinned the stereotype of the Jewish Bolshevik: a number of well-known early Bolshevik leaders (Béla Kun, Leon Trotsky, Karl Radek, and others) were of Jewish origin. That Stalin killed almost all of them, that overall a very small percentage of Jews were Bolsheviks, and that many prominent non-Jewish revolutionaries (Lenin and Karl Liebknecht, for example) were mistakenly identified as Jewish had no countervailing impact, because, Hanebrink writes, the Jew as “the face of the revolution” was a “culturally constructed” perception.

Trying to discredit powerful political myths with mere facts, as we know all too well today, is a frustrating endeavor. Thus Hanebrink seeks instead to understand the historical background and the “cultural logic” of the myth of Judeo-Bolshevism—how it functioned and morphed through different phases. Ultimately Judeo-Bolshevism embodied, in the form of “Asiatic barbarism,” an imagined threat to national sovereignty, ethnic homogeneity, and Western civilization conceived as traditional European Christian hegemony. It fused, in short, political, racial, and cultural threats into a single “s specter haunting Europe.”

Hanebrink notes that amid the exhaustion, defeat, and political dissolution of many European countries at the end of World War I, the threat of the spread of Bolshevik revolution from Russia into Europe caused not only widespread fear and loathing but fear and loathing that identified Jews as the real cause of Bolshevism. He is correct, I think, to point out that this pervasive identification required more than the prominence of Jewish revolutionary leaders, and that Judeo-Bolshevism was constructed from the “raw materials” of earlier anti-Semitism. For Hanebrink the “three venerable pillars” of anti-Jewish thought were the attributions to the Jews of social disharmony, conspiracy, and fanaticism, which made Judeo-Bolshevism both a coherent idea and a ubiquitous, self-evident assumption.

Here I think that Hanebrink could have been more concrete; in particular he could have shown how easily the negative stereotype of the Jew that had originated in the Middle Ages could be updated for the twentieth century. Even before the crisis of 1918–1919, which combined the experiences of defeat and revolution for many Europeans, Jews were invariably disproportionately represented in liberal and socialist parties because they were not welcome to participate in conservative and Catholic political parties. The tendency to stigmatize anything to the left of conservative as Jewish was already evident in 1912, when the electoral victory in Germany of the liberal democrats, Social Democrats, and Catholics—who also made up the “Weimar Coalition” of 1919 that was largely responsible for drafting the Weimar Constitution, so despised by German conservatives—was dubbed the “Jew election.”

The Jew of the Middle Ages, an infidel, became the Jew of the twentieth century, a political subversive. With emancipated Jews being the most visible beneficiaries of the modern commercial and industrial economy by the end of the nineteenth century, the medieval epithet of Jewish usury had already been replaced with that of rapacious Jewish capitalism, and after 1914 the image of the Jew as an economic threat was only intensified by accusations of Jewish war profiteering and black marketeering. The Jew as a clannish outsider in medieval Christendom was easily transformed into the Jew as an unassimilable minority and alien internal threat, at a time when other European nationalities were striving to construct new nation-states out of the ruins of multiethnic empires.
As a result of the postwar flood of refugees and the return of prisoners of war (like Béla Kun) from a Russia wracked by revolution and civil war, the “wandering” Jews among this mass of dislocated people were easily seen as an invading horde and source of revolutionary contagion. With the Bolsheviks in Russia preaching the primacy of international revolution over loyalty to one’s own nation-state and threatening social revolution and nationalization of property, the basis for the “cultural construction” of Judeo-Bolshevism, Hanebrink argues, was all too readily available. In April 1919 Eugenio Pacelli, the papal nuncio in Munich (and future Pope Pius XII), reported to the Vatican that the communist-led Bavarian Soviet (which existed for less than a month before it was crushed by the counterrevolutionary Freikorps) was composed entirely of Jews. One of its leaders, Max Levien, was described as “also a Russian and a Jew,” “dirty,” “vulgar,” “repulsive,” and “sly.” Levien was in fact a Russian émigré to Germany, a four-year veteran of the German army, and a non-Jew. This did not, as Hanebrink observes, signify an exceptionally anti-Semitic disposition on the part of Pacelli but simply reflected the “utterly typical” consensus of virtually all European conservatives at that time.

From the beginning of World War I, tsarist Russia had treated its Jewish subjects as unreliable and potentially disloyal. Its military forcibly displaced some 500,000 to one million Jews from combat zones. The very approach of the Russian army thus also instigated the flight of many other Jews from the eastern regions of the Austro-Hungarian Empire to the presumed safety of cities like Vienna and Budapest. The Russian Revolution erupted amid already existing fears about Jewish loyalty and floods of displaced Jews, and intensified those fears. The “panic” over Judeo-Bolshevism, Hanebrink argues, “flourished in ground that had been prepared by wartime paranoia about Jewish loyalty.” In what Hanebrink calls the “long World War I” in Eastern Europe, including the Russian civil war, the Soviet-Polish war, and the Romanian ouster of the Béla Kun regime and Miklós Horthy’s subsequent White Terror in Hungary, “sovereignty panic” intensified the catastrophic consequences for Jews, particularly in Poland, Hungary, Romania, and Ukraine.

Atrocities against Jews led to Jewish appeals to the Allies and the subsequent imposition of minority rights treaties on Eastern European nations. In a vicious circle, these regimes in turn resented Jews as the cause of this infringement on their sovereignty, which they saw as further evidence of Jewish disloyalty. They insisted even more vehemently on the Judeo-Bolshevik connection to justify their past mistreatment of Jews and successfully exploited the Allies’ desire for a cordon sanitaire in Eastern Europe to prevent the further spread of Bolshevism. For instance, the Polish army received crucial military aid to help it resist the Soviet invasion of 1920 even as it interned many of its own Jewish soldiers. All of this, it must be emphasized, took place before history’s most notorious purveyor and champion of the myth of Judeo-Bolshevism had emerged from obscurity on the streets of Munich.

Adolf Hitler combined his belief in that myth with a race-based theory of history and a vision of German Lebensraum in the East, which culminated in his war of territorial conquest, ideological crusade against Bolshevism, and campaign of genocide against Jews. As Hanebrink notes, adherents of the Judeo-Bolshevik myth now had to reconcile themselves with Hitlerian and German hegemony. They did so in different ways. Hungary allied with Germany for territorial gain (Hitler’s return of northern Transylvania), sent troops to the Eastern Front, intensified its discrimination against its Jewish population, and expelled foreign Jews to the killing fields of Ukraine, but did not surrender its own Jews to the Final Solution until the German overthrow of the Hungarian government in March 1944. Romania not only fought alongside Germany and gained territories to the east but directly killed more Jews (over 300,000) than any other of Hitler’s allies, stopping only when its leaders sensed that German victory was no longer inevitable.

For Poles the situation was much more complicated. Having turned down Hitler’s offer before the war of a junior partnership based on shifting Poland’s borders eastward, they were partitioned by Germany and the Soviet Union. However, the experience of both Polish and Jewish victimization under the Nazi occupation did not alter predominant Polish views about their Jewish neighbors. The flight of many Jews from western to
eastern Poland, the obvious relief of Jews in eastern Poland that they had been occupied by Stalin rather than Hitler, and ultimately the desperate hope of Polish Jews for rescue and liberation by the Red Army only confirmed for many Poles their belief in Judeo-Bolshevism.

Within Germany the myth of Judeo-Bolshevism was crucial for cementing the complicity of the military in Hitler’s “war of annihilation” against the Soviet Union, portrayed as a “preventive defense” of German and Western civilization. The myth also played “a crucial role in the origins of the Final Solution.” Hanebrink cites the notorious order of General Walter von Reichenau, the commander of the Sixth Army on the southern front, less than two weeks after the Babi Yar massacre in Ukraine in 1941: “The fundamental goal of the campaign against the Jewish-Bolshevik system is the total defeat of its means of power and the extermination of the Asiatic influence in the European sphere of culture.” Thus the “hard but just punishment” meted out to “Jewish subhumans” was necessary “to free the German Volk from the Asiatic-Jewish danger once and for all.”

British Library
‘Trotsky gets kicked out of Kuban’; a poster created for the anti-Bolshevik White forces during the Russian civil war, 1919

Reichenau’s order did not simply reflect the unhinged rantings of one ideologically zealous Nazi general, and Hanebrink could have offered far more evidence of the impact of the Judeo-Bolshevik myth on German military thought and behavior, if this had been the main point of his book. For instance, further north, sixty-one German army officers were invited to meet with top SS officers (including Arthur Nebe, commander of Einsatzgruppe B, and Higher SS and Police Leader Erich von dem Bach-Zelewski) in Mogilev on September 24–26, 1941, for orientation on the partisan threat. The gist of the presentations was the equation Jew=Bolshevik=partisan, accompanied by a demonstration killing of thirty-two Jews in a nearby village by members of Police Battalion 322. Subsequently, military units behind the central front were among the Wehrmacht’s most lethal killers of Jews. And the fatal linkage between Jews, Bolsheviks, and partisans was
most catastrophically demonstrated in Himmler’s December 29, 1942, report to Hitler on the results of the “anti-partisan campaign” for the preceding four-month period of August–November. It listed the killing of 1,337 “bandits” in battle, 737 immediately after battle, and 7,828 after interrogation. Furthermore, it listed the execution of 14,256 “accomplices and suspects” and finally 363,211 Jews.

The total defeat of Nazi Germany and exposure of its crimes did not entirely discredit the notion of Judeo-Bolshevism. One of the most fascinating aspects of Hanebrink’s book is his discussion of its strange post-1945 afterlife. In Western Europe, anti-communism, a term that increasingly supplanted “anti-Bolshevism” beginning in the 1930s, took a new direction, but in Eastern Europe the Judeo-Bolshevik myth continued to shape how local populations remembered the war and understood the Soviet imposition of Communist regimes.

The Allied occupation, the war crimes trials and denazification, but above all the division of Germany and the onset of the cold war led to the emergence in Western Europe of an anti-communism that was pro-democratic, pro-American, and not anti-Semitic. Underlying this transformation were two concepts. The first was that of totalitarianism, by which discredited and defeated fascism was equated with communism. The German churches in particular—previously highly nationalistic, authoritarian, and anti-Semitic, and thus all too often fellow travelers of the Nazi regime’s campaigns against liberalism, Marxism, and Jews—now portrayed themselves as resisters to and victims of that regime, which like the Soviet Union had manifested the evils of the secular, materialistic, ungodly state run amok. West Germany’s new self-image of Christian Democracy pitted against totalitarianism dovetailed with the second concept—the American notion of Judeo-Christian values as the basis of both democracy and Western civilization in its cold war opposition to godless communism. By embracing the cold war, assimilationist American Jews finally severed the old identification between Jews and Bolsheviks, but at the cost of giving priority to anti-communism over Holocaust memory. It was not until the late 1970s that the Holocaust began to obtain the position it currently holds in American consciousness.

In the countries of Eastern Europe occupied by the Red Army and subjected to communist regimes, a very different dynamic occurred. The populations of Poland, the Baltic states, Ukraine, Romania, and Hungary in particular continued to see what happened after 1945 through the lens of Judeo-Bolshevism. The installation of Communist Party rule was seen as bringing the Jews to power, and the trial and punishment of Nazi collaborators was seen as Jewish revenge, not justice.

Both Moscow and local Communists were eager to shed the stigma of identification with Jews. Most of the remaining Polish Jews, for instance, were allowed to leave the country after the Kielce pogrom in July 1946, so the regime would not have to protect them. Prominent Jewish Communists, like Rudolf Slánský and his colleagues in Prague, were tried and executed; Ana Pauker in Romania and the non-Jewish but philo-Semitic Paul Merker in East Germany were purged. Only Stalin’s timely death in 1953 prevented the “doctors’ plot” from exploding into anti-Jewish terror in the USSR. A communist anti-Semitism in the guise of anti-Zionism and anti-cosmopolitanism was employed both in intraparty rivalries (most famously by Władysław Gomułka in Poland in 1968) and as international propaganda. Public memory of the Holocaust was silenced.

In the 1970s and 1980s an emerging consciousness and memory of the Holocaust transformed it in the West into the paradigm of radical evil and the civics lesson that toleration, human rights, and respect for religious and racial difference were essential values of liberal democracy. The resulting “hegemony of Holocaust memory,” which eclipsed the concept of totalitarianism by giving primacy to the crimes of Hitler over those of Stalin and the suffering of Jews over that of the victims of Communism, was challenged from two directions. The German scholar Ernst Nolte tried to portray the horrors of Asiatic Bolshevism as the factor that elicited a rational defensive response in the form of National Socialism. The American historian Arno Mayer tried to portray communism as the primary target of Nazism, with the Holocaust (or “Judeocide,” as he
termed it) as a secondary aim—a byproduct. Both were dismissed as attempts to relativize or trivialize the Holocaust.

Post-1989 Eastern Europe took a different turn, however, with many countries resisting the “hegemony of Holocaust memory” as the ticket of admission into the Western European community of liberal democracies. In that memory, Jews were the quintessential innocent victims, while the populations of Eastern Europe, afflicted by anti-Semitism and the myth of Judeo-Bolshevism that they shared with the Nazis, had been accomplices and beneficiaries of the Holocaust. But in the memory of many Eastern Europeans, they were the innocent victims of the “double occupation” of Hitler and Stalin, while the not-so-innocent Jews had been the accomplices and beneficiaries of Communist rule.

In short, Judeo-Bolshevism had returned as an essential component of the memory wars, and the Holocaust scholarship and civics pedagogy of the West were seen as national defamation in countries like Poland, Hungary, Romania, and the Baltic States. The explosive impact in Poland of Jan Gross’s book Neighbors (2000), which documented the participation of Polish villagers in the massacre of the Jews in Jedwabne, the bitter public debate and discomfiting historical research by younger Polish scholars that followed, and the notorious 2018 law banning the attribution of Nazi crimes to the Polish nation illustrate this dynamic of reacting to Holocaust scholarship as national defamation.

In his conclusion Hanebrink argues that the myth of Judeo-Bolshevism is no longer a threat driving Europeans to panic, but rather has been relegated to the politics of contested memory. Unfortunately, I fear that the rantings and conspiracy theories disseminated by the likes of Viktor Orbán against George Soros and the allegedly Jewish forces of globalization, and the chants of “Jews will not replace us” by white supremacists in Charlottesville, demonstrate that anti-Semitism, even if not specifically in the form of Judeo-Bolshevism, still has traction. But Hanebrink is correct, I think, to argue that the myth of Judeo-Bolshevism has been supplanted by another perceived threat likewise constituted from a fusion of race, culture, religion, and political ideology. This is the “Islamization of the West,” embodied in the influx of Muslim immigrants who are considered dangerous, alien, disloyal, extremist, and unassimilable, and thus once again threaten the survival of national sovereignty, ethnic homogeneity, and Western civilization. In place of Judeo-Bolshevism, a new hybrid specter—“radical Islam” or “Islamic terror”—is haunting Europe.

https://www.nybooks.com/articles/2019/02/21/fake-threat-of-jewish-communism/
Short Cuts

Stephen Sedley

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If an employer has a policy or practice of never promoting black or female or Muslim employees, it doesn’t require much legal theory to recognise this as direct racial or sexual or religious discrimination. Nor does it require a great deal of sophistication to recognise that an employer who makes promotion dependent on a test – literacy perhaps – which is applied to all candidates but which a substantially higher proportion of native-born than immigrant employees can pass is indirectly discriminating against the latter. The critical legal difference between the two is that direct discrimination, once established, cannot in general be justified – though there are today two striking instances, age discrimination and disability discrimination, in which even direct discrimination may be justified. Indirect discrimination, by contrast, may always have a legitimate basis that outweighs its damaging effect. Industrial safety, for instance, or administrative competence may require an ascertainable level of literacy whatever its differential impact. Civil engineering will require certified training regardless of the fact that proportionately few women have this qualification.

The US Civil Rights Act of 1964, without formally recognising this distinction, forbade discrimination ‘because of’ a person’s race or sex. In 1971, in one of the US Supreme Court’s moments of greatness, an energy company which was methodically denying black workers employment or promotion by subjecting candidates to an unnecessary written test was held to have contravened the ban on race discrimination. In a celebrated passage, Chief Justice Burger likened indirect discrimination to Aesop’s fable of the fox and the stork, each of whom offered the other refreshment in a vessel from which it could not drink – a dish for the stork, a vase for the fox. But as Sandra Fredman points out in her contribution to Foundations of Indirect Discrimination Law (edited by Hugh Collins and Tarunabh Khaitan, Hart, £65), the US courts, employing the ‘because of’ formula, have always demanded proof of discriminatory intent, something easily denied and not always easily proved. UK law, though it builds (like EU law) on the American concept, has gone beyond intent and places an onus on providers of employment, services and the like to think ahead about the possible differential effects of their policies and practices, intended or not.

This can verge on the unknowable. A surprising group of cases which reached the UK Supreme Court in 2017 concerned a core skills assessment (CSA) test that Home Office staff were required to sit as a gateway to promotion and in which white candidates and candidates aged under 35 did more than twice as well as BME staff and those aged 35-plus. Nobody had any idea why; but the Supreme Court, setting aside the lower courts’ insistence on proof of the mechanism of discrimination, held that the law was being broken simply by virtue of the outcomes. Equality legislation, by requiring an outcome-oriented approach, deliberately puts certain explanatory postulates or assumptions – about age-related or race-related abilities, for instance – out of reach. Meanwhile, the justifiability of the CSA test, given its disparate impact, has been sent back for evaluation by a tribunal: no easy task, you might think, when nobody can explain the disparity.
Belinda Price was 35 when she decided her children were old enough for her to return to paid work. She applied to the civil service, where she had worked briefly as a teenager, and was told that no new entrants over the age of 28 were admitted. This was in 1975, the year the Sex Discrimination Act was passed, and the National Council for Civil Liberties took up the case. The act defined indirect discrimination as the detrimental application of any requirement or condition which could not be objectively justified and ‘which is such that the proportion of women who can comply with it is considerably smaller than the proportion of men who can comply with it’. ‘Can comply’, taken literally, is of course a high hurdle. At the newly established Employment Appeal Tribunal, the government’s counsel, Michael Howard, later home secretary, argued that, had she been prepared to make the necessary sacrifices or arrangements, any woman in Price’s situation could have returned to the labour market in her twenties and thereby met the age requirement.

It was well known that the minister piloting the act had been asked in debate about the possibility of this rigid interpretation and had assured Parliament that ‘can’ was intended to be applied realistically and not literally. In those years lawyers were forbidden to refer to Hansard in support of their arguments (they still are in all but the most intractable cases). But the union representing entry grade civil servants had sent along its head of research, who, when asked if he wanted to add anything to the arguments, produced a copy of Hansard. Howard shot to his feet: ‘You can’t look at that.’ ‘I know we can’t,’ the president of the tribunal said, ‘but I think we’re going to.’

You will not find any mention in the tribunal’s judgment of what had been said in Parliament, or therefore of the attempt to renege on it in court, but the tribunal handed down a landmark decision:

In one sense it can be said that any female applicant can comply with the condition. She is not obliged to marry, or to have children, or to mind children; she may find somebody to look after them, and as a last resort she may put them into care … Such a construction seems to us to be wholly out of sympathy with the spirit and intent of the Act … [Statistical evidence] demonstrates clearly that the economic activity of women with at least one A-level falls off markedly about the age of 22, reaching a bottom at about the age of 33 when it climbs gradually to a plateau at about 45.

It followed that if the civil service could not justify the age bar as reasonable and proportionate given its impact on women, the state was guilty of indirect discrimination.

A decade later Mr and Mrs James, both aged 61, went to a leisure centre in Hampshire for a swim and found that, while Mrs James could get in free, Mr James had to pay. Free admission was only for people of pensionable age, and eligibility for the state pension was set by law at 60 for women and 65 for men. Mr James’s sex discrimination claim reached the House of Lords, who were persuaded to hold, by three to two, that this apparently obvious case of indirect discrimination – applying an age criterion which, because it impacted far more heavily on men than on women, would be unlawful unless it could be objectively justified – was a case of direct discrimination to which justification was irrelevant.

They did this by adopting a ‘but for’ test: but for his sex Mr James would have got in free; but for her sex Mrs James would have had to pay. In other words, as Nicholas Bamforth’s essay in Foundations of Indirect Discrimination Law points out, pensionable age, which had been adopted by the council as an indicator of hardship, was treated by the judges as a proxy or surrogate for gender.
Subsequent court decisions have had to follow suit. While the pioneering QC Anthony Lester, provided for Mr James by the Equal Opportunities Commission, has always insisted that the finding of direct discrimination was the right one in principle, critics point out that it was only if the undoubted discrimination was recognised as indirect that the borough council would be permitted to justify it on grounds of relative economic hardship. Since that time, EU law has permitted direct age discrimination, for example in relation to enforced retirement, and UK law has accepted direct disability discrimination, provided in each case it can be objectively justified as a proportionate means to a legitimate end.

Five years before the Sex Discrimination Act was passed, the Equal Pay Act became law, with a five-year delay on its entry into effect, so that both acts came into force at the end of 1975. The shared purpose was to ban sex discrimination in both contractual and non-contractual relationships. But the Equal Pay Act on the face of it makes no allowance for group impact or proportionate hardship: it simply requires an individual woman’s pay to be compared with the pay of a man who does ‘like work’.

It is the courts that have assimilated the two concepts by requiring an employer who runs the statutory defence that the pay differential ‘is genuinely due to a material difference’ other than difference of sex to show that the difference is not itself directly or latently discriminatory. It is consequently in the field of equal pay that some of the most significant judicial decisions on indirect discrimination are to be found (see Equal Pay: Law and Practice by Daphne Romney, Oxford, £110).

In particular, cases under both statutes have had to develop the concept of the relevant pool from which comparisons can be drawn. In Belinda Price’s case, for example, to assess the impact of the civil service age bar on the entire adult female population would have been irrelequently diffuse, while to limit it to actual female candidates would have stifled meaningful comparison. Hence the employment appeal tribunal’s use of a pool limited to women with the required academic qualifications, but including those both above and below the age bar. But there’s no universal formula, despite optimistic expectations that one would emerge, and the courts have finally left it to the employment tribunals to find a pool which, depending on the specific issue, makes practical sense.

All of this is before we get to religious discrimination, which is forbidden in the UK in pretty well every public service except education. The Jewish Free School, entitled, as a fully subscribed state-supported faith school, to admit only Jewish pupils, refused admission to a boy whose mother, a convert from Catholicism to Judaism, did not meet the Orthodox rabbinical criteria for recognition as a Jew. The Supreme Court held by a majority that this was direct race discrimination, drawing a pointed distinction between the motive – without doubt religious – and the reason or ground for the decision, namely that in the view of the school the boy lacked Jewish ethnicity.

The school, said the president of the court, ‘discriminates in its admission requirements on the sole basis of genetic descent by the maternal line from a woman who is Jewish … I can see no escape from the conclusion that this is direct racial discrimination.’

Since the case has caused continued controversy, it is interesting to posit an equal and opposite scenario. Suppose the same boy’s parents apply to a Church of England or a Catholic school. The school has no problem with the mother’s conversion but refuses to admit the boy on the ground that a Jewish child cannot be expected to conform to the school’s Christian ethos. Would this – should this – be sufficient to answer a charge of direct discrimination on the ground of the boy’s ethnicity? Suppose, next, that the child’s family are
not Jews but Mormons, and the same reason is given. Is the discrimination now religious and therefore presumptively lawful?

For some reason it’s in the bespoke cake business that the issue of competing rights has reached prominence. The Christian bakers in Belfast who refused to put ‘Support gay marriage’ on a gay couple’s wedding cake went recently to the Supreme Court and won the argument (which they had twice comprehensively lost in the lower courts) that their refusal, even if it involved discrimination on political grounds, was a protected exercise of free speech – in this instance, the right not to say something. This right, as it happened, had been exercised not long before in South Carolina, where a bakery was asked to put on a student’s graduation cake, below a congratulatory message, the words ‘Magna cum Laude’. Readers are invited to guess which word the bakery refused to ice.

https://www.lrb.co.uk/v41/n03/stephen-sedley/short-cuts
Fool Britannia
Hari Kunzru

FEBRUARY 21, 2019 ISSUE

Heroic Failure: Brexit and the Politics of Pain

by Fintan O’Toole

London: Head of Zeus, 217 pp., £11.99 (paper)

Protestors outside Parliament on the day the House of Commons rejected Prime Minister Theresa May’s Brexit deal with the EU, January 15, 2019

From the ill-conceived Brexit referendum onward, Britain’s governing class has embarrassed itself. The Remain campaign was complacent, the Leave campaign brazenly mendacious, and as soon as the result was known, most of the loudest advocates for severing ties with the European Union ran away like naughty schoolboys whose cricket ball had smashed a greenhouse window. Negotiations have revealed the pitiful intellectual limitations of a succession of blustering cabinet ministers, the leader of Her Majesty’s Most Loyal Opposition doesn’t appear to want to oppose, and the prime minister has engineered her own humiliation by starting the countdown to Brexit without a plan that could command wide support, resulting in the heaviest parliamentary defeat in history. Despite breaches of campaign finance limits and lingering questions over the source of the Leave campaign’s financing, not to mention growing evidence tying it to the same web of
influence operations that promoted Trump’s candidacy, there is no equivalent to the Mueller inquiry to bolster public confidence that the organs of state are capable of warding off corruption.

Britain is a country under self-inflicted stress, gripped by fear of the unknown. Remainers and Leavers—two tribes that have taken on the mythic stature of Roundheads and Cavaliers in a second civil war—are clinging together like drowning swimmers, each side convinced that the other is provoking an epochal disaster, neither side understanding why the other won’t submit to its version of reason and allow itself to be guided back to the surface. As the deadline approaches and the clock runs down toward the “No Deal” outcome that was supposed to be unthinkable, the divided nation faces what is, by any standards, a major political crisis. However, as British people like to remind one another, we are supposedly at our best in a crisis.

On December 16, the former Brexit secretary Dominic Raab tweeted, “Remainers believe UK prosperity depends on its location, Brexiter believe UK prosperity depends on its character.” Faith in Brexit does indeed seem to correlate with belief in the existence of national character, an innate and invariant set of shared qualities that apparently includes an aptitude for governance. On December 30 an editorial in London’s Sunday Times spluttered:

After more than four decades in the EU we are in danger of persuading ourselves that we have forgotten how to run the country by ourselves. A people who within living memory governed a quarter of the world’s land area and a fifth of its population is surely capable of governing itself without Brussels.

The many unanticipated problems with Brexit are diagnosed by the Sunday Times writer as a loss of confidence, perhaps accompanied by a faulty memory—something happening not just to people but to “a people.” The implication of the indefinite article, with its baggage of Romantic Nationalism, is clear. Britons, as Rule Britannia triumphantly puts it, “never, never, never shall be slaves.” The underside of nostalgia for an imperial past is a horror of finding the tables turned. For the more unhinged Brexiteers, leaving the EU takes on the character of a victorious army coming home with its spoils. In December 2017 Edward Leigh, a rosy-faced Tory backbencher, suggested in the House of Commons that an important negotiating point should be that the British “take back control of our fair share of [the EU’s] art and wine and not leave it for Mr. Juncker to enjoy.”

The battle over Europe has been fought not over the technicalities of the “Irish backstop” (maintaining the open border between Northern Ireland and the Republic of Ireland), NHS funding, or traffic flow through Dover, let alone harmonized airline regulations or the trading benefits of a Canada-plus model (along the lines of the one Canada signed with the EU in 2016, following seven years of negotiation), but through Spitfires, Cornish pasties, singing “Jerusalem” on the last night of the Proms, and what the Irish historian and journalist Fintan O’Toole calls “the strange sense of imaginary oppression that underlies Brexit.” O’Toole’s Heroic Failure: Brexit and the Politics of Pain is an acid and entertaining examination of what he calls, after the scholar Raymond Williams, the “structure of feeling” that has made the project of leaving the European Union politically possible.

O’Toole knows England (and Brexit is primarily an affair of England, the English, and Englishness) as only a member of the former subject races can. He starts his book with an account of arriving in 1969 to live in London as an eleven-year-old Irish Catholic boy, explaining how his family’s experiences, good and bad, complicated the cartoonish opposition to Englishness that characterized popular Irish nationalism: “The English were scientific rationalists; so we Irish had to be the mystical dreamers of dreams. They were Anglo-Saxons; we were Celts….In other words, I know exactly what an either/or identity looks and feels like.” O’Toole has not come to gloat, though many others around the world are doing just that. He writes in the tone of a disappointed friend, perhaps one sitting in a front room with other friends and family, conducting an intervention.
One prong of O’Toole’s approach is psychological. He quotes Herbert Spencer on self-pity as a person’s pathological “dwelling on the contrast between his own worth as he estimates it and the treatment he has received.” This disparity is founded on an underlying narcissism: “One who contemplates his own affliction as undeserved necessarily contemplates his own merit…there is an idea of much withheld and a feeling of implied superiority to those who withhold it.” The other prong is historical. Starting from “the sheer exhilaration of being English for a young, white, privileged man during and after the war,” O’Toole tells the familiar story of an imperial decline that has gradually ratcheted up the tension between this “deep sense of grievance and a high sense of superiority.” As early as 1962, the travel writer James Morris lamented the passing of a “feeling of happy supremacy,” which meant that “frank pride of country has all but gone by the board, and patriotism is very nearly a dirty word.”

In Tinker Tailor Soldier Spy, one of a body of thrillers that are also among the most acute literary portrayals of the British establishment’s experience of postwar decline, John Le Carré’s hero, George Smiley, goes to see Connie Sachs, a motherly drunk who was once a secret service librarian and is now a repository of institutional secrets. “Poor Loves,” she says of George and his colleagues, her “boys.” “Trained to Empire, trained to rule the waves. All gone. All taken away. Bye-bye, world.” Many of those who took it away were, of course, foreigners, particularly those former colonial subjects who unaccountably agitated for decolonization. Their arrival “over here” was one of the most visible changes to postwar Britain, and as O’Toole points out, the rhetoric—“swamping,” being a stranger in one’s own country, strain on public services, and so on—that was once used to demonize new arrivals from the Commonwealth has been repurposed for use on EU migrants. O’Toole argues provocatively that the decline of what might be called traditional British racism made room for a new anti-Europeanism, as if there’s a fixed national quantum of xenophobia that must find an object if the United Kingdom is to maintain its integrity.

Though the Suez Crisis and imperial decline loom large in the imagination of Brexit, O’Toole writes that it’s “the war” that is “crucial in structuring English feeling about the European Union.” For half a century, English soccer fans have lamely taunted their more successful German counterparts by chanting that their country has won “two World Wars and one World Cup.” Since the 1960s, comic books with names like Commando, Warlord, and Battle Picture Weekly have kept World War II alive in the minds of British boys with violent stories of “daring bomber raids over Germany, through close-combat jungle fighting against hard-as-nails Japanese, and depth-charge blasted submarine warfare, to hard-hitting battles across North Africa, Italy and northern Europe.” The need for an enemy and the narrative of the plucky island nation resisting invasion is summed up by the famous David Low cartoon, first published in the Evening Standard in June 1940, of a Tommy standing amid crashing waves, shaking his fist at a stormy sky. “Very well, alone” is the caption, and it inaugurates a continuing psychodrama of resistance that sets Britain apart from its European neighbors.

Crucially, the equation of a “European superstate” with a project of German domination is part of what O’Toole calls the “mental cartography” of English conservatism. In 1989 Margaret Thatcher showed François Mitterand a map (taken out of her famous handbag) outlining German expansion under the Nazis, in order to demonstrate her misgivings about German reunification. On January 7 of this year, the pro-Remain Conservative MP Anna Soubry was forced to pause a live TV interview outside Parliament as protesters sang, “Soubry is a Nazi, Soubry is a Nazi la-la-la-la.” The European Union is, to these people, just a stealthy way for the Germans to complete Hitler’s unfinished business.

Of course, the British population did suffer in World War II. Aerial bombardment, rationing, and the other dangers and privations that are remembered under the journalistic heading of “the spirit of the Blitz” swim through the murkier psychological currents of Brexit like red-white-and-blue carp. If wanting to remain under the Teutonic yoke of the European Union is evidence of a loss of national character, then perhaps a fallen England deserves to be punished. As O’Toole suggests, invoking the popularity of the book Fifty Shades of
Grey, a strain of masochism (le vice anglais) is as much a part of Englishness as warm beer or ruling the waves.

As the possibility of No Deal looms larger, the government is planning to import emergency supplies of food and medicine, and police are being deployed in expectation of civil unrest in Northern Ireland. These are not the “sunlit uplands” that our dollar-store Churchills promised. Faced with the possibility that the coming hour will not be our finest, some Brexiteers have switched to promoting the benefits of communal suffering. Perhaps renewed bombardment will turn out to be character-building. Perhaps the Euro-Luftwaffe will drop the “friendly bombs” that John Betjeman once willed to fall on Slough, to “get it ready for the plough.” On December 16, Anthony Middleton, a former special forces soldier turned TV personality, tweeted:

A “no deal” for our country would actually be a blessing in disguise. It would force us into hardship and suffering which would unite & bring us together, bringing back British values of loyalty and a sense of community! Extreme change is needed! #nodeal #suffertogether.

Though widely derided, this opinion is, in certain circles, something of a commonplace. In his yearning for a cleansing fire to burn away the disloyal and revive a lost organic community, Middleton displays a disturbing protofascist mindset. The idea that the suffering of No Deal Brexit would be fairly shared is, of course, transparently absurd. A primary driver of Brexit, both among ordinary voters and among the political and business elite, is the desire to circumvent “regulation” in the form of European legislation on workers’ rights and safety, and to prevent appeals to the European Court of Human Rights. Brexit would cement the changes that took place after the 2008 crash, which was the pretext for a reduction of the social safety net under the guise of so-called austerity. The aim is to remake Britain as a “buccaneering” (for which read “predatory”) low-tax, high-risk place, a sort of reset to the pre-1945 world, before the inauguration of the welfare state and postwar social democracy. Nothing about the political complexion of its proponents suggests an ambition to build community of any kind.

Yet the desire named “Brexit” may not straightforwardly be for victory and the spoils of victory, but for its very opposite. O’Toole surveys the English cult of heroic failure, exemplified by the charge of the Light Brigade and the evacuation from Dunkirk, as well as such mythologized figures as Scott of the Antarctic and Gordon of Khartoum. He sees the exaltation of effort and vain self-sacrifice as “an exercise in transference,” arising paradoxically out of British power. The British of the Victorian period “needed to fill a yawning gap between their self-image as exemplars of liberty and civility and the violence and domination that were the realities of Empire.”

On this reading, the secret libidinal need of Boris Johnson, Jacob Rees-Mogg, Michael Gove, and their colleagues is actually for their noble project to fail in the most painful way possible. The immolation of national wealth and prestige on the altar of Brexit would be an imperial last stand, a way to recapture the spirit, if not the material conditions, of the Victorian apogee of British power. In this way, Brexit would provide a resolution to a problem that, in O’Toole’s diagnosis, has dogged the “poor loves” of the English ruling class since decolonization: “Its promise is, at heart, a liberation, not from Europe, but from the torment of an eternally unresolved conflict between superiority and inferiority.”

For many commentators writing at the time of Britain’s entry into the Common Market in 1973, dominance in Europe was to be compensation for the loss of empire. “What about Prince Charles as Emperor?” asked Nancy Mitford, facetiously expressing the secret belief of many British people that Europe could be a new vehicle for old global ambitions. The discovery that the role of “first among equals” wasn’t on offer led to a loss of enthusiasm for Europeanism, which suddenly appeared in a different and sinister light, as a form of subordination to old enemies.
How has what is essentially an English psychodrama turned into an international crisis? Against Dominic Raab’s John-Bullishness about the verities of national character, we might put W.H. Auden’s tongue-in-cheek notion that this character has been formed by place, or, more precisely, by geology. His 1948 poem “In Praise of Limestone” is a mock encomium to a soft and porous rock and the soft and porous men formed by its landscape. Auden’s self-ironizing “we, the inconstant ones” skewers perfectly the limitations of an elite that has historically adopted what O’Toole calls “a studied ennui, a pose of perfect indifference”:

…the flirtatious male who lounges
Against a rock in the sunlight,
never doubting
That for all his faults he is
loved; whose works are but
Extensions of his power to
charm…

Or the “band of rivals” who are
unable
To conceive a god whose
temper-tantrums are moral
And not to be pacified by a
clever line
Or a good lay…

This patrician fecklessness is one of the most enduring modes of British upper-class charisma, a way to signify superiority over the rule-governed, bean-counting strivers of the bourgeoisie. O’Toole correctly identifies it as a type of camp, allowing mistakes to be laughed off and ignorance to be presented as a virtue, evidence that one is not “touched” by the matter at hand. The English public’s fatal attraction to this posture has been responsible for many otherwise inexplicable political careers. Boris Johnson’s improbable upward trajectory is, for example, entirely due to his pitch-perfect performance in the stock role of the rakish comedy toff, a figure whose avarice and incompetence is indulged because it is somehow enjoyable to watch him getting away with things. It is no accident that the paradigmatically childish image of “having one’s cake and eating it” has been central to Johnson’s promotion of Brexit. As O’Toole notes, even his racism is couched in the language of the nursery. His notorious reference to “flag-waving picaninnies” with “watermelon smiles” is like a phrase from the kind of old-fashioned children’s books that are being quietly withdrawn from the library.

It is Britain’s misfortune to have been ruled by such people, entitled men who don’t feel they need to master a brief and sneer at those who have to endure the consequences of their actions. The form of patriotism they have promoted with their shallow, friable charm is less a spur to excellence than a form of historical arrested development, an adolescent inability to live in the world as it is, rather than a version of it misremembered from schoolbooks. O’Toole lays much of the blame for the fiasco of Brexit on the failure of the political elite to address the rise of English nationalism, which grew in intensity during the early 2000s, partly in response to Scottish devolution. Englishness—“its roar,” as the poet Thom Gunn wrote, “unheard from always being heard”—has, with good reason, become associated with ugly racism and xenophobia. Particularly strong outside London, English nationalism has also become an identity of resistance to globalization, a process that has accelerated the disconnection of the capital’s fortunes, which are dependent on finance, from those of the rest of the country. Brexit has offered a credible political vehicle for the assertion of “Englishness” against a “Britishness” that has lost its emotional appeal, a sudden scream after a period of what O’Toole calls “silent secession.”
The English, whose opinions have been formed by the shallow charmers and their enablers, seem fundamentally unable to conceive of a relationship with Europe that is not one of either subjection or domination. They will try, one way or another, to regain what Enoch Powell called “the whip hand,” even if they have to immiserate the country to do it. The principle of equal partnership on which the European Union is predicated is somehow psychologically unavailable, a possibility that is not fully believed or understood. The prolonged agony of Brexit has given ample proof that, as Auden wrote, “this land is not the sweet home that it looks,/Nor its peace the historical calm of a site/Where something was settled once and for all.” In the next few weeks, we will find an answer to his lingering question about its identity:

A backward
And dilapidated province,
connected
To the big busy world by a tunnel,
    with a certain
Seedy appeal, is that all it is now?

https://www.nybooks.com/articles/2019/02/21/brexit-fool-britannia/
At the Ashmolean

James Davidson

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Syrian bust of Antinous (c.130-138)
In December 362 CE, Julian the Apostate wrote a short satire on the occasion of the Bacchanalia. It took the form of a commentary whispered to Bacchus by the old satyr Silenus as each former Caesar arrived at a banquet of the gods. After Augustus, Tiberius, Nero and Caesar himself, Hadrian appeared, ‘an austere-looking man with a long beard, an adept in all the arts … always gazing at the heavens and prying into hidden things’. On seeing him, Silenus said: ‘What do you think of this sophist? Can he be looking here for Antinous? One of you should tell him that the youth is not here.’

Hadrian would have improved the odds of encountering Antinous considerably if he had lowered his gaze. On earth, images of his favourite abounded. All over the Roman Empire contemporaries would have been able to echo the words of Pausanias the Periegete: ‘I never saw him when he was among humans but I have seen him in statues and paintings.’ Little is known about Antinous beyond his birthplace of Bithynium in Bithynia. As a youth he joined Hadrian’s retinue and travelled with him to Egypt. Later writers have assumed they were lovers. After Antinous’ early death, a temple to him was established at Mantineia, whose citizens remembered that they were supposed to have been the founders of the imperial beloved’s hometown. It had a gymnasium full of Antinouses in marble and paint. Less public was the Antinoeion, a shrine built by Hadrian at Tivoli. Egypt had an entire city named after him, Antinopolis, complete with a circus, a theatre, a racetrack, and streets lined with long colonnades that were still solidly perpendicular in the time of the Description de l’Egypte (1809), but recycled not long afterwards to build the walls of a sugar factory.

It was here by the Nile in October 130 that Hadrian last saw Antinous. The historian Cassius Dio claimed that Hadrian wrote of Antinous’ death in his Memoirs: he had drowned; it was an accident. ‘The truth’, Dio wrote, was that Antinous had ‘offered himself in sacrifice’ to achieve some mystical purpose on Hadrian’s behalf. A ‘new’ star in the constellation, Aquila, was discovered to be Antinous’ spirit stellified, and a cult was born, which spread across the Mediterranean, with Antinous assimilated to Osiris in Egypt and Dionysus elsewhere. He was celebrated in temples and games and his portrait was reproduced on gems, coins, silver bowls, as well as in paintings and statues.

Many of these statues and all the paintings have been lost, but there are still 88 sculpted Antinouses littering the world’s museums, his familiar face surprising you in unvisited corners of rooms of Roman sculpture from Denmark to Brazil; very occasionally new ones turn up, the soil disclosing his diagnostic handsomeness little by little. Statues of Antinous manage to be at once generically, classically handsome and perfectly distinctive, mainly because the details of his idealisation are always reproduced so precisely: the particular angle of the neck as he looks down over his left shoulder, the precise design of particular locks of hair, in a natural tousled style half covering his ears.

A tiny single-room exhibition at the Ashmolean (until 24 February) focuses on one of the best of these, an Antinous bust from Syria dedicated by one Marcus Luceceius Flaccus ‘to Antinous Hērōs’ (‘Antinous the demi-god’) and recently restored. He is accompanied by several other Antinouses, mostly plaster casts, and some commemorative coins. The extreme similarity of these original and copied Antinouses makes a single point very effectively; there must have been an official model promulgated from Rome and followed by more or less skilled artists all over Italy and the eastern Mediterranean.

The transmogrification of emperors and people close to emperors into divine personalities, or divi, worthy of being worshipped as gods, wasn’t a novelty in the second century CE. Among others, Caligula had deified his sister Drusilla, Nero his second wife, Poppaea, and Trajan his niece Matidia. These divi and divae were
officially sanctioned by the Senate and were closely associated with the cult of the emperors to whom they owed their ascension. But there were no great sanctuaries, so far as we can tell, dedicated to Matidia; no identically faced sculptures honoured Drusilla; no newly founded city of Poppaeopolis marked the spot where Nero, allegedly, kicked his pregnant queen to death. Antinous was different.

When I visited the exhibition last year it shared the room with another show, No Offence: Exploring LGBTQ+ Histories, but the organisers of the exhibition and certainly Roland Smith, the main author of the very useful little catalogue, Antinous: Boy Made God (Ashmolean, £15), suggest that Antinous’ relationship to Hadrian was less central to his cult than we have supposed: ‘Antinous’ veneration seems to have been largely an independent phenomenon … [Flaccus’] bust was dedicated to the boy in and for himself.’ He even suggests that it was the proliferation of monuments that gave rise to rumours of a relationship.

A bronze Antinous coin from Smyrna
Hidden away in the catalogue is an even more startling claim, derived from close examination of the pubic region of a few full-length nude Antinouses: Antinous had not reached puberty when he died. ‘There are obvious implications for his relationship with Hadrian,’ Smith suggests mysteriously, ‘and the vexed question of the date he joined the imperial retinue – surely not long before AD 130.’ By this I suppose he means that any relationship was brief and not nearly as intimate as has previously been supposed. Plutarch refers to the Roman custom of keeping little boys called deliciae as ‘playthings’; there are the notorious cases of Tiberius’ ‘minnows’, Nero’s Sorus and Commodus’ Philocommodus, who was said to wander around the palace naked but for jewellery and gold chains. The term is often translated ‘catamite’, but deliciae were not supposed to be abused. Plutarch was referring to a boy kept by the moralistic Augustus; it is highly unlikely that their relationship was sexual. Nero and Commodus were hardly exemplars of acceptable norms of behaviour, while Suetonius describes the stories of Tiberius’ genital-nibbling ‘minnows’ as ‘grosser depravities that one can hardly bear to tell or to hear told, let alone believe’.

But was Antinous really so young? Smith is quite insistent and suggests there must have been an official set of genitals to be precisely imitated as well as the official three-quarter bust. I am not convinced. Broad-chested square-jawed Antinous does not look like a little boy to me, nor did he to Julian who, presumably in response to images he had seen, refers to him as a meirakion, a young citizen aged 18 or 19. Moreover, early Christian historians, who were hostile to Hadrian, never mention that Antinous was so young although this would certainly have added to the contumely they directed at him. Smith is (over-)keen to prove a point about the secrets lost to written history that can be revealed only by close examination of stones, but what ancient viewers tell us they saw in those stones has a powerful salience.

The pubes remain a problem. Perhaps the official pubes were designed to emphasise the chasteness of Hadrian’s interest. Perhaps Hadrian’s philhellenic revival of 500-year-old classical norms, like Greek love and not shaving, had discombobulated the sex-sign system, which anyhow had never mapped with any degree of realism onto the range of things ancient men and boys carried between their legs. And why should Antinous, qua god, be restricted to his age at time of death? Ganymede slides up and down the age-scale from little boy to the verge of manhood. Hermes and Dionysus were depicted at all stages of maturity. There is a bearded Apollo and a boy Zeus. Even mortals were regularly ‘youthened’ after death.

The idea that the cult of Antinous was ‘independent’ of Hadrian comes up against similar objections. The catalogue authors do not claim later dates for the images, so it seems they agree that they stopped being made immediately after the emperor’s death in 138; although Antinopolis continued to flourish, the extraordinary production of paintings, coins and statues was by and large confined to just eight years. Antinous’ connection with Hadrian was of central importance – when the Athenians added a new deme, or parish, of Antinoeis to their ancient list, they placed it in the group belonging to Hadrian, and one particularly suggestive image has Antinous’ head emblazoned on Hadrian’s chest, like the gorgon’s head on Athena’s aegis. But the cult was at the same time somewhat apart from the state-sponsored imperial cult of the royal family. Maybe this was the source of Antinous’ attraction to his devotees: a more intimate and particular connection to the imperial power than that provided by state religion. Subsequent generations universally saw the Antinous phenomenon as a reflection on Hadrian, his lust or his mystic proclivities or, in Julian’s words, his ‘madness and folly’. It seems rather unfair that the builder of the Pantheon, of the temple of Olympian Zeus, the man who could be said to have presided over the Roman Empire at its peak of peace and prosperity, should now be remembered for his passion for a boy from Bithynia, but that does not mean his passion was made up. After all, Antinous was by all accounts very good-looking.

https://www.lrb.co.uk/v41/n03/james-davidson/at-the-ashmolean
Knives

by Michael Stephens

Issue no. 78 (Summer 1980)

Many spoons in the sink, and that means it was a dull night, too much coffee and ice cream, not enough foreplay. If there are many forks, it was probably a good night. But most importantly if there were many knives used, it was a great night, even if misunderstandings arose, people were stabbed, blood flowed. Spoons suggest measuring. After most suicides, detectives discover many spoons in the sink. There may be one knife that killed a person, but it is merely a symbol of too many spoons and forks: a wish for knives at table. Eliot was wise about spoons measuring life; even Edgar Lee Masters saw their monotony well enough. All those sentimental songs about “spooning”. Even what spoon rhymes with is worth less: moon, June, croon. Spoon never rhymes with wife the way knife does. Forks are frequently connected with a type of sex, but what this type is—no one knows. And even the fork has a kind of character which can’t be denied, and yet it is not the mark of an outstanding evening. The happy household is spoonless, but don’t be fooled by chopsticks. Houses need knives. Families depend on knives to survive. A man may eat peas off a knife; he may drink blood from it. A sink filled with knives is a house that has had an eventful dinner.

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‘Our Bodies Were Born into Hard Labor’

Caroline Fraser

Heartland: A Memoir of Working Hard and Being Broke in the Richest Country on Earth

by Sarah Smarsh

Scribner, 290 pp., $26.00

An abandoned farmhouse, 2005; photograph by Eugene Richards from The Run-On of Time, the catalog of a recent exhibition that originated at the George Eastman Museum and the Nelson-Atkins Museum of Art. It is distributed by Yale University Press.

As told in her ambitious and moving new memoir, Heartland, Sarah Smarsh’s life was ripped right out of a Bruce Springsteen song. “Spare Parts,” for one: “Bobby said he’d pull out Bobby stayed in Janey had a baby it wasn’t any sin.”
That’s pretty much the tale the author tells of her own conception, except that her father was Nick and her mother was seventeen-year-old Jeannie. On Halloween night, 1979, Nick and Jeannie are having sex in his parents’ basement when Jeannie says, “Don’t come in me!” Nick pays no attention. Like most Springsteen songs, the story ends in melancholy, or what Thomas Hardy, in Tess of the d’Urbervilles, his great Victorian novel about the debasement of poor country women, called “the ache of modernism.”

That unguarded moment did produce Sarah Smarsh and this book, which is all about unwanted babies: having them, raising them, and resenting them. She is unerringly acute on this much-avoided subject. Of herself, she writes, “I thus was the proverbial teen pregnancy, my very existence the mark of poverty. I was in a poor girl’s lining like a penny in a purse—not worth much, according to the economy, but kept in production.”

By her account she was the first to break the cycle of poverty and teen pregnancy to which women’s lives in her family have been strapped, as to a wheel, for five generations across the fields of rural Kansas. As in Tess, another pastoral drama about “the shaded side of a well-known catastrophe,” the woman pays and pays and pays. Violence done to women runs parallel to another major theme of the book, which involves the violence done to lives dependent on the land by both natural forces—storms and tornadoes—and unnatural ones, such as the ill economic winds ever blowing from Washington.

There are occasional fond recollections here of the prairie earth and its bounty—“peach and walnut trees, thickets of boysenberries, the fields of alfalfa, soybeans, and wheat”—and bittersweet ones of rides on a hayrack or wooden sled pulled by a well-lubricated guy on a tractor. But moments of peace and satisfaction are few: the narrative as a whole proves an unremitting saga of physical struggle and bruising misfortune. For this family, poverty is defined not by a line on a graph but by damage done to their bodies by labor and want. “While we never starved or went without shelter in a chronic way,” Smarsh writes, “we all knew what it felt like to need something essential—food, shoes, a safe place to live, a rent payment, a trip to the doctor—and go without it for lack of money.”

Her account of her family’s daily battle against the elements and the machinery meant to tame them suggests that the sheer brutality of the life, which is nothing if not rigidly gender-determined, bleeds into domestic battles. “Our bodies were born into hard labor,” she writes, and when the men in her family are not hoisting air compressors, hanging drywall, or driving combines, they’re drinking too much and giving their wives or girlfriends or stepkids a compensatory clout.

For city folk, Heartland seems meant to tear the sentimental veneer off of rural life, with its hectic juggling of multiple jobs on the farm and elsewhere: the parental clans are perpetually driving long distances in dilapidated vehicles, back and forth to Wichita or other job sites, desperate to make ends meet. During this frantic round, there are countless injuries, accidents, and addictions meant to kill the pain. One entire passage is devoted to car crashes. “Over beers,” the author says, her family “could map a rough timeline of their existence by car crashes…. ‘No, that’s the time it was on the bridge over the crick.’” The young Sarah finds herself in no fewer than “three school bus wrecks by the time I finished high school,” tipping into ditches thanks to “bad rural roads and hard Kansas weather.”

Inescapable patterns emerge as we learn about the author’s father—gentle, well-meaning (if unlucky) Nick—and his tribe: his parents, Chic and Teresa, and their large Catholic family of six children. After his shotgun marriage, Nick seems enterprising, starting a successful fireworks stand and a construction firm. But every gain is short-lived: Nick builds a pole barn out of wood salvaged from a 1910 high school, only to see it burn to the ground with his 1940s Massey Harris combine inside. His firm is threatened during the Reagan
recession of the early 1980s, and he takes a job delivering and disposing of cleaning solvents. He breathes toxic fumes and ends up in the hospital with chemical poisoning and neurological damage, a near-fatal episode requiring several years of recovery. He and Jeannie divorce, and when the author is ten, he remarries, this time to a woman addicted to opioids.

For the men in this story, that’s largely how it goes. Almost to a man (with one notable exception), they’re hapless or vicious. For a memoir dedicated to showing the ways in which rural women are physically threatened by isolation and poverty—far from medical care they can’t afford anyway—it’s the women who emerge as powerful, determined, and relentless, despite the fearsome odds stacked against them. Indeed, Smarsh tells us that “in our family, women made the decisions and no one pretended otherwise.” To an extent that nearly undermines her focus on their plight (one section is entitled “The Body of a Poor Girl”), these women are formidable.

The standout character is Smarsh’s maternal grandmother, Betty, who is sixteen when she becomes pregnant with the author’s mother by the shadowy Ray, a “Wichita street thug” said to have been a career criminal and murderer who once shot Betty in the arm. (Ray will be supplanted by no fewer than seven stepfathers, perhaps laying the foundation for Jeannie’s grievances; she will become a teenage terror as a mother.) As a child, Betty was herself knocked around by her own mother’s parade of husbands, and after wading through a family history of fisticuffs and baseball bats, readers will be delighted to learn that on one occasion she gives as good as she gets, taking a cast-iron skillet and beating the living shit out of her abusive stepdad Joe.

It’s the original version of leaning in. But of course she too becomes a serial marrier of louts, dragging her children across the country, packing them onto trains and installing them in motels, eventually losing custody of her son to one of her ex-husbands. “It was like living in the circus,” says Pud, one of Betty’s sisters who weathered these years with her, but “without the fun.”

Ultimately, however, Betty makes good. She settles down with the man Smarsh will know as “Grandpa Arnie,” a solid citizen who grows wheat and alfalfa on 160 acres and keeps fifty head of cattle. She becomes a legendary probation officer in the Wichita county courthouse, where she is unimpressed by clients’ hard-luck stories: “I just told ‘em, hey, don’t give me any bullshit about ‘dysfunctional family,’ honey—our family invented it.”

There her granddaughter absorbs troubling lessons in how professional women comport themselves: never get above yourself, but at the same time work harder than everyone else. Betty brusquely takes Sarah down a peg when her granddaughter tells visitors that she’s in her school’s gifted program, snapping, “Sarah, don’t brag.” At the same time, Betty prides herself on being called a “tough bitch.”

While the memoir pays more attention to previous generations, Smarsh’s upbringing is nonetheless deeply tense and traumatic, a litany of adult incompetence and cruelty. Her napping mother tells her, age four, to “Stop breathing”; Grandma Betty gives her Nicorette gum to chew; her first-grade teacher torments her, singling her out for yawning or talking back, forcing her to apologize for endless petty infractions before receiving a snack. In addition to her mother’s rejection and father’s miseries, Sarah is subjected to near-constant chaos and existential anxiety, moving more than twenty times throughout her childhood, casting her lot with Betty and Arnie at several junctures. In later years, Jeannie develops a “strange poise,” becoming a dynamic real estate agent, apologizing to her daughter for her failures of affection, but the scars remain.
The trauma lies behind Smarsh’s determination to break the family cycle of teen pregnancy, committing herself to getting an education and gaining an independent and financially stable life. She’s not going to be the Janey, or Jeannie, or Tess of her life story; she’s not going to be a spare part or produce one. That conscious decision, making her a stranger to her own family, dictates the awkward authorial choice made here. Throughout, the author addresses herself to a mysterious “you,” identified as the unwanted child she has deliberately chosen not to have, at least while a child herself. She describes that goal as her “most important assignment…to make sure you were never born.”

Smarsh writes that, as a child, she constantly felt the presence of this nonperson, perhaps a version of the invisible friend. She even assigns it a name, “August” (Grandpa Arnie’s middle name). As reviewers have noted, the device can feel affected, impossible to sustain for long stretches. Yet there’s also something authentically distressing about it, lending, if not a face, then a voice to something that’s more than a statistic. Teen pregnancy is at a low in the US, but there were 209,809 babies born to girls fifteen to nineteen years old in 2016. That rate is higher than those of many developed countries, and as the demonization and defunding of Planned Parenthood and other providers of contraceptive and women’s health services continue, it seems destined to rise, along with the nearly $10 billion spent on health care, foster care, and the incarceration of teen parents (at a rate notably higher than that of their childless peers). Last May, the Trump administration redirected Title X funding, which prevents an estimated one million unintended pregnancies a year, to alternatives such as “natural family planning.”

What’s more, Smarsh’s ghostly “you” forces the reader to contend with something that remains a taboo subject outside of fiction (and a few memoirs that have been roundly attacked for their candor). Motherhood may be a newly trendy subject, but there are not a lot of books about mothers who hate their kids. Smarsh is honest enough to recognize “the misery motherhood brings some women,” including her own mother, and the toll resentment takes on unwanted children. To be sure, as Hardy has it, the woman pays. But children pay more.

From its first pages, Heartland wants to be about class, toggling between traditional memoir and discourse on the ways in which social status congeals into shame and bigotry. “America didn’t talk about class when I was growing up,” Smarsh writes, adding, “I had no idea why my life looked the way it did, why my parents’ young bodies ached, why some opportunities were closed off to me.” A certain slackness can be felt in these discussions—generalization, pathos—but for the most part Smarsh skillfully draws on her family’s specific economic woes to illustrate the mean, pious pettiness behind the “profit-driven criminalization of poverty…many of us ending up in county jails unable to pay mounting fines in veritable debtor prisons.”

She is astute in assessing the humiliation imposed by society’s avaricious zeal in punishing the poor, noting the ways in which it warps its victims’ perceptions. She recalls Grandma Betty growling “Get a job” while driving past a homeless panhandler; she records the same woman confessing, “in the tone of a guilty convict,” that she had once been on welfare.

In a Dickensian passage about her relatives’ gnawing fear of run-ins with the police (while acknowledging the far greater peril faced by people of color in such encounters), she describes how that shame has been codified into law and “monetized to benefit the rich.” Her mother was “forever getting pulled over for a busted taillight or expired tags she couldn’t afford to replace,” Smarsh sitting rigid with dread in the back seat.

Her clan had ample opportunity to experience the punitive fallout, as federal and state governments cut budgets, and banks and canny city and county governments made up the difference with fines and fees: court
fines, driving citations, fines to turn on utilities after they’ve been turned off for late payment, fees to remove DUI infractions from the legal record, “for keeping or getting a job, a loan, an apartment,” and high ATM fees to access pittances of relief money. “As I felt myself a burden to my family,” she writes, “my family must have felt itself a burden to society. When they did everything right, there was little reward, but one late utility payment and the bill collectors or patrol cars were on their ass.” Coming from Kansas, where growth plummeted and budget deficits ballooned during Governor Sam Brownback’s recent “red-state experiment” in tax cuts—universally recognized as a humiliating failure (and a model for the Trump tax cut)—Smarsh’s account should be hung around Republican necks like an albatross.

Criminalizing poverty is hardly a new phenomenon. In Masterless Men: Poor Whites and Slavery in the Antebellum South (2017), Keri Leigh Merritt traces the ways in which slave owners created what has become a permanent white underclass, opposing for generations homestead legislation (not passed until the outbreak of the Civil War) that would have distributed land to the poor. By consolidating wealth among the top one percent and reaping the huge economic rewards of slaves’ labor, slave owners not only perpetuated centuries of savage injustice in the lives of blacks, they also left poor whites jobless and landless. To control this underclass, whose resentment of slaveholders imperiled the institution, Merritt writes, the master class began “jailing poor whites for small amounts of debt, publicly whipping thieves, and auctioning off debtors and criminals (for their labor) to the highest bidder.” They waged an organized campaign that involved selectively enforcing behavioral laws, especially in places with both high slave populations and recent influxes of transient whites. By insisting that poor whites be arrested for vagrancy, buying liquor on Sunday, or engaging in lewd behavior, slaveholders were able to incarcerate non-slaveholders whenever they needed to reinforce subordination to their authority. Poor whites’ increasingly frequent bouts with local law enforcement officials helped brand them as hardened, troublesome criminals, characterized...by “laziness, carelessness, unreliability, lack of foresight and ambition, habitual failure and a general incompetency.”

That contempt for “poor white trash” (among the slurs Smarsh lingers over, regretting their cheap lionization on T-shirts and in country songs) was immortalized by Harriet Beecher Stowe, who deplored the class as “utterly ignorant, and inconceivably brutal.” Merritt’s study shows how deeply and perhaps ineradicably the atavistic bitterness and insecurity of poor whites is rooted in the history of slavery.

This is the kind of history that helps explain cycles of poverty, but for someone intent on mapping the costs and consequences of the condition, Smarsh skates past a deeper factual analysis of such origins, including her own, saying merely, “we were centuries-old peasant stock,” admitting that once these poor folk got to Kansas, “they stayed.” Why? All she can offer is, “I don’t know.” It might have been revealing to trace her family’s history of land ownership, or that of farmers like them. As it is, however, memoir is being asked to do a lot here, perhaps too much. It can be jarring to read, during a wrenching account of Jeannie’s postpartum suffering, her stitches tearing and blood running down her thighs, that “society valued productivity and autonomy more than it valued women and children.” Of course it did, but that doesn’t excuse writing that too often lurches into the abstract.

Smarsh never mentions her best-selling predecessor, J.D. Vance’s Hillbilly Elegy, but Heartland can be seen as its self-consciously female bookend. That earlier memoir features a lot of bad mothers: addicts, slackers, women who “seemed interested ‘only in breeding.’” Leading light of those leveraging their white-trash credentials into a platform, claiming insight into the motives of whoever it was who voted for Trump, Vance too was raised largely by grandparents who acted as stabilizing pillars (his father disappeared and his mother was an addict). While aiming for “sympathy and understanding,” Vance blames his own class, reviling food-
stamp recipients for buying steaks and cell phones, and swiftly coming to the libertarian conclusion that “no government…can fix these problems for us.”

That may be true, but it’s also clear that Smarsh and her little brother, during a window of opportunity in Wichita, gained immeasurably from free school breakfasts and lunches, subsidized health care, Head Start, and the gifted program that set young Sarah on her way to becoming a writer. Once a Bush voter, later a progressive, she looks back on her past without acid judgment, never failing to show empathy in chronicling the ways in which her family, especially the women, were trapped in poverty they lacked the resources, education, and government assistance to escape.

Now a successful writer and college professor in Topeka, owner of a home where a single room “had more square footage than most places I’d lived,” Smarsh concludes by pondering what she describes as a “deeply flawed” question she is often asked: “How did you get out?” She didn’t get out, she says, since she still inhabits both the world she grew up in and the middle-class lifestyle she earned, “class being a false construct.” It’s an unanswerable question—why does one person’s drive, ambition, and luck vault them out of their own class and into another? She knows one thing for sure: her own mother and grandmother had drive and ambition to burn, yet were stuck in circumstances, mothers when they were still children.

When she turns thirty, she describes the moment when she realizes that poverty no longer defines her. That night, she releases her fantasy child: “I felt you go like a hand slipping out from mine…the poor child I would never have—not because I would never have a child but because I was no longer poor.” In a storage tub she keeps a toy given her by her mother, with a tag reading, “from Grandma Jeannie…to future grandchild.” She writes on the lid of the tub, “BABY?”

And that, as every woman could tell you, is still the question

https://www.nybooks.com/articles/2019/02/21/our-bodies-were-born-into-hard-labor/
An Early 20th Century Guide to Wave Designs for Japanese Craftsmen is Now Available Online

LAURA STAUGAITIS

In 1903, Japanese artist Mori Yuzan’s wave designs were published in a resource guide for Japanese craftsmen looking to add aquatic motifs to their wares. The three-volume series, titled Hamonshū, includes variations on contained and free-form wave patterns suitable for embellishing swords, religious objects, and ceramics. The collection has recently been digitized and is available for free on Internet Archive, a non-profit digital library of free books, movies, and software. (via My Modern Met)
CRISPR-CasX could be the next small gene-editing enzyme

An audio version of this article is available to New Atlas Plus subscribers.

The structure of the CasX enzyme (grey), which uses RNA (red) to target and cut DNA (blue)(Credit: UC Berkeley)

In the world of gene-editing, CRISPR and Cas9 usually go hand in hand, but that might not necessarily be the best pairing. The Cas9 protein has proven effective over the last few years, but alternatives, such as Cas12a and Cas12b, are quickly emerging. Now, researchers at UC Berkeley have tested a new candidate, CasX, which seems to have a few advantages of its own.
The CRISPR gene-editing system was inspired by the tools bacteria use to defend themselves. When the bugs encounter a new virus that poses a threat to them, they'll use an enzyme like a pair of genetic scissors, snipping out a small segment of the attacker's DNA and storing it, so the bacteria remembers how to fight it next time.

A few years ago scientists adapted that technique to develop the CRISPR tool, which uses certain enzymes to cut out specific DNA sequences and replace them with something more beneficial. This powerful system is opening brand new ways to treat disease in humans, breed better animals, make crops more nutritious or manipulate microorganisms.

Since the beginning, Cas9 has been the enzyme doing all the hard work, but more recently Cas12 variants are emerging as efficient alternatives. And now, CasX has joined them. The UC Berkeley team discovered CasX two years ago in bacteria commonly found in groundwater, and while it seemed promising it had never been tested outside of its host organism.

In new tests, the researchers have found that it is effective at editing the human genome, as well as that of E. coli. CasX works in much the same way as Cas9 – it can be made to target specific sequences, cut through double-stranded DNA, and bind to DNA in order to regulate genes.

But CasX has a few advantages over its predecessors. The protein is much smaller, which helps it get inside cells easier, and since it was isolated from a bacteria species that isn't found in humans, it's less likely to trigger an immune response in patients, which has been a long-time concern of CRISPR-Cas9.

"The immunogenicity (likelihood of triggering an immune response), delivery and specificity of a genome-editing tool are all vitally important," says Benjamin Oakes, co-lead author of the study. "We're excited about CasX on all of these fronts."

Interestingly, although both enzymes perform the same function, the team says they're different enough in molecular makeup and shape that they seem to have evolved completely independently of each other. Studying these proteins could help inform future designs.

"The first thing that jumps out is how the highly unique domains accomplish similar roles to what we have seen with other RNA-guided DNA-binding proteins," says Oakes. "CasX's minimal size, with no fat on the bone, helps to clearly demonstrate there is a basic recipe that nature uses. Understanding this recipe will help us to better evolve and engineer genome editing tools for our purposes rather than nature's."

The research was published in the journal Nature.

Source: UC Berkeley

Hibernating hamsters could provide new clues to Alzheimer's disease

American Chemical Society

Summary:

Syrian hamsters are golden-haired rodents often kept as house pets. Cold and darkness can cause the animals to hibernate for three to four days at a time, interspersed with short periods of activity. Surprisingly, the hibernation spurts of these cute, furry creatures could hold clues to better treatments for Alzheimer's disease (AD), according to a recent study.

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FULL STORY

Syrian hamsters are golden-haired rodents often kept as house pets. Cold and darkness can cause the animals to hibernate for 3-4 days at a time, interspersed with short periods of activity. Surprisingly, the hibernation spurts of these cute, furry creatures could hold clues to better treatments for Alzheimer's disease (AD), according to a recent study in ACS' Journal of Proteome Research.

When hamsters and other small mammals hibernate, their brains undergo structural and metabolic changes to help neurons survive low temperatures. A key event in this process appears to be the phosphorylation of a protein called tau, which has been implicated in AD. In the brains of hibernating animals, phosphorylated tau can form tangled structures similar to those seen in AD patients. However, the structures disappear and tau phosphorylation is rapidly and fully reversed when the hibernating animal wakes up. Coral Barbas and colleagues wondered if determining how hibernating hamsters' brains clear out the tangled proteins could suggest new therapies for AD.

So the researchers used mass spectrometry to analyze metabolic changes in Syrian hamster brain before (control), during and after hibernation. A total of 337 compounds changed during hibernation, including specific amino acids, endocannabinoids and brain cryoprotectants. In particular, a group of lipids called long-chain ceramides, which could help prevent oxidative damage to the brain, were highly elevated in hibernating animals compared with those that had recently woken up. The largest change for any metabolite -- about 5-fold more in hibernating animals compared with control animals -- was for phosphatidic acid, which is known to activate an enzyme that phosphorylates tau. The Syrian hamster is an excellent model to study substances that could help protect neurons, the researchers say.

The authors acknowledge funding from the Spanish Ministry of Economy and Competitiveness, the Network Center for Biomedical Research in Neurodegenerative Diseases and the San Pablo CEU University Foundation.
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Journal Reference:


https://www.sciencedaily.com/releases/2019/02/190206104607.htm
Project 'DeepSqueak' Aims to Decipher What Mice and Rats Are Really Chattering About

Sarah Wells

Thursday 12:25pm

The image of a lab rat is an iconic symbol of scientific research, and for good reason: These rodents are remarkably good stand-ins for human subjects because of how closely their physiology and genetic make-up resemble ours. Because of this, mice and rats are used to study everything from cancer to diabetes to Alzheimer’s disease.

However, despite their tried-and-true use as animal models, there’s something about these rodents that puzzles scientists: What is all the squeaking about?

Up until now, researchers have relied heavily on ambiguous physical cues—such as rats pressing a lever to receive a dose of an addictive substance—or time-consuming manual analysis of rodent chatter to try to understand what drives their behavior during trials. Both of these methods are vulnerable to human error and misinterpretation. But a new project from the University of Washington aims to better decipher the squeaks and chirps of these rodents by using deep learning to more quickly and reliably analyze their chatter, helping researchers to understand what they’re really saying.
The work is called DeepSqueak, and it uses deep learning and machine vision approaches to categorize the enigmatic chirps of mice and rats. Similar to how a self-driving car might take in and evaluate visual data from the road in front of it, DeepSqueak transforms audio recordings of rodent calls into sonogram images and then uses machine vision to analyze them. A paper describing the project was published in January in the journal Neuropsychopharmacology.

“We can train the software to analyze these calls in a way that is much more similar to how humans learn,” said Kevin Coffey, a lead author of the report and co-creator of the software. “Rather than mathematically describing what a vocalization is, we just show it pictures and examples.”

After transforming the audio, DeepSqueak works to categorize the hills and valleys of the waveforms into different sound groups, such as distinct syllables or patterns of background noise, which Coffey and his co-creator Russell Marx taught the program to recognize by first feeding it manually labeled calls. The ability to minutely detect and filter out background noise is particularly important when working with rodents, said Coffey.

“Even when humans would do this by hand, the calls are hard to pick out of an audio signal when they’re embedded in a lot of background noise,” said Coffey. “[Because] the animals are running around and banging into things.”

Rodents are naturally vocal animals, and previous research has tried to associate certain vocalizations with corresponding emotional states. For example, higher-pitched calls in rats are generally connected with a positive response (e.g. receiving a reward) while a lower-pitched call is considered a negative response. But this is an inexact science. The researchers behind DeepSqueak hope their tool will contribute to a more nuanced understanding of these sounds.

Researchers can manually analyze the syntax of these calls to better understand behavior, but this process is not only tedious but can be less accurate when looking at the more complex syllable structure of calls in a mid-range frequency.

The authors of the DeepSqueak paper write that their software not only reduces the number of misidentifications in manual analysis but can analyze calls up to 40 times faster.

In addition to automatically filtering out recognized background noises, DeepSqueak allows a user to easily manually review the identified syllables and to adjust parameters to their specific experiment, such as specifying the rodent species or the classification of syllables. While DeepSqueak can convert, analyze, and output call data on its own, Coffey and Marx both agreed it was important to design a software that could adapt to a researcher’s needs. For example, researchers more experienced in manual vocalization analysis can use it as a tool to refine their work, and for those newer to the space, it can be an easy entry point into vocalization research. To aid both groups, the software is free to download and modify from Coffey’s GitHub account.

While the use of deep learning to decode rodent vocalizations is novel, analytical software designed to interpret rodent calls is not. In their report, the researchers specifically make comparisons between a software designed in 2017 named MUPET (Mouse Ultrasonic Profile ExTraction) and a commercial product called UltraVox. Similar to DeepSqueak, these two softwares also allow researchers to perform syllable analysis and
classification of vocalizations by transforming an audio file into images; however, DeepSqueak’s deep learning approach sets it apart from its predecessors.

The new paper found that while DeepSqueak did not always outshine the other software, it did show improvement in the filtering of background noise and the detection of varying frequency calls.

Allison Knoll, co-author of the MUPET paper and an assistant professor of research pediatrics at the Keck School of Medicine of the University of Southern California, said that DeepSqueak is a great complementary addition to the advances already being made in the pursuit of this question.

“There remains much mystery about the biological meaning of specific syllable shapes as they relate to ongoing behavior,” said Knoll, “and increasing the number of tools that labs can use to investigate these differences is a plus!”

While there are no plans to feed human chatter into the DeepSqueak software, the researchers say they hope the better understanding of rodent behavior and motivation enabled by DeepSqueak will help researchers fine-tune their treatments for humans as well.

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I Cut Facebook Out of My Life. Surprisingly, I Missed It

1/24/19 11:45AM

“[For example] in drug addiction we need to know not just if the animal is taking drugs but why are they taking the drugs,” said Coffey. “Are they taking the drugs because they like it or because they’re escaping the negative feelings associated with withdrawal?”

With a better understanding of a rodent’s motivational state in a drug addiction trial, researchers might create more effective treatments for people. Additionally, Coffey and Marx say that DeepSqueak can also be used in researching animal models of depression, anxiety, and even Parkinson’s disease.

“The animals can just tell us how they’re feeling with these vocalizations,” said Coffey.

Rodent sounds courtesy of Kevin Coffey.

Sarah Wells is a freelance writer based in Boston writing about the intersection of technology, science, and society. Follow her on Twitter: @saraheswells.

Gut bacteria may have impact on mental health, study says
Research opens door to possible treatments for depression based on probiotics

Ian Sample  Science editor
@iansample

The finding could pave the way for new treatments for mental health disorders based on probiotics such as these Lactobacillus bugs. Photograph: AP

Microbes that set up home in the gut may have an impact on mental health, according to a major study into wellbeing and the bacteria that live inside us.

Researchers in Belgium found that people with depression had consistently low levels of bacteria known as Coprococcus and Dialister whether they took antidepressants or not.

If the preliminary finding stands up to further scrutiny, it could pave the way for new treatments for mental health disorders based on probiotics that boost levels of “good” bacteria in the intestines.

Jeroen Raes of the Flanders Institute for Biotechnology and the Catholic University of Leuven drew on medical tests and GP records to look for links between depression, quality of life and microbes lurking in the faeces of more than 1,000 people enrolled in the Flemish Gut Flora Project.

He found that two kinds of bugs, namely Faecalibacterium and Coprococcus, were both more common in people who claimed to enjoy a high mental quality of life. Meanwhile, those with depression had lower than average levels of Coprococcus and Dialister.
The study reported in *Nature Microbiology* does not prove that gut microbes affect mental health. It is possible that the effect works the other way around, with a person’s mental health having an impact on the bugs that thrive inside them. But in follow-up experiments, Raes and his team found evidence that gut microbes can at least talk to the human nervous system by producing neurotransmitters that are crucial for good mental health.

“We studied whether gut bacteria in general would have a means to talk to the nervous system, by analysing their DNA,” he said. “We found that many can produce neurotransmitters or precursors for substances like dopamine and serotonin.” Both dopamine and serotonin have complex roles in the brain and imbalances have long been linked to depression.

Advertisement

Microbes that live outside the body, for example those found in soils, are not able to make the same kinds of neurotransmitters, Raes said, perhaps because they did not co-evolve with humans and learned to benefit from tapping into their host’s nervous system.

If low levels of the bacteria are to blame for at least some depression, it opens the door to probiotic treatments that boost their populations in the gut. But Raes said the connection has to be proved first. That will involve growing the bugs in the lab to see what substances they make, testing their effects in animals, and treating them with tailored probiotics. Only then could scientists consider human trials.

In two separate reports, both published in *Nature Biotechnology*, scientists in China and a UK-Australian collaboration describe how they sequenced the DNA of more than 100 new species of gut microbes. The work amounts to the most comprehensive list of human gut bacteria to date.

The vast catalogue of human gut bugs will help scientists to identify which bacteria are in patients’ bodies and drive research into new treatments for conditions as broad as irritable bowel syndrome, allergies and obesity.

https://www.theguardian.com/science/2019/feb/04/gut-bacteria-mental-health-depression-study
Methane and the determination of the Majorana nature of neutrinos

DIPC

Experiments performed in 1909 by Geiger and Marsden, also called Rutherford gold foil experiment because Rutherford was their supervisor, led to the discovery of nuclear structure in the atom: the nucleus of the atom is its central core and contains most of its mass and the nucleus is positively charged. Further research during the next decades showed that the nucleus consists of particles called nucleons. Nucleons can be either neutrons, with no electric charge, or protons with a positive electric charge. The total number of nucleons is usually called A, and the number of protons is called Z. The simplest nucleus is that of hydrogen with just one nucleon, a proton.

A figurative depiction of the helium-4 atom with the electron cloud in shades of gray. In the nucleus, the two protons and two neutrons are depicted in red and blue. This depiction shows the particles as separate, whereas in an actual helium atom, the protons are superimposed in space and most likely found at the very center of the nucleus, and the same is true of the two neutrons. Thus, all four particles are most likely found in exactly the same

1 Å = 100,000 fm
space, at the central point. Classical images of separate particles fail to model known charge distributions in very small nuclei. A more accurate image is that the spatial distribution of nucleons in a helium nucleus is much closer to the helium electron cloud shown here, although on a far smaller scale, than to the fanciful nucleus image. Source: Wikimedia Commons

Thus, in a standard stable nucleus we have some neutrons and protons (summing up $A$ nucleons), and its electric charge is equal to the number of protons, $Z$.

But not all nuclei are stable. Some are radioactive, meaning that some kind of decomposition takes place with the net result that there is a change in the nature of the nucleus and that some radiation, in many cases in the form of particles, is emitted.

One of this radioactive processes is called beta decay. There are three varieties of beta decay but we are interested in what follows only in the so-called negative beta decay, because one of particles issued is an electron. In this case, a neutron is transformed into a proton ($A$ is constant but $Z$ has increased in one, yielding a different chemical element) and an electron. But it is not that easy. When you try to balance the energy before and after the transformation you find there is a lack of energy in the products. Because the conservation of energy is the closest to a dogma there is in physics, Wolfgang Pauli postulated in 1930 that there should exist a tiny neutral particle that would account for the missing energy. He called this particle the neutrino and its existence was confirmed experimentally for good in 1956.

Now, you can ask about the properties of these neutrinos. Some of them have answers already: there are three classes of them and neutrinos can change between them, they have no charge, they move very close to the speed of light and have a non-zero mass (we do not know exactly how much, though). But there is another one which is much more difficult to answer and with important implications.

Particles usually have antiparticles. Antiparticles have the same mass as the particle it takes the name from but the opposite values of a different property. In the case of the electron, its antiparticle, the antielectron or positron, has the same mass but a positive charge. In the case of the neutron, the antineutron has the same mass but an opposite-sign magnetic moment relative to its spin. What about neutrinos? We do not know yet. There could be an antineutrino with the same mass but different chirality the neutrino has. If this is the case, in negative beta decay the particle emitted together with the electron would be an antineutrino.

If neutrinos are so-called Dirac particles then they are different from their antiparticles. But there is also the possibility that the neutrino is its own antiparticle. And when particle and antiparticle meet they annihilate. So, if neutrinos are their own antiparticle, they would be so-called Majorana particles, in a negative beta decay process, for every pair of atoms we may have two antineutrino-neutrino that would annihilate. In this annihilation more energy is produced, and this peak of energy should be detectable in the kinetic energy distribution of the electrons emitted.

Concluding that the neutrino is a Majorana particle would be really a turning point in our understanding of the universe. It would mean the non-conservation of a magnitude called the leptonic number, one of the key characteristics in a fermion, meaning that there would be an explanation to the matter-anti matter asymmetry: the creation of slightly different amounts of matter and antimatter in the Big Bang that, once annihilation finished, left a small amount of standard matter that we call our observable universe.
The NEXT experiment is trying to determine whether neutrinos are Majorana particles or not (you can read about it [here](#) and [here](#)). Basically NEXT uses the electroluminescence amplification – which provides a large yield of photons as a signal – of the primary ionisation signal provoked by emitted electrons in a volume of xenon-136-atom pressurized gas. The presence of molecular impurities in the noble gas was supposed to dramatically reduce the electroluminescence yield. If an electron has a significant probability of colliding with a molecular impurity before it obtains from the electric field enough energy to excite a noble gas atom, it may lose part of its energy without producing electroluminescence photons.

But why should NEXT tolerate any of these impurities in the xenon gas? The short answer is to make it better at what it is supposed to do. The longer answer is that, because the energy loss in elastic collisions with xenon atoms, there is a large electron diffusion, making the topological signature of the ionisation trail in the gas more difficult to measure; by adding a molecular gas, like CO2, CH4 or CF4, to pure xenon, new molecular degrees of freedom from vibrational and rotational states are made available for electron energy transfer in inelastic collisions, reducing considerably electron diffusion.

Recent experimental studies with Xe-CO2 and Xe-CH4 mixtures, for different concentrations of the additives, have shown that the reduction is not as drastic as previously believed. Hence, a campaign designed to systematically add several molecular gases to xenon, at minute concentration levels, has started within the scope of the NEXT experiment ¹, with the participation of Ikerbasque Research Professor J.J. Gómez-Cadenas (DIPC), Ikerbasque Research Associate Paola Ferrario (DIPC) and Francesc Monrabal (DIPC & University of...
Texas, Arlington). The aim is to find a suitable mixture able to reduce diffusion and improve the topological discrimination of the events, without compromising significantly the performance of the detector in terms of electroluminescence yield and energy resolution.

The results show CO2 and CH4 show potential as molecular additives in a large xenon detector. While CO2 has some operational constraints, making it difficult to be used in a large one, CH4 shows the best performance and stability as molecular additive to be used in the NEXT-100 TPC, with an extrapolated energy resolution only slightly worse than the one obtained for pure xenon. Hence, if methane (or carbon dioxide) is used as an additive the detector could work very close to the diffusion limit imposed by the differences in temperature.

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References


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Donostia International Physics Center (DIPC) is a singular research center born in 2000 devoted to research at the cutting edge in the fields of Condensed Matter Physics and Materials Science. Since its conception DIPC has stood for the promotion of excellence in research, which demands a flexible space where creativity is stimulated by diversity of perspectives. Its dynamic research community integrates local host scientists and a constant flow of international visiting researchers.

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latest articles

Communication in brain may be remarkably constant in autism

BY RACHEL ZAMZOW / 14 JANUARY 2019

Parting paths: Connections between social and decision-making networks (red) typically grow over time, but autistic individuals don’t show this pattern.

Patterns of brain activity in people with autism are unusually consistent over seconds — and even years, two new studies suggest.1,2

One study shows that patterns of connectivity remain stable in autistic adolescents, whereas they tend to change and specialize in controls. The other study found that connections remain fixed longer in people with autism than in controls. Both focused on so-called ‘functional connectivity,’ the extent to which the activity of pairs of brain areas is synchronized.

Together, the studies may help untangle seemingly contradictory findings on connectivity in autism: reports of both underconnectivity and overconnectivity in the brain.
“Maybe the primary abnormality isn’t just that things are too weakly or strongly connected, that it has more to do with the timing of brain connections,” says Jeff Anderson, professor of radiology at the University of Utah, who led the second study.

The studies also highlight the importance of measuring brain activity over varying time periods and at different ages.

Researchers who home in on a single age may overlook differences that appear over time, says Mirella Dapretto, professor of psychiatry and biobehavioral sciences at the University of California, Los Angeles, and lead researcher on the adolescent study. “You miss some of the bigger picture.”

Studying brain activity over time provides a rare window into the development of connectivity.

“This is one of the only papers I’ve seen so far that tries to tackle that by doing it longitudinally,” says Lucina Uddin, associate professor of psychology at the University of Miami in Florida, who was not involved in the work. “You see that there may be a different developmental trajectory in autism.”

Tracking teenagers:

Dapretto and her team scanned the brains of 16 adolescents with autism and 22 controls at rest when they were 11 to 14 years old, and again about three years later.

The researchers measured connectivity among three brain networks thought to be altered in autism: the default mode network, which plays a role in self-reflection; the salience network, which directs attention; and the central executive network, which governs decision-making and other cognitive tasks.

In controls, from early to late adolescence, connectivity increases significantly between the central executive and default mode networks. And as activity increases in one, it decreases in the other. This shift suggests that the networks become more specialized, performing distinct functions.

In the autism group, however, connectivity in these networks remains stable and does not appear to specialize.

This altered development may arise from genetics or as a result of an individual’s experiences or environment.

“There [are] also abnormalities or alterations in the way the brain gets wired as a function of learning and experience,” Dapretto says. For instance, social struggles may affect brain development in autistic adolescents.

Lasting links:

In the second study, Anderson and his colleagues scanned the brains of 52 individuals with autism and 38 controls, aged 15 to 57 years. They measured connectivity across intervals from 1 to 31 seconds in 17 networks and 361 regions. (Standard analyses look only at instantaneous connectivity.)
They found that connectivity between regions lasts significantly longer in the autism group than in controls. The difference is greatest in networks that play a role in sensory processing, attention and self-reflection.

“These networks hold on to brain activity for too long; they are too stable,” Anderson says.

The degree of connectivity is only slightly different between groups at any point in time; bigger differences emerge over six seconds or longer. Anderson and his team confirmed these results in data from 579 individuals with autism and 823 controls from the Autism Brain Imaging Data Exchange.

The findings add to evidence of overly stable brain activity in autism.

“Previous studies, including ours, show stability in brain-activity transition,” says Takamitsu Watanabe, deputy team leader at the RIKEN Center for Brain Science in Japan, who was not involved in the work. “But [the researchers] show the stability of functional connectivity, so I think it’s kind of a new aspect of this study.”

The longer connectivity lasts, the more pronounced the person’s autism traits, as measured by the Social Responsiveness Scale, the study found.

“If your brain gets stuck in one state for too long, that might allow you to do some types of processing very well,” Anderson says. However, he says, “it doesn’t allow you to do the complex types of processing that combine information from different parts of the brain together.” For example, social interactions might require connections to be more flexible.

Identifying the patterns linked to autism features may help researchers target treatments, Watanabe says. Tools such as transcranial magnetic stimulation may interrupt persistent brain signals.

In an ongoing study, Anderson’s team plans to study how the timing of connectivity shifts during development. And Dapretto’s group aims to track connectivity patterns into adulthood.

https://www.spectrumnews.org/news/communication-brain-may-remarkably-constant-autism/
The More Loving One: Astrophysicist Janna Levin Reads W.H. Auden’s Sublime Ode to Our Unrequited Love for the Universe

“If equal affection cannot be, / Let the more loving one be me.”

BY MARIA POPOVA

I wrote Figuring (public library) to explore the interplay between chance and choice, the human search for meaning in an unfeeling universe governed by equal parts precision and randomness, the bittersweet beauty of asymmetrical and half-requited loves, and our restless impulse to uncover the deepest truths of nature, even at the price of our convenient existential delusions of self-importance. (More about the book here.) These are vast, thickly interwoven themes, difficult to distill in a single sentiment, so I chose two dramatically different yet complementary epigraphs to open the book — one drawn from the trailblazing 18th-century philosopher and woman of letters Germaine de Staël’s treatise on the happiness of individuals and societies, and the other from one of our civilization’s most lucid and luminous poets laureate of the human spirit: W.H. Auden (February 21, 1907–September 29, 1973).
The Auden stanza comes from his stunning poem “The More Loving One,” originally published in his 1960 book *Homage to Clio* (public library) — a collection of shorter poems about history, a concept Auden defines in his own epigraph for the book:

Between those happenings that prefigure it
And those that happen in its anamnesis
Occurs the Event, but that no human wit
Can recognize until all happening ceases.

History, in other words, is not the objective chronicle of events but the subjective recognition of happenings sighted in the rearview mirror of being. (This is a question I explore throughout Figuring, in the prelude to which I wrote that *history is not what happened, but what survives the shipwrecks of judgment and chance.*) Auden saw history — this selective set of remembrances constructed by human intention and choice — as
both counterpart and antipode to nature, in which events unfold free of intent, governed by chance and the impartial physical laws of the universe. Curiously, “The More Loving One” appears among Auden’s poems about history, but it deals with nature and the disorienting necessity of learning to love a universe insentient to our hopes and fears, unconcerned with our individual fates — perhaps the least requited love there is, as well as the largest. It is an elegy, in the classic dual sense of lamentation and celebration, for our ambivalent relationship with this elemental truth and an homage to the supreme triumph of the human heart — the willingness to love that which does not and cannot love us back.

In this recording from the Academy of American Poets’ sixteenth annual Poetry & the Creative Mind, astrophysicist and author Janna Levin reads Auden’s sublime poem, with a lovely prefatory reflection on the bittersweet seductions and consolations of our unrequited love for the universe.

THE MORE LOVING ONE
by W.H. Auden

Looking up at the stars, I know quite well
That, for all they care, I can go to hell,
But on earth indifference is the least
We have to dread from man or beast.

How should we like it were stars to burn
With a passion for us we could not return?
If equal affection cannot be,
Let the more loving one be me.

Admirer as I think I am
Of stars that do not give a damn,
I cannot, now I see them, say
I missed one terribly all day.

Were all stars to disappear or die,
I should learn to look at an empty sky
And feel its total dark sublime,
Though this might take me a little time.

Complement with Levin’s beautiful readings of Maya Angelou’s cosmic clarion call to humanity, Adrienne Rich’s tribute to the world’s first professional female astronomer, and Ursula K. Le Guin’s ode to time, then revisit Auden on writing, true and false enchantment, and the political power of art. For a different side to the poetics of asymmetrical yet profoundly beautiful love, savor Emily Dickinson’s electric love letters to Susan Gilbert, excerpted from Figuring.
https://www.brainpickings.org/2019/02/04/janna-levin-w-h-auden-the-more-loving-one/?mc_cid=cc859a35ca&mc_eid=d1c16ae662
Fixing a flaw in photosynthesis could massively boost food production

An efficiency boost might be on the way

stevanovicigor/Getty

By Michael Le Page

Intelligent design has triumphed where evolution has mostly failed. Biologists have boosted the biomass of tobacco by around 40 per cent by compensating for a fundamental flaw in photosynthesis.

The team is now working trying to introduce the same changes into food crops, starting with cowpeas and soybeans. “The funding agencies are really keen on getting this technology into the hands of the world’s poorest,” says team member Amanda Cavanagh at the University of Illinois in Urbana.

The key ingredients of life are molecules made of chains of carbon atoms. Plants assemble these chains from carbon atoms taken from the carbon dioxide molecules in the air.

Evolution’s greatest mistakes
But the enzyme that grabs hold of CO2 and adds it to a carbon chain often grabs hold of an oxygen molecule by mistake. This generates toxic molecules that plants have to expend energy to mop up. This fundamental flaw has been described as one of evolution’s greatest mistakes.

To be fair, it wasn’t a huge issue when photosynthesis first evolved, because there was little oxygen around. But as oxygen levels rose and CO2 levels declined over the aeons, it became a huge problem for plants. The grabbing of oxygen by mistake – called photorespiration – now happens so often it can reduce the efficiency of photosynthesis by as much as 50 per cent.

A few plants have evolved a solution: they concentrate CO2 inside them to reduce the odds of oxygen being grabbed by mistake. But most of the plants we eat, including almost all vegetables and fruits, and key crops such as wheat, rice and soybeans, can’t do this. Biologists have been trying to find a fix for decades.

Rerouting the process

Based on this work, Cavanagh and colleagues designed three alternative pathways for dealing with the toxic byproducts of photorespiration. “What we tried to do was to reroute the entire process,” she says.

They genetically engineered these pathways into tobacco, chosen because it’s an easy plant to modify and has a short life cycle. In field tests over two seasons, the biomass of the best performing plants was boosted by more than 40 per cent. In 2016, another team boosted tobacco biomass by around 15 per cent by improving plants’ ability to cope with changing light levels. “The hope is that we can stack up these traits and get additive gains,” says Cavanagh.

But making fundamental improvements in photosynthesis might have some risks. In theory, upgraded crop plants that turn feral or interbreed with wild relatives could have a competitive advantage over most other plants.

But even if this trait does spread beyond farms it’s unlikely to cause serious problems, says plant geneticist Maureen Hanson of Cornell University.

“Enhanced growth of a weedy species is not likely to disturb ecology as much as we already disturb it through the environmental effects of traditional agriculture,” she says.

And in the wild plant growth is mainly limited by the availability of water, nitrogen and phosphorus, not by photosynthetic capacity, says Andreas Weber of the Institute for Plant Biochemistry in Duesseldorf, Germany. “I don’t think that the trait would provide a selective advantage to natural vegetation.”

Big boosts

The risks also have to be weighed against the benefits. Most efforts to improve crops produce only tiny yield increases. Big boosts are desperately needed to feed the world’s growing population while reducing greenhouse emissions via bioenergy and still leaving space for the wildlife we depend on.
Even if the most glaring flaws in photosynthesis were fixed, plants would still be far less efficient at capturing the sun’s energy than solar panels. That’s why many researchers are trying to develop artificial forms of photosynthesis.

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Wiggling and Jiggling
BY DEAN TANTILLO

As chemists incorporate molecular vibrations into their study of reactions, they are learning that many pathways are entangled.

CHEMISTRY PHYSICS
Imagine you’re barreling downhill on a backcountry ski slope. Atop the skis, you’re buffeted back and forth—by the wind, by the iciness of the snow pack, by the changing direction that you’re leaning to stay upright. All these factors will affect your path down the slope and your destination. During chemical reactions, molecules similarly can be affected by circumstances. Along the way to products, they reach a point of peak energy. Their journey forward then tracks downward, like a ski slope. And the path of that downward chemical reaction can fork, in a split known as a post–transition state bifurcation. Chemists have started to map the multitudes of available molecular trajectories heading downhill, and these maps are leading them to new ways of controlling the outcome of reactions.
In undergraduate courses, students typically learn that chemical reactions follow straightforward pathways over a hill from start to finish. A reactant (a starting molecule or collection of molecules at a low point in potential energy) converts to a product (another molecule, or a collection of molecules) at a low point in potential energy. That path goes through a transition state—the structure with the highest potential energy—which is the peak separating reactants and products (see sidebar, below).

In situations in which a reaction produces more than one product, chemists had generally assumed that separate pathways with different transition states led to each: The transition states had different total energies, and therefore the reactions faced different barriers and occurred at different rates. The reaction with the lower-
energy transition state occurred more rapidly and produced more product. But these principles don’t explain all that chemists observe in the laboratory. Some reactions produce ratios of products that can’t be understood using these simple rules.

Recent studies using quantum chemistry have furnished a more complicated picture of reactions: Many don’t have simple one-track, downhill pathways. Instead, after reaching transition states, some pathways can bifurcate, splitting toward two or more low points in potential energy, which results in multiple products.

The revelation that a single transition state can produce more than one product has significant implications for chemists and others working with molecules. The synthesis of drug compounds and other important chemicals, the synthesis of polymers and other materials, the engineering of enzymes, and more, all rely on chemists’ ability to control reaction processes and produce desired products while minimizing or eliminating undesired ones.

This revelation also complicates a chemist’s traditional view of reactions — that a reactant morphs smoothly in structure and energy to result in a product. Instead, chemists must consider the energy of vibrations in reacting molecules and the ways that those oscillations alter the distances and angles between their atoms. As Richard Feynman famously said, “everything that living things do can be understood in terms of the jigglings and wigglings of atoms.” But only recently have researchers had sufficient computational resources to model these vibrations in more complex molecules, using quantum chemistry.

**SIDEBAR**

**Mapping Trajectories**

Traditionally chemists have described reaction pathways in relatively simple terms, as shown in

**Modeling the Mayhem**

Chemists have discussed the connection between molecular momentum and reaction mechanisms for approximately half a century. In 1970 theoretical chemist Lionel Salem of the French National Center for Scientific Research predicted that study of the dynamic behavior of reacting species would play an increasingly important role in how chemists rationalize chemical reactivity. Over the past three decades, organic chemist Barry Carpenter of the University of Bristol in the United Kingdom has argued convincingly that chemical reactions should be viewed and analyzed by considering atoms’ masses and vibrations alongside their positions, known as a phase-space perspective.

As Richard Feynman famously said, “everything that living things do can be understood in terms of the jigglings and wigglings of atoms.”

The notion of phase-space places the importance of atoms’ velocities and masses on equal footing with their positions (including the probable locations of electrons). For a reaction with a post–transition state bifurcation, the momentum associated with atoms that are not involved in breaking bonds or making new ones can control which product forms. A molecule’s vibrations, as it moves from an energy valley following a transition state to an energy ridge separating products, connect directly to which path it follows toward lower energies. That selection determines where the chemical “skier” ends up and which product is formed.

Applied theoretical chemists now run reaction simulations that distribute energy among vibrational modes of a transition state, activating particular bond stretches and angle bends to various degrees. Such calculations are known as dynamics trajectory simulations. When a transition state moves toward a product, its structure varies. Not only do those changes make it more like the product, but they also prompt other parts of the structure to jiggle and wiggle.
These calculations have already provided insights into why some chemical reactions produce unwanted side products. For instance, for many years synthetic chemists have been producing substances called β-lactones in the laboratory. Many β-lactones occur naturally and can have antimicrobial activity, which makes them interesting drug candidates. These compounds include 4-membered rings comprising three carbon atoms and one oxygen atom, with a second oxygen atom protruding from one of the neighboring carbon atoms. When carried out in the lab, many β-lactone–forming reactions produce a mixture of products. For example, the reaction described in the figure at the top of page 25 yielded only 18 percent of the desired β-lactone product and 50 percent of an undesired product.

Dynamics trajectory calculations for this process showed that the wiggling of molecules after passing the transition state determined which product they formed. A “split” in the reaction pathway after the transition state—a post–transition state bifurcation—led to both products, but the vibrations of the reacting molecules led to one product or the other. In this example, the phase-space viewpoint provides an unexpected model of reactivity that can be used both to reduce unwanted byproduct and to boost the yield of the desired compound.

Overall, these ideas have been relatively slow to take off within the chemistry community. Although molecular motions influence all chemical reactions, relatively few transformations have been explored with dynamics trajectory calculations. Therefore, it’s unclear how many chemical processes involve post–transition state bifurcations. But if chemists can study more reactions and learn more about the rules at play, they can apply their knowledge to produce new molecules more efficiently in the laboratory and to harness the complex chemistry catalyzed in nature.

Nature as Dynamic Director

Some biological reactions catalyzed by enzymes also involve the actions of post–transition state bifurcations, and these processes can have important implications for understanding activities in living organisms.

The plant Salvia miltiorrhiza (also called Chinese sage or tan shen, 丹参) has long been used in traditional Asian medicine to treat a range of conditions, from heart disease to hepatitis. This plant produces compounds called tanshinones through a series of enzyme-catalyzed reactions. It’s unclear how these molecules benefit the plants that produce them, but recently researchers have been testing some tanshinones in the clinic against heart disease and cancer. A single enzyme controls the reaction network that establishes the carbon core of these natural products. This network has the greatest number of linked post–transition state bifurcations yet discovered (a small subset of these are pictured in the last figure at the bottom of this article).

We’re still at the beginning of understanding the intricate details of how the dynamics of molecules influence their trajectories.

The tanshinone precursor, called miltiradiene, is a complex natural product that includes multiple rings composed of carbon atoms. Like many reactions used by chemists and nature to produce these types of complex structures, enzyme-catalyzed miltiradiene formation involves a positively-charged intermediate known as a carbocation. Such intermediates can rearrange their structures, reshuffling the positions of carbon atoms, to form a variety of products.

The rearrangement reaction in the figure at the bottom of this article was predicted to involve multiple sequential post–transition state bifurcations, allowing a single transition state to produce many products.

But even though this reaction pathway can form many products, in our simulations of molecular wiggling and jiggling we observe only two products that form in substantial quantities—the two cations highlighted in green and blue in the figure. These results suggest that the initially formed carbocation intermediate has an inherent tendency to form products that result from simple motions, such as the rotation around a single bond between two carbon atoms, shown in red in the figure. In nature, an enzyme assists in the reaction to form...
miltiradiene, but our dynamics calculations did not include the enzyme. Therefore, the enzyme catalyst isn’t solely responsible for determining which product is formed: The substrate has an inherent dynamical bias that’s expressed during the reaction.

**Full of Potential**

These results point to ways of redefining the questions that biochemists ask about enzymes and their roles. Once they have information about post–transition state bifurcations and their implications, biochemists can ask how these factors contribute to reaction rates, product selectivity, and even the evolution of enzymes.

Illustration by Barbara Aulicino

In our computational study of miltiradiene formation, we observed a plethora of previously unknown post–transition state bifurcations. At first glance, that result might seem to suggest that many different products should form in roughly equal amounts. But our dynamics trajectory calculations tell a different story: Instead, the enzyme needs to actively suppress the formation of only one possible byproduct. With that vital information, researchers can focus their work on understanding how the enzyme blocks that undesired path, rather than chasing down false assumptions.
We’re still at the beginning of understanding the intricate details of how the dynamics of molecules influence their chemical trajectories. It’s a complex challenge. In some cases, the dynamic effects can be dwarfed by other competing factors, and reaction models that neglect or de-emphasize molecular momentum can still be useful. But not checking whether dynamic effects contribute is dangerous.

We have the privilege of exploring this molecular mystery and uncovering a new fundamental understanding of how molecules react. If we know that a reaction includes a post–transition state bifurcation and understand
how dynamic effects control the ways molecules navigate past it, we can design new experiments to increase selectivity for a desired product. Knowing how an enzyme modulates substrate dynamical tendencies can lead directly to the design of enzyme mutants that produce useful molecules not found in nature. With insights gained from exploring this relatively uncharted and complicated territory—the back side of the downhill ski run—comes opportunities to influence how new molecules are made.

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https://www.americanscientist.org/article/wiggling-and-jiggling
A Prayer to Eve

by Kathleen Norris

Issue no. 115 (Summer 1990)

Mother of fictions
and of irony,
help us to laugh.

Mother of science
and the critical method,
keep us humble.

Muse of listeners,
hope of interpreters,
inspire us to act.

Bless our metaphors,
that we may eat them.

Help us to know, Eve,
the one thing we must do.

Come with us, Muse of exile,
Mother of the road.

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Fall from Grace

Paul Starr

MARCH 21, 2019 ISSUE

Merchants of Truth: The Business of News and the Fight for Facts
by Jill Abramson
Simon and Schuster, 534 pp., $30.00

Network Propaganda: Manipulation, Disinformation, and Radicalization in American Politics
by Yochai Benkler, Robert Faris, and Hal Roberts
Oxford University Press, 462 pp., $27.95 (paper)

Since the early 2000s, journalism has been a precarious and embattled profession. The news industry has suffered staggering losses of revenue and employment, and journalists have become the targets of scorn and even hatred. The entire field has been politically reconfigured, as media outlets identified with different ideological positions provide their audiences with alternative versions of reality.
The profession’s fall from grace and the industry’s transformation have been all the more dramatic because of the advantages the news media enjoyed in the late twentieth century. Newspapers in most cities had consolidated down to one or two dailies, leaving the survivors with a near monopoly on print advertising in metropolitan markets. Although cable was making inroads, the three big broadcast networks still dominated television news. High-quality journalism itself was never very profitable in print or on TV, but it gave media organizations prestige and influence, and with their profits from advertising, they could afford it.

The monopoly held by the major news media also had the effect of marginalizing radical views on both ends of the ideological spectrum, creating the appearance and to some extent the reality of a broad bipartisan consensus in public life. Bolstered by healthy profit margins, the press was also able to cast itself as uncompromised by any commercial or partisan interest. Journalists and publishers who lived up to that standard of independence in the publication of the Pentagon Papers, the revelation of the Watergate scandal, and other great exposés became heroes.

This was the world that today’s older journalists knew when they were young. It was a world that concentrated power and profits but also enabled the press, insofar as its leaders were willing, to keep watch on government and business. David Halberstam’s The Powers That Be (1979), which focused on four exemplars of the era (CBS, Time Inc., The Washington Post, and the Los Angeles Times), was a chronicle of that world at its height.

In the early stages of the digital revolution, the print media saw the new technology as a means of reducing production costs and expanding their audience, and they were so self-confident that they gave away the news for free online. But print circulation began falling, and as the Internet developed in the early 2000s, Google and sites such as Craigslist siphoned off ad revenue the newspapers had depended on, and Facebook would drain away more. The full force of the digital wave hit a decade ago, at the same time as the Great Recession, plunging many newspapers into bankruptcy and leaving others struggling to survive.

Yet there were promising signs too. New online media were creatively applying the unprecedented capabilities of digital technology, fostering new forms of public exchange, and receiving major infusions of capital. Since then, some of the new media organizations have begun to produce serious journalism and become genuine rivals to the traditional news giants, which have adapted to compete in the current environment. In the last few years, journalists who adhere to the profession’s norms have also had a revived sense of mission. Amid the torrent of lies from the highest reaches of government and disinformation on social media, journalism’s leaders are making unabashed claims that their business is “truth,” using that word without apology or qualification.

But because journalism has not been a lucrative business for some time, its ideals of truth-telling have become harder to uphold. The majority of digital ad revenue goes to Google, Facebook, and other companies that do not put it back into producing content; most newspapers no longer have the resources even for many of the routine stories they used to cover, much less for costly investigations. News organizations of all kinds are preoccupied with the new metrics of the digital economy and the old imperatives of revenue and profits. Survival depends on monetizing organizational assets, which in practice often means calling on editorial staff to work on business projects, ending the separation that was once a cardinal principle of journalistic ethics.

This tension between editorial autonomy and profit lies at the heart of Jill Abramson’s Merchants of Truth. Taking Halberstam’s book as her model, Abramson uses four news organizations—BuzzFeed, Vice, The New York Times, and The Washington Post—to tell the story of how journalism has evolved since around 2007, the point when newspapers began getting desperate and social media began taking off. The book has been dogged by charges of plagiarism and carelessness that have deflected attention from its argument. Several passages in the chapters on Vice all too closely follow other writers’ language; Abramson also got details wrong about a number of young journalists, making them appear inexperienced and unqualified. There is no
excusing these failures, but not every damaged vessel should be sunk. For all its deficiencies, Merchants of Truth sheds considerable light on the news in this dark time; anyone who wants to understand what has been happening to journalism will learn a great deal from it.

Abramson is not a detached observer. She was in the thick of journalism’s crisis of survival as executive editor of the Times from 2011 to 2014, when she was summarily fired by the publisher, Arthur Sulzberger Jr. Folded within Merchants of Truth is a personal memoir of her tenure that has inevitably drawn attention for its gossipy details and its significance in the age of women’s demands for equality in the workplace (she was the first woman to hold the Times’s top editorial post). But this is not what her book is about. Abramson believes she was underpaid and judged unfairly on sexist grounds, yet she also acknowledges so many limitations and mistakes of her own that she makes a fairly strong case for Sulzberger’s decision to replace her. What connects her personal story to the book’s larger theme is that she frames her difficulties as arising chiefly from the pressure at the Times to prioritize business concerns.

To broaden her account beyond the struggles of the traditional press, Abramson recounts the seemingly improbable transformation of two media upstarts into important journalistic outlets. BuzzFeed and Vice have followed a course that actually has old precedents. Innovation in the media often comes from the bottom of the market in cheap forms that the established institutions initially regard as unserious and vulgar. The penny press in the 1830s and later popular newspapers won mass audiences by catering to their readers’ emotions, inventing new genres such as crime reporting, and adopting visually arresting changes in graphic design.

BuzzFeed was the brainchild of Jonah Peretti, who as a graduate student at the MIT Media Lab had become interested in what he called “contagious media.” He first made a name for himself as one of the founders of The Huffington Post, where his mastery of techniques for gaming Google searches was invaluable in boosting traffic for the startup’s cheap fare, mostly celebrity posts and rewrites of stories from other news outlets. He then saw an opportunity for a new media enterprise based on the viral spread of memes, and in 2006 set up BuzzFeed, originally as a laboratory for creating the tools to detect trends in online sharing faster than anyone else. This was just as Facebook was emerging: “It’s like we happened to start surfing a few minutes before a great wave rolled in,” Peretti said.

When BuzzFeed began offering content, it had no pretensions to journalism, aiming instead to get people to share its cat videos, weird news items, quizzes, and listicles. (Criticized for relying so heavily on lists, Peretti defended them as “an amazing way to consume media,” citing the Ten Commandments and the Bill of Rights.) BuzzFeed’s staff competed not just to go viral but to go “mega-vi”; no website was better at creating million-view posts out of likable or, even better, “relatable” trivia. Abramson mentions that BuzzFeed even discovered an emotion for which no word exists in the English language: “the feeling of having one’s faith in humanity restored.” Posts conveying that feeling went mega-vi. Whether BuzzFeed itself at that point restored one’s faith in humanity was another matter.

Vice, which began as a counterculture paper in Montreal in the 1990s (its founders eventually moved it to New York), appealed to entirely different emotions. It sought to be edgy and provocative, oblivious to political correctness, and indeed intentionally offensive with articles like “Was Jesus a Fag?” and a “Racist Issue” featuring stereotypical racial images. Of Vice’s three cofounders—Shane Smith, Gavin McInnes, and Suroosh Alvi—McInnes was the one responsible for many of the provocations until his colleagues forced him out; he went on to found the Proud Boys, a far-right white-nationalist, antifeminist group. Smith was the dominant force in turning Vice into a media empire. His vision, Abramson writes, was for Vice to be “a bad-boy brand,” but it was also a “laddie magazine” that was somehow a “bible for hipsters” too.

From these unpromising beginnings, BuzzFeed and Vice became respectable enterprises with high ambitions. In 2011 Peretti brought in Politico’s Ben Smith as news editor and gave him the budget to hire accomplished young journalists and a mandate to do news in a way that would be as relatable and shareable as BuzzFeed’s
other content. Although BuzzFeed News at first specialized in little scoops that earned fleeting attention, Peretti authorized Smith to create an investigative reporting unit to do more substantial stories. In 2016, through the work of Craig Silverman, BuzzFeed also played a critical part in identifying and debunking “fake news” in its original sense as pure scams and fabrications. Vice’s move up the ladder of respectability came chiefly through its expansion into video and development of international reporting “from the edge,” often exotic and dangerous locations—even North Korea—where other news organizations would not go.

These undertakings were feasible only because BuzzFeed and Vice attracted capital from patient investors and advertising from major brands. With no tradition of strict separation between the editorial and business sides, both organizations created their own in-house staff to produce “native ads” that told stories in the same style as their editorial content and therefore had the same potential to be shared virally. For example, in a charming BuzzFeed video ad, “Dear Kitten,” an older, wiser cat explains to a newly arrived kitten the pleasures and dangers of the house, eventually describing the delicious Purina Friskies that humans magically unlock from armored cans. (That ad, a classic of viral advertising, has been viewed more than 30 million times on YouTube.) Vice’s video ads were so similar to its documentary reports that viewers could hardly tell the difference.

According to Abramson, BuzzFeed deleted posts that might offend sponsors, while Vice also killed stories or “sanitized” them when they jeopardized relationships with potential advertisers. The business of being provocative apparently did not include a readiness to provoke business. In one respect, these new practices were contagious; despite their misgivings, newspaper publishers were soon creating their own in-house agencies to produce native ads too.

By the early 2000s, financial pressures were forcing the owners of traditional media to sell or adapt. Several newspaper-owning families—the Chandlers of the Los Angeles Times, the Bancrofts of The Wall Street Journal, and the Ridders of Knight Ridder, for example—decided to cash in while they could, but the Sulzbergers at the Times and the Grahams at the Post held on. At first the Post seemed to be on a steadier course because of Katharine Graham’s purchase in 1984 of the Stanley Kaplan test prep company, which became a gold mine, at least for a while, by expanding into for-profit education. Meanwhile, the Times made a series of blunders, including the disastrous decision to pay $1 billion in 1993 for the Boston Globe, which it would be able to unload twenty years later for only $70 million. But the ensuing reversal of fortune is where Abramson’s story holds its main interest. Chiefly because of different decisions about their core news business, the Sulzbergers succeeded in righting the Times, while the Post floundered and the Grahams decided to sell.

The Post’s story, as Abramson tells it, is a case study in strategic short-sightedness. Determined to keep up the paper’s profit margins to satisfy shareholders, the Grahams—first Donald E. Graham, Katharine’s son, and then Katharine Weymouth, Don’s niece—made round after round of cuts in the newsroom. Don Graham also insisted on maintaining the paper’s focus on the local Washington area, rejecting advice to turn the Post into a global brand. In another bad decision, he turned down the proposal for what became Politico, which has developed into a formidable rival to the Post itself in Washington reporting. When Kaplan became implicated in the deceptive practices of the for-profit education industry and the Obama administration changed the rules for federal student loans, what had seemed like the Post’s salvation became a curse. Kaplan’s profits plummeted, and the Post’s entanglement with the company damaged the paper’s reputation. With no answer to the Post’s difficulties, the Grahams in 2013 turned to a buyer whom they trusted to uphold the paper’s traditions, Jeff Bezos, under whom it has rebounded.

In contrast to the Grahams, Arthur Sulzberger Jr. refused to make deep editorial cuts at the Times in the belief that if it maintained its standards, people would continue to pay to read it. The Times sold off its other assets, slashed its dividends, and cut its business staff. “Sulzberger was certain his paper could be ‘the last man
standing,” Abramson writes, “as long as he was careful not to damage the quality of the news.” Even though an initial effort in 2005 to establish a paywall on the website had failed, Sulzberger took the risk of imposing one again in 2011, this time with a design that allowed free access for infrequent visitors but required regular readers to pay. The new paywall proved wildly successful, generating a new stream of income from digital subscriptions.

But the financial pressures continued, and it was against that background that Abramson’s conflicts with Sulzberger developed, especially over the pressure for closer collaboration between the editorial and business staffs. Abramson objected to journalists being “distracted from their work by endless meetings with product managers” who were trying to come up with money-making ventures such as apps and sponsored events. None of the incidents she relates, however, appear to have involved decisions that compromised the paper; her struggles with Mark Thompson, the TimesCEO, were as much over turf as principle. She resented being imposed upon. During a discussion with Sulzberger and Thompson about apps for monetizing the Times’s content, she “snapped” at Thompson: “If that’s what you expect, you have the wrong executive editor.” Although she claims that she was unwilling to sacrifice her “ethical moorings for business exigencies,” it’s not clear that any ethical sacrifice was being asked of her.

Yet in writing her book, or perhaps not writing enough of it, Abramson has landed herself in an ethical controversy. Her critics have been hard on her, and it’s not surprising. A writer on lapses in journalism who becomes an illustration of the profession’s problems is like a preacher revealed to be a sinner. No one in the congregation will talk about anything else.
Jill Abramson (center) with Gerald Boyd, Joe Lelyveld, and others in the newsroom of The New York Times as the Pulitzer Prizes were announced, April 2004

The sermonizer’s sins, however, are sometimes a distraction from bigger problems. The major limitation of Abramson’s book is that it offers too reassuring a picture of journalism. During her two years of work on it, she caught the Times and the Post on an upswing in their finances and BuzzFeed and Vice on an upswing in their editorial standards. In her conclusion, Abramson briefly discusses cuts in newsrooms elsewhere, but the general drift of the book is that things are looking up.

A wide-angle view would bring out a darker story. Newspapers around the country continue hurtling toward collapse, and digital media are not replacing them. Since 2004, according to a study by Penny Abernathy of the University of North Carolina, about 20 percent of newspapers have shut down, while many of the survivors have become what Ken Doctor of Harvard’s NiemanLab calls NINOs (newspapers in name only): diminished ad shoppers with hardly any local reporting. Private equity firms have bought many of these to suck the last profits from them. The new year has also brought editorial cuts in digital news media, including layoffs at both BuzzFeed and Vice.

While the Times and the Post may navigate the digital transition successfully, they belong to a limited class of national news organizations large enough to generate substantial subscription revenue from their readers. There is no sign that the digital market can support local or even regional journalism at anything like the level it had in print.

The picture of the news that Abramson provides is also too reassuring because it leaves out the radical transformation of the right. The problem is not just the omission from her book of any sustained discussion of the major right-wing outlets such as Fox; Abramson is also missing a larger change. When Halberstam wrote The Powers That Be, it made sense to focus on a few individual news organizations. Most Americans got their news from a paper they subscribed to, an evening news program they watched regularly, and perhaps a weekly news magazine. Now they get news from more diverse and only hazily known sources, and much of it via social networks.

In Network Propaganda, Yochai Benkler, Robert Faris, and Hal Roberts illuminate this new “media ecosystem” through an analysis of how political news was linked, liked, and shared from 2015 to 2018 and how the news media either amplified or checked the diffusion of falsehoods. The study is based on four million political stories from 40,000 online sources, as well as case studies of conspiracy stories, rumors, and outright disinformation.

The pattern that emerges from the data contradicts the idea that there are two symmetrical echo chambers on the right and left. On the right, Benkler and his colleagues find an insular echo chamber skewed toward the extreme, where even the major news organizations (Fox and Breitbart) do not observe norms of truth-seeking. But from the center-right (for example, The Wall Street Journal) through the center to the left, they find an interconnected network of news organizations that operate under the constraint of established journalistic norms.

The result is two different patterns in how falsehood travels. On the right, major news organizations amplified stories concocted in the right’s nether reaches, such as Pizzagate (Democrats were purportedly operating a child-trafficking ring out of a pizza shop in Washington) and the Seth Rich murder conspiracy (an aide at the Democratic National Committee was killed supposedly because he divulged its e-mails to WikiLeaks). False stories originated on the left as well, but they were generally not relayed to a wider public. The right-wing media failed to correct falsehoods or to hold their journalists accountable for spreading them, whereas the rest of the media checked one another, corrected mistakes when they made them, and in several cases disciplined or fired those responsible for errors. These differences contributed to the greater susceptibility on the right not
only to home-grown propaganda but also to Russian disinformation and commercially fabricated clickbait whenever these were consistent with what the authors call the “tribal narrative.”

The analysis in Network Propaganda does not, however, exonerate mainstream journalism from all that has gone wrong in the media. In 2016, Benkler and his colleagues argue, the right was able to “harness” the press to its cause because of journalists’ preoccupation with “balance” and eagerness for scoops. They note that the press had an institutional problem: How would it maintain balance if reporters did hard-hitting stories about Trump? Borrowing from a study by Thomas E. Patterson, they conclude that the solution was to run equally hard-hitting stories about Hillary Clinton. Journalists “performed” neutrality with harshly negative coverage of both candidates. In fact, according to Patterson’s analysis, negative coverage of Clinton outpaced positive coverage 62 percent to 38 percent, while coverage of Trump was 56 percent negative to 44 percent positive.

The interest of mainstream journalists in balance created a market for scoops about Clinton that the right was able to help satisfy. A clear instance of this pattern is the coverage of the Clinton Foundation. The Times entered into an arrangement that gave it advance access to Clinton Cash, a book by a Breitbart editor, Peter Schweizer, sponsored by a project founded by Schweizer and Steve Bannon and funded by Robert Mercer. The resulting Times article insinuated that in exchange for money for the Clinton Foundation, Hillary Clinton had enabled a Russian firm to acquire control of American uranium assets, even though the Times had no evidence that she had intervened in the decision to approve the deal, which a committee representing nine government agencies had made. The Times article and other overwrought and often misleading pieces in the mainstream press about the Clinton Foundation and the Clinton and DNC e-mails became some of the most widely shared news items in 2016, thus helping the Republican effort to depict Clinton and the Democrats as corrupt.

The negative mainstream coverage of Clinton, according to Network Propaganda, mattered far more than Russian disinformation to the outcome of the 2016 election. The authors’ point is not to deprecate the value of professional journalism, which they recognize is indispensable. Even though perfect objectivity is impossible and truth is “necessarily provisional,” Benkler and his colleagues write, truth-seeking organizations function differently from organizations set up to produce propaganda. While they are not always successful, the media that observe journalistic standards of truth make it possible to stop lies in their tracks. They give us some hope that a democratic society can reach a rational understanding of the world.

Yet the truth about our truth-seeking media, as Abramson’s book rightly emphasizes, is that they are also profit-seeking; our merchants of truth operate not only under journalistic norms but also under commercial constraints. When a publisher succeeds financially, as Sulzberger did, by protecting the quality of the news, we ought to celebrate that achievement as a victory for democracy itself. When an organization like BuzzFeed hunts down and exposes fabrications, that is a victory too. But when so much of journalism is at risk of disappearing and so many Americans inhabit a right-wing echo chamber, we ought to recognize that our country is in a crisis that strikes at its foundations.

https://www.nybooks.com/articles/2019/03/21/jill-abramson-journalism-fall-from-grace/
Frogs Have a Bioelectric Mirror

Amputation of one limb triggers a rapid electric response that reflects the injury in the opposite one, researchers find.

CATHERINE OFFORD

ABOVE: E-SIGNATURE: Tissue in a frog’s uninjured hindleg depolarizes (bright green, right) in an electrical pattern that mirrors the amputation of the other leg (left).
SERA BUSSE, PATRICK MCMILLEN, MICHAEL LEVIN, TUFTS UNIVERSITY

EDITOR’S CHOICE IN NEUROSCIENCE

The paper


Many animals can regenerate lost tissue during at least part of their life cycles. Studies of Xenopus frogs and other amphibians have found that limb regeneration involves bioelectrical signaling at the amputation site. But growing evidence suggests such signals extend over greater distances. “Electrically speaking, the body seems to be an integrated system,” says Tufts University developmental biologist Michael Levin.

To explore long-range electrical signaling in a regeneration context, Levin’s group amputated part of the right hindlegs of anesthetized froglets that had been soaked in a fluorescent dye that indicates depolarization—a reduction in negative charge inside a cell relative to its surroundings that’s a signature of a bioelectric signal. Almost immediately after amputation, skin cells in the uninjured limb began “mirroring” the injury, Levin says. If just the foot was amputated, the opposite limb depolarized down to the foot. If almost all of the leg was amputated, only the top part of the opposite limb depolarized. “You can recover information about where the amputation was,” Levin says.

University of California, Davis, molecular biologist Andrew Hamilton, who was not involved in the study, says the discovery of this phenomenon—which Levin’s group calls bioelectric injury mirroring (BIM)—is “absolutely brilliant.” A next step will be characterizing how the signal is relayed, a challenge in froglets anesthetized using nerve-blocking drugs, he notes. If nerves turn out not to be involved, “I have no idea what is regulating such a fast response.”

The findings mean researchers should rethink the standard practice of using uninjured limbs as controls for amputated ones, Levin notes. His team now wants to understand the role of BIM in regeneration, and harness it to induce regrowth in frogs and other animals. “The real experiment to do is to amputate the leg, manipulate the voltage on the opposite side, and ask if there’s any change in regeneration,” he says. “That’s next.”

https://www.the-scientist.com/the-literature/frogs-have-a-bioelectric-mirror-65240
Journey to Mount Tamalpais: Lebanese-American Poet, Painter, and Philosopher Etel Adnan on Time, Self, Impermanence, and Transcendence

“When you realize you are mortal you also realize the tremendousness of the future. You fall in love with a Time you will never perceive.”

BY MARIA POPOVA

“Place and a mind may interpenetrate till the nature of both is altered,” the trailblazing Scottish mountaineer and poet Nan Shepherd wrote as she drew on her intimate enchantment with the Highlands in her masterpiece *The Living Mountain*. Having grown up at the foot of Mount Vitosha and spent swaths of my childhood in the Rila mountains of Bulgaria, I too have known the mind-scultping power of mountains and felt the embers of that knowingness reignited by *Journey to Mount Tamalpais* (public library).
Written shortly after I was born, this uncommonly beautiful book-length essay by the Lebanese-American poet, painter, and philosopher Etel Adnan (b. February 24, 1925), illustrated with 34 of her black-and-white sketches of the mountain, explores the themes that would animate Adnan through her nineties: time, self, impermanence, the nature of the universe, the spiritual dimensions of art, our belonging to and with the rest of the vast interwoven miracle we call nature.

Etel Adnan: Mount Tamalpais, 1985. (Sursock Museum, Beirut, Lebanon)

Born in Beirut and trained in Paris — where she would return to spend much of her later life with her partner of more than forty years, the Syrian-born artist and publisher Simone Fattal — Adnan lived and taught in Northern California for more than a quarter century. There, she fell in love with Mount Tamalpais — the first vertebrae of the mountainous backbone of the Americas that stretches all the way to Tierra del Fuego. In its towering presence, she found herself “left with the sort of wonder that the sense of eternity always carries with it,” with a “feeling of latent prophesy.” The mountain became her abiding muse, which she celebrated.
and serenaded in a flood of paintings and poetic reverberations. Under Adnan’s gaze — generous, penetrating, benedictory — the mountain becomes both metaphor and not-metaphor, both object of reverent curiosity and sovereign subject unbeheld to human interpretation. Hers is a way of looking that embodies Ursula K. Le Guin’s distinction between objectifying and subjectifying the universe. Adnan writes:

Like a chorus, the warm breeze had come all the way from Athens and Baghdad, to the Bay, by the Pacific Route, its longest journey. It is the energy of these winds that I used, when I came to these shores, obsessed, followed by my home-made furies, errynies, and such potent creatures. And I fell in love with the immense blue eyes of the Pacific: I saw is red algae, its blood-colored cliffs, its pulsating breath. The ocean led me to the mountain.

Once I was asked in front of a television camera: “Who is the most important person you ever met?” and I remember answering: “A mountain.” I thus discovered that Tamalpais was at the very center of my being.

Half a century after philosopher Martin Buber considered the tree as a lesson in the difficult art of seeing essence rather than objectifying, Adnan considers the mountain’s essence:

This living with a mountain and with people moving with all their senses open, like many radars, is a journey… melancholy at times: you perceive noise and dirt, poverty, and the loneliness of those who are blind to so many things… but miraculous most of the way. Somehow what I perceived most is Tamalpais. I am “making” the mountain as people make a painting.

[…]

It is an animal risen from the sea. A sea-creature landed, earth-bound, earth-oriented, maddened by its solidity.

The world around has the darkness of battle-ships, leafless trees are spearbearers, armor bearers, swords and pikes, the mountain looks at us with tears coming down its slopes.

O impermanence! What a lovely word and a sad feeling. What a fight with termination, with lives that fall into death like cliffs.

O Sundays which are like vessels in a storm, with nothing before and nothing after!

Out of the actuality of the mountain, Adnan draws an inner reality, rising too like a summit of self-transcendence:

I am at the window and Tamalpais looks back at me. I am in pain and it is not. But we are equals tonight.

[…]

I am amazed, but, more so, I am fulfilled. I am transported outside my ordinary self and into the world as it could be when no one watches.

But more than anything, Adnan finds in the mountain a vital counterpoint to the hubris of the self. A supreme equalizer of being, it stands as an antipode to our habitual anthropocentrism and self-involvement, humbling us — in the proper sense of humility, with its Latin root in humus, “of the earth” — into recognizing that we are each just one creature among many, a tiny constellation of stardust whose ephemeral existence is no more significant than any other. Adnan writes:

The Pacific often sings a soft funeral march. It was most appropriate that they found a man hanging by a tree near the top of Tamalpais. It was not horrible. It was just one of the many events that happen up there following the death of birds or the growth of plants.
Etel Adnan: Mount Tamalpais, 2000. (Callicoon Fine Arts, New York)

The singular power of the mountain both beckons us into absolute presence and catapults us into an awareness
Again and again, she returns to this transcendent dance of the ephemeral and the eternal, played out in the life of the mountain as in the life of art:
A bird ran into the glass door of my deck and died. I rushed with paper and a pencil to make a drawing and realized I couldn’t draw death. The record player was playing a Koranic prayer recorded in Tunisia. The lamenting voice of the Prophet became a funeral song for the silenced animal. I came in and saw my Ray Bradbury book opened on these lines:
Robins will wear their feathery fire
whistling their whims on a low fence-wire
and not one will know of the war, not one
will care at last when it is done…

Through the long night of the species we go on, somehow blindly, and we give a name to our need for a breakthrough: we call it the Angel, or call it Art, or call it the Mountain.
of time far beyond our ephemerality — a state of being predicated on a wholehearted embrace of our mortality. A century and a half after Kierkegaard asserted that a human being is “a synthesis of the temporal and the eternal.” Adnan writes:

When you realize you are mortal you also realize the tremendousness of the future. You fall in love with a Time you will never perceive.

[…]

Between the sun and the moon, the restless desire to live and the restless desire to die, the mountain holds the balance.

From the daily rhythms and simple seasonality of the mountain, Adnan wrests insights of great subtlety, poignancy, and prescience:

It had snowed. Tamalpais was white as it rarely is. White is the color of the terror in this century: the great white mushroom, the white and radiating clouds, the White on White painting by Malevich, and that whiteness, most fearful, in the eyes of men.
Recounting a hike up a steep trail with a few other members of the Perception Workshop — a collective of artists gathering “in peaceful parties with the seriousness of children at play” — Adnan reflects on what brought them together and took them to Tamalpais, seeking to discover the mountain and themselves:

We had with us no rite of passage. We had gone through no initiation, as we went into childhood and into adolescence with no warning. This is why we come to the mountain. We have no other elevation.

We slept under trees but in fact within the mountain’s vast sadness and we awoke very new.

The night freed us from our obsession with reason. It told us that we were a bundle of electric wires plugged into everything that came along. It was enough to be alive and around. The same was true of everything else.

Artists, she observes, have a deeper and more immediate grasp of this underlying interconnectedness of life. (Half a century earlier, Virginia Woolf had furnished the finest articulation of this awareness in her exquisite account of the epiphany in which she finally understood what it really means to be an artist: “Behind the cotton wool is hidden a pattern… the whole world is a work of art… there is no Shakespeare… no Beethoven… no God; we are the words; we are the music; we are the thing itself.”) Adnan writes:
Painters have a knowledge which goes beyond words. They are where musicians are. When someone blows the saxophone the sky is made of copper. When you make a watercolor you know how it feels to be the sea lying early in the day in the proximity of light.

Painters have always experienced the oneness of things. They are aware that there is interference and intervention between the world and ourselves.

[…]

I write what I see, paint what I am.

Etel Adnan: Mount Tamalpais, 2000. (Callicoon Fine Arts, New York)

In a testament to the great Victorian art critic John Ruskin’s insistence that painting trains the mind’s eye to see more clearly and live with a deeper sense of presence, Adnan seeks to understand the intense and abiding draw of the mountain as a subject matter for her painting:

I know by experience, by now, that no subject matter, after a while, remains just a subject matter, but becomes a matter of life and death, our sanity resolved by visual means. Sanity is our power of perception kept focused. And it is an open-ended endeavor.
A visual expression belongs to an order of understanding which bypasses word-language. We have in us autonomous languages for autonomous perceptions. We should not waste time in trying ordinary understanding. We should not worry, either. There is no rest in any kind of perception. The fluidity of the mind is of the same family as the fluidity of being. Sometimes they coincide sharply. We call that a revelation. When it involves a privileged “object,” like a particular mountain, we call it an illumination.

She ends by considering the mountain’s supreme gift to her and her fellow artists — a gift of awareness, risen from the deepest stratum of being:

In this unending universe Tamalpais is a miraculous thing, the miracle of matter itself: something we can single out, the pyramid of our own identity. We are, because it is stable and it is ever changing. Our identity is the series of the mountain’s becomings, our peace is its stubborn existence.

Complement the slim, sublimely beautiful Journey to Mount Tamalpais with Nan Shepherd on the mountain as a lens on our relationship with nature and Simone Weil on the mountain as a metaphor for the purest and most fertile form of thought, then revisit Adnan — writing three decades after she left the mountain, though it never left her — on memory, the self, and the universe.

https://www.brainpickings.org/2019/02/06/etel-adnan-journey-to-mount-tamalpais/?mc_cid=cc859a35ca&mc_eid=d1c16ac662
When two forces join to make imaging brains more amazing than ever!

Rosa García-Verdugo January 30, 2019

Filed under Molecular biology Neuroscience Technology

Dendritic spines, the points of synaptic contact between neurons are beautifully represented in this image from Gao et al. Science 2019

Recently, the journal Science showed in its cover an amazing image of a close up into the fly brain. This is the result of the combined effort of two research groups working on imaging. The first one (Boyden’s) had developed a way to increase the size of preserved samples, like a brain slice, up to 4 times by using an absorbable polymer similar to the one used in baby diapers and dosing it with water while at the same time making them transparent. The second technique, lattice light-sheet microscope from the Betzig lab 2, is based on an ultrathin sheet of light which illuminates only the part in the microscope’s plane of focus. That helps out-of-focus areas stay dark, keeping a specimen’s fluorescence from being extinguished.

This characteristic, together with its speed, made it a plausible ideal choice for the microscope to image huge chunks of expanded brains, and so it was. Even though the samples had to be repositioned and the image data acquired repositioned and stitched so as to rebuild the whole 3D data set (with the huge amount of data that implies), the whole acquisition time was relatively short: 62 hours.

If acquiring the data was a relatively “easy” step, making sense of it was anything but. However, after reconstructing the whole picture, the analysis made possible to count the synapses across the entire fly brain — roughly 40 million — and show how variable the density of those synapses is in different areas. They traced proteins, tiny cellular protrusions known as dendritic spines, and dopaminergic neurons. And that is just an example of the range of possibly interesting things to investigate with such a technique. Depending on
labelling, in the future, it would be possible to track neuron connections, examine neurotransmitter or neuron type distribution…

The images are astonishing, the detail never saw before, the potential of the technique for brain research: gigantic. The authors are, however, not totally satisfied with it and they claim they will keep on working on improving it, since there are molecules that cannot be labelled with the available dyes and antibodies used so far (like lipids), or structures and/or tissues which do not swell well (like connective tissue).

Let’s hope about a future where these issues are resolved and this technique brings us a step further in better understanding the brain in health and disease.

References


written by

Rosa García-Verdugo

Rosa studied Biochemistry at University of Oviedo and, after working for a while in immunology at the Center for Biological Research (CIB) and another brief period of systems biology at the Center for Genomic Regulation (CRG), she eventually got her PhD in systems neurobiology at the Max-Planck-Institute of Neurobiology in Munich. Her research deals with neuronal plasticity in mouse visual cortex and big 2-photon microscopes.

- Website:http://starvingneuron.com
- Twitter:@starvingneuron

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Not One, Not Two, But Three Fungi Present in Lichen

Scientists discover a third fungus that is widespread in lichens, but it’s not clear yet whether it’s a partner in the algal-fungal symbiosis or a bystander.

KERRY GRENS

This figure reveals the composition of the cortex of a wolf lichen, with Tremella lethariae labeled green, Letharia vulpina (the ascomycete fungus) and algal autofluorescence in red, Cyphobasidium fungus tagged yellow, and cell nuclei in blue.

V. TUOVINEN ET AL., CURR BIOL, DOI:10.1016/J.CUB.2018.12.022, 2019

Up until 2016, lichen was thought to be a partnership between one alga and one fungus, the classic symbiotic relationship. Then came the observation than in fact lichen harbors two types of fungi—an ascomycete and a newly identified basidiomycete yeast.
The team that had made this discovery has now found a third fungal associate in lichen. Reporting in Current Biology today (January 17), Veera Tuovinen of the University of Alberta and her colleagues describe wolf lichens (Letharia) that are made up of an alga along with three types of fungi: the ascomycete and two basidiomycetes.

“What this means in concrete terms to the overall symbiosis is the big question,” says coauthor Hanna Johannesson of Uppsala University in a press release. “What we are finding now is basically what researchers since the 1800’s would have liked to know—who are the core players, what function do they perform, all the cards on the table.”

See “Classic Example of Symbiosis Revised”

The scientists had been investigating which species genomes appear in lichens when they saw one type of fungus, a basidiomycete called Tremella, repeatedly pop up. Previously, scholars had only observed Tremella in galls, or outgrowths, on lichen. “It was thought to be a parasite,” Tuovinen tells The Atlantic. “But we found it in completely normal wolf lichens that don’t have any kinds of bumps.”

The scientists labeled each of the fungi with fluorescent tags so they could visualize the composition of the lichen. The images showed Tremella in the outer layer, called the cortex. “With the microscopy, we could visualize the mosaic of different organisms within the lichen,” Tuovinen says in the press release. “We’re realizing that interactions are much more complex than previously thought.”

According to The Atlantic, it’s possible Tremella is actually a ubiquitous infection of lichens, rather than a member of the symbiosis. Experiments that knock out the fungus could determine its role and whether it’s a critical member of the team. “Without this sort of experimental approach, it seems premature to suggest that Tremella represents a 3rd, 4th, or whatever-th symbiont,” Erin Tripp, a lichen researcher at the University of Colorado Boulder, tells The Atlantic.

Nonequilibrium effects in hybrids of electron systems with spontaneously broken symmetries

Imagine a military regiment in formation. That we will call symmetry. Now imagine the same regiment when it is dismissed by the commanding officer: at once the soldiers disperse and tend to form domains (groups) or pairs. Hence, we can say that the symmetry is spontaneously broken. Both superconductors and ferromagnets are examples of electron systems with spontaneously broken symmetries and thereby characterized by order parameters. In both cases the commanding officer is temperature.

Superconductors

At low temperatures, the resistivity of a metal (the inverse of its conductivity) is nearly constant. As the temperature of a material is lowered and as we approach absolute zero the resistivity should approach a constant value. Many metals, known as normal metals, behave in this way.
The behaviour of another class of metals and some other materials is quite different. These metals behave normally as the temperature is decreased, but at some critical temperature (which depends on the properties of the metal), the resistivity drops suddenly to zero. These materials are known as superconductors. The resistivity of a superconductor is not merely very small at temperatures below the critical temperature; it vanishes! Such materials can conduct electric currents even in the absence of an applied voltage, and the conduction occurs with no joule heating losses.

Conspicuously absent from the list of superconductors are the best metallic conductors (Cu, Ag, Au), which suggests that superconductivity is not caused by a good conductor getting better but instead must involve some fundamental change in the material. In fact, superconductivity results from a kind of paradox: ordinary materials can be good conductors if the electrons have a relatively weak interaction with the lattice, but superconductivity results from a strong interaction between the electrons and the lattice.

Consider an electron moving through the lattice. As it moves, it attracts the positive ions and disturbs the lattice, much as a boat moving through water creates a wake. These disturbances propagate as lattice vibrations, which can then interact with another electron. In effect, two electrons interact with one another through the intermediary of the lattice; the electrons move in correlated pairs (called Cooper pairs) that do not lose energy by interacting with the lattice. The order parameter for a conventional superconductor is then the amplitude of the Cooper pairing between electrons in states with opposite spins and momenta.

Ferromagnets

On the other hand, materials can be classified according to how they behave under an applied magnetic field. One of these categories is ferromagnetism. In ferromagnetic substances, within a certain temperature range, there are net atomic magnetic moments, which line up in such a way that magnetization persists after the removal of the applied field.

Below a certain temperature, called the Curie point (or Curie temperature), an increasing magnetic field applied to a ferromagnetic substance will cause increasing magnetization to a high value, called the saturation magnetization. This is because ferromagnetic substances consists of small magnetized regions called domains.

The main defining features of ferromagnets are the broken spin-rotation symmetry into the direction of magnetization and the associated exchange energy that splits the spin-up and spin-down spectra. This also leads to a strong spin dependence (spin polarization) of the observables related to ferromagnets.

Together

There are two mechanisms that prevent most of the ferromagnetic materials from becoming superconducting. One of them is the orbital effect due to the intrinsic magnetic field in ferromagnets. When this field exceeds a certain critical value, superconductivity is suppressed. The second mechanism is the paramagnetic effect. This is due to the intrinsic exchange field of the ferromagnet that shows up as a splitting of the energy levels of spin-up and spin-down electrons and hence prevents the formation of Cooper pairs.

Now, Sebastian Bergeret (CFM & DIPC) and others summarize what we already know about the regime where this spin-splitting field is present, but not yet too large to kill superconductivity, in a paper published in Reviews of Modern Physics.

The researchers focus on transport and thermal properties of superconducting hybrid structures with a spin-split density of states. Such a splitting can be achieved either by an external magnetic field or, more interestingly, by placing a ferromagnetic insulator adjacent to a superconducting layer.

Several experimental situations are discussed using a theoretical framework based on the quasiclassical formalism, with which both thermodynamical and nonequilibrium properties of such hybrid structures can be
accounted for. In order to cover effects beyond quasiclassics, as, for example, strong spin polarization, the researchers combine the quasiclassical equations with effective boundary conditions.

Bergeret et al. show that the combination between superconductivity and magnetism requires, on the one hand, a description of additional nonequilibrium modes, spin and spin energy, and, on the other hand, to couple them all. This leads to novel and intriguing phenomena with direct impact on the latest research activities and proposed future technologies based on superconductors and spin-dependent fields.

Author: César Tomé López is a science writer and the editor of Mapping Ignorance.

References


written by

DIPC

Donostia International Physics Center (DIPC) is a singular research center born in 2000 devoted to research at the cutting edge in the fields of Condensed Matter Physics and Materials Science. Since its conception DIPC has stood for the promotion of excellence in research, which demands a flexible space where creativity is stimulated by diversity of perspectives. Its dynamic research community integrates local host scientists and a constant flow of international visiting researchers.

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You Can’t Have It All
“…but there is this.”
BY MARIA POPOVA

“Death is our friend precisely because it brings us into absolute and passionate presence with all that is here, that is natural, that is love,” Rilke wrote in contemplating the most difficult and rewarding existential art: befriending our own finitude. I have been sitting with Rilke, awash in the tidal waves of sorrow and love, in
the wake of losing my beloved friend Emily Levine (October 23, 1944–February 3, 2019) — philosopher, comedian, universe-builder, beautiful soul — who made me fall in love with poetry long ago and without whom there would be no Universe in Verse and no Figuring. (Emily rightfully occupies the first line of the book’s acknowledgements.)

Ever since her terminal diagnosis in 2016, and up until just three weeks before her death, I have been taking Emily for what we came to call our “poetry retreats” — brief periodic respite by the ocean, where we would spend unhurried time in the company of a few other beloved women, reading poetry, cooking, conversing.
and just being — with our joys, with our sorrows, with one another. Emily — the most erudite and intellectually voracious person I have ever known — introduced us to classics, many of which she knew by heart: Whitman, Eliot, Yeats, Plath, Rilke. But there was one contemporary poem she especially loved and read for us often: “You Can’t Have It All” by Barbara Ras, from her exquisite and exquisitely titled 1998 poetry collection Bite Every Sorrow (public library).

Now that Emily has returned her stardust to the universe she so cherished, and all the words seem too small to fill the void, poetry stands as the only mode of remembrance that can give shape and space to the amorphous largeness of feeling that is grief. In this sweetly lo-fi recording from one of our gatherings, punctuated by the sound of the ocean and the rustle of page-turning, Emily reads the poem that she, in the deepest sense, lived out and modeled for the rest of us with her largehearted life.

YOU CAN’T HAVE IT ALL

But you can have the fig tree and its fat leaves like clown hands gloved with green. You can have the touch of a single eleven-year-old finger on your cheek, waking you at one a.m. to say the hamster is back. You can have the purr of the cat and the soulful look of the black dog, the look that says, If I could I would bite every sorrow until it fled, and when it is August, you can have it August and abundantly so. You can have love, though often it will be mysterious, like the white foam that bubbles up at the top of the bean pot over the red kidneys until you realize foam’s twin is blood. You can have the skin at the center between a man’s legs, so solid, so doll-like. You can have the life of the mind, glowing occasionally in priestly vestments, never admitting pettiness, never stooping to bribe the sullen guard who’ll tell you all roads narrow at the border. You can speak a foreign language, sometimes, and it can mean something. You can visit the marker on the grave where your father wept openly. You can’t bring back the dead, but you can have the words forgive and forget hold hands as if they meant to spend a lifetime together. And you can be grateful for makeup, the way it kisses your face, half spice, half amnesia, grateful for Mozart, his many notes racing one another towards joy, for towels sucking up the drops on your clean skin, and for deeper thirsts, for passion fruit, for saliva. You can have the dream, the dream of Egypt, the horses of Egypt and you riding in the hot sand. You can have your grandfather sitting on the side of your bed, at least for a while, you can have clouds and letters, the leaping of distances, and Indian food with yellow sauce like sunrise. You can’t count on grace to pick you out of a crowd but here is your friend to teach you how to high jump, how to throw yourself over the bar, backwards, until you learn about love, about sweet surrender, and here are periwinkles, buses that kneel, farms in the mind as real as Africa. And when adulthood fails you, you can still summon the memory of the black swan on the pond.
of your childhood, the rye bread with peanut butter and bananas
your grandmother gave you while the rest of the family slept.
There is the voice you can still summon at will, like your mother’s,
it will always whisper, you can’t have it all,
but there is this.

Complement with Emily’s splendid reading of “On the Fifth Day” by Jane Hirshfield, who often graced our poetry retreats with her Buddhist benediction of a presence, then revisit Mary Oliver — one of Emily’s favorite poets, whom she outlived by seventeen days — on the measure of a life well lived and how to live with maximal aliveness.

https://www.brainpickings.org/2019/02/07/you-cant-have-it-all-barbara-ras-emily-levine/?mc_cid=cc859a35ca&mc_eid=d1c16ac662
Villagers follow the geology to healthy water in Bangladesh

NSF-funded researchers present new results on arsenic and wells at annual meeting of the Geological Society of America

Field set-up to filter groundwater in Bangladesh for radiocarbon dating of bacterial RNA.

- [Credit and Larger Version]

November 5, 2018

Scientists have found a way to fight arsenic in well water, which accounts for one of every 20 deaths in Bangladesh.

Arsenic, often referred to as the "king of poisons," has a long, sordid history as a murder weapon used in high doses to assassinate aristocrats. It’s also a common natural element found in well water around the world.

In groundwater, too much arsenic is still a killer, nowhere more so than in Bangladesh. The South Asia country’s 10 million or more shallow, hand-pumped wells yield water that often exceeds the World Health Organization’s (WHO) arsenic guidelines of 10 micrograms per liter.

"Groundwater is popular as a water source because it is generally free of bacterial pathogens, unlike surface water,” says scientist Alexander van Geen of Columbia University's Lamont-Doherty Earth Observatory.
Groundwater has to travel through rocks and sediments, which filters out most harmful bacteria. The same process adds minerals to the water -- including a lot of arsenic in some shallow wells in Bangladesh.

Van Geen will present new arsenic water survey results on Nov. 6 at the annual meeting of the Geological Society of America (GSA) in the session From Local to Global -- Why Geology Matters for Human Health. GSA's 2018 annual conference is being held in Indianapolis, Indiana, from Nov. 4-7.

"Millions of people rely on water supplies that are contaminated with arsenic," says Sarah Ruth, a director of the National Science Foundation's (NSF) Dynamics of Coupled Natural and Human Systems program, which funded the research. "Consumption of arsenic-contaminated water, and the rice crops irrigated with it, can have severe health effects, including a variety of cancers and increased child mortality."

In 2000, van Geen and a team of researchers surveyed 6,000 wells in Bangladesh, then conducted a health study of 12,000 people.

In 2013, they conducted a larger survey of 50,000 wells serving 350,000 people. The researchers found that government wells more than 150 meters deep were usually low in arsenic.

They also found that wells more than 900 meters deep were distributed in a way that suggested the wells had been taken by elite and politically connected households and were not accessible to the wider public.

The hijacking of deeper government wells by some households hasn't meant that other villagers can't access clean water, however.

Close-up of set-up to filter groundwater for radiocarbon dating of bacterial RNA.

Credit: Imtiaz Choudhury, University of Dhaka
People in the study area now understand that deeper is better, van Geen said. As a result, they’ve been drilling deeper wells, often finding low-arsenic water above a depth of 150 meters.

A survey of the study area’s water documented a recent jump in the proportion of villagers drinking from wells meeting WHO guidelines. Only 25 percent of wells were safe in 2000, compared with 70 percent in 2018.

“That’s good news,” said van Geen. “Arsenic data from urine samples confirm that villagers aren’t just telling us what we’d like to hear.” Most of the decline is attributed to households re-installing wells at their own cost.

“Some villagers have figured this out, but others still have not,” said van Geen. The researchers are working to convey this information through water tests, so people can see the difference. “The region’s geochemistry causes the problem, but it’s also the solution,” van Geen says. “Arsenic is avoidable without having to resort to water treatment.”

Deployment of a camera to verify the depth of a well at the West Bengal, India and Bangladesh border.

Credit: A. van Geen, LDEO

-NSF-

How to study the protein corona using fluorinated nanoparticles

Invited Researcher November 12, 2018

0 Comments

Filed under Chemistry Molecular biology Nanotechnology

Author: Mónica Carril is an Ikerbasque Research Associate at the Biophysics Institute CSIC-UPV/EHU.

When nanoparticles (NPs) get in contact with biological fluids such as blood, proteins present in it will adsorb on the surface of those NPs forming what is known as the protein corona. It is a dynamic process in equilibrium with the surrounding proteins and it may lead to drastic changes in the NPs. The protein corona masks the surface of NPs and alters their physicochemical properties for which it is a matter of concern in the field of nanomedicine. If a NP is designed for a biomedical application with a particular charge, ligand or targeting moiety, the presence of the corona may alter size and surface properties, modifying unwantedly the fate and excretion pathways of the NPs in vivo, most likely shifting them away from the desired target. 1

Illustration of protein corona formation. Reproduced with permission from Elsevier (Ref 1)

For these reasons, the protein corona has been extensively studied by multiple techniques. However, and in order to be analysed, NPs with protein corona usually have to be isolated from the protein solution leading to a loss of the equilibrium situation. Frequently, the protein corona is studied by measuring the size increase of the NPs in solution due to the layer of proteins attached onto them and one way to do so is by measuring the diffusion of NPs which can be correlated with their size. Several optical methods have been used to measure
diffusion of NPs, however optical methods in complex media suffer from light scattering and cannot be used in turbid environments. [1] Of course, to be able to study protein corona formation in vivo and in real time, rather than trying to emulate it in the lab, would be major breakthrough. The use of non-optical methods such as Magnetic Resonance Spectroscopy (MRS) brings us closer to the actual in vivo and in situ protein corona formation evaluation.

In our paper,\(^2\) we describe diffusion measurements by Fluorine-based Nuclear Magnetic Resonance (\(^{19}\)F NMR) spectroscopy as a non-optical based method which obtains diffusion information from fluorinated species without interference from the background, due to the natural absence of fluorine in biological fluids. We designed and prepared different water dispersible fluorinated NPs suitable for providing an adequate signal in \(^{19}\)F NMR. By exposing those fluorine-labelled NPs to mixtures of proteins, plasma, blood or cells, it was possible to measure their diffusion in equilibrium with the surrounding medium, without the need to isolate them.

In a typical experiment, the signal intensity decay due to the diffusion of NPs is recorded by \(^{19}\)F-based diffusion-ordered nuclear magnetic resonance spectroscopy (DOSY) experiment, subsequently fitted to a mono-exponential decay to obtain a value for the diffusion constant (D), which is used to calculate the hydrodynamic size (\(r_h\)) of the NPs via the Einstein-Stokes relation. Initially and as a proof of concept, artificial coronas were prepared by chemically attaching an increasing number of proteins onto the surface of selected fluorinated NPs. As the number of proteins increased, so did the size of the resulting NP-complex, as obtained from diffusion measurements by \(^{19}\)F NMR.

Next, we tested our methodology to evaluate the formation of non-covalent coronas, i.e. spontaneously formed coronas by exposing one type of our fluorine-labelled NPs to increasing amounts of single plasma proteins, such as human serum albumin (HSA) or transferrin (TF). Proteins adsorbed onto the surface of our NPs leading to a size (\(r_h\)) increase detectable by our method.

Size increase due to protein corona in covalently linked and spontaneous corona formation processes.

Finally, measurements in more realistic complex media were performed. Thus, several \(^{19}\)F-labelled NPs were mixed with real samples of human blood and human plasma, and diffusion measurements were done at 37 °C,
to mimic as much as possible physiological conditions. We noticed that depending on the different surfaces of
the tested NPs we had a very different response in each medium. We observed a consistent size shrinkage for
some NPs, but in other cases a size increase was detected. Interestingly, in all cases the data obtained after
incubation with HSA, the most abundant protein in human plasma, plasma or blood were different among
them for the same NP type. These data suggest that in vitro protein corona studies are only simulations that
may give us a hint on the tendency of our NPs to adsorb proteins on their surface or not, but are unable to
model the in vivo protein corona.

Size changes of different fluorinated NPs in the presence of HSA, plasma or blood.

Hence, it is important to advance in the knowledge of the real protein corona as it influences the fate of
nanomaterials in vivo and their applications as potential therapeutic and diagnosis nanotools. The use of
magnetic resonance as a diffusion measuring technique opens up the possibility to measure NPs size in
vivo using an MRI scanner. It must be noted that this method is exclusively based on measuring diffusion
constants to obtain size, and is insensitive to information on a molecular level or the proteins involved in the
corona. Obviously, we envisage that interpretation of changes in hydrodynamic radii in vivo will not be
straightforward given the complexity of a living being. Nonetheless, these measurements are a promising
starting point for future monitoring of the geometry changes of NPs in vivo.

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RoboFossil Reveals Locomotion of Beast from Deep Time

Modeling shows the 290-million-year-old Orobates had an advanced way of walking—revising an enduring view of how tetrapods colonized dry land

- By Kate Wong on January 17, 2019

Some 290 million years ago a four-legged, plant-eating creature the size of large dog roamed what is now central Germany. It did not carry itself like most other tetrapods known from that time, belly low to the ground and limbs splayed out to the sides; instead it walked taller, tucking its limbs under its body for a more erect posture. That is the portrait emerging from a new multidisciplinary study that has reconstructed the locomotion of this long-extinct animal, called Orobates pabsti—in part by developing a robot version of the beast to test the physics of various gaits. And it adds to a growing body of evidence that the textbook account of when and how four-limbed animals conquered terra firma needs revision.

Tetrapods got their start in the water about 400 million years ago in the Devonian period, evolving from fish with fleshy fins. Their eventual colonization of land was a seminal event in the evolution of backboned, or vertebrate, animals. In the conventional view of this transition early terrestrial tetrapods were largely limited to moving in the low-slung, undulating manner of salamanders and lizards. Only after around 251 million years ago, at the end of the Permian period, did they start to evolve different styles of locomotion that helped them enter new ecological niches available to them on land. Or so the story went.
Orobates is known from spectacularly well-preserved fossils from the Bromacker quarry in Germany. Credit: Thomas Martens Museum der Natur Gotha

Scientists have considered the development of a more erect, balanced and energy-efficient way of moving to be a key innovation during this transition, one that set the stage for a major diversification of species in the lineage leading to amniotes—the group that includes reptiles, birds and mammals. The trick has been figuring out from the fossil record which animals were the first to comport themselves in this way. To that end, the new study of Orobates, published Thursday in Nature, has marshaled a massive amount of data from fossil and living animals and analyzed it with an array of cutting-edge tools to show how this ancient tetrapod (a close relative of the lineage leading to modern amniotes) walked. The results are helping rewrite the time line of tetrapod locomotor evolution.

Orobates is an ideal candidate for such a study. For one thing, it is represented by complete skeletons—a rarity for Permian fossils. For another, it is associated with a trackway of fossil footprints that nicely match the fossil foot anatomy. Previous research on the skeleton and trackway hinted Orobates might have walked with its legs positioned closer to the midline of the body rather than in full sprawl. To test that possibility and others, John Nyakatura of Humboldt University of Berlin and his colleagues developed a computer model of the animal, based on the anatomy evident in the fossil skeleton and on biomechanical data from living tetrapods that exhibit varying degrees of sprawling. The researchers used this model to determine the fossil animal’s range of motion. They also developed a computer model that allowed them to calculate the physical forces acting on Orobates during different kinds of locomotion. And they built a robot version of Orobates, dubbed OroBOT, which they used to validate the results of the latter simulation under real-world conditions.
conditions. The fossil footprints provided a key constraint on the simulations: the gaits needed to match the tracks to be considered plausible.

OroBOT executes one of the more plausible gaits for Orobates. Credit: Kamilo Melo EPFL Lausanne and Tomislav Horvat EPFL Lausanne

The team tested hundreds of gaits with their models to figure out which one Orobates is likely to have employed. In the end, the walk they deemed most probable for the ancient tetrapod was one that resembled the movement of the caiman, a species of crocodilian—indicating this more advanced, erect form of locomotion evolved roughly 40 million years earlier than previously surmised.

Nyakatura and his colleagues “have gotten us as close as we can get without a time machine” to knowing how Orobates walked, says paleontologist Stuart Sumida of California State University, San Bernardino, an expert on Permian tetrapods who was not involved in the new study. Sumida—who discovered Orobates in 2000—notes it is not the only animal to hint at locomotor diversity among early terrestrial tetrapods. He and his colleagues have shown another animal from the same fossil locality in Germany, Eudibamus cursoris, could run on two legs. “The range of locomotor capabilities of animals leading to [modern amniotes
and their relatives] is much greater than we thought,” Sumida says. And if this experimentation began as far back as 290 million years ago, that could shift researchers’ understanding of the rise of the amniotes. “It might have been more gradual,” he adds.

According to study co-author John Hutchinson, an expert on evolutionary biomechanics at the Royal Veterinary College in the U.K., this new work has yielded the most detailed, accurate reconstruction to date of how an extinct creature moved around, with the possible exception of locomotor reconstructions done for some early human species. The researchers have set up a Web site that allows visitors to play around with the filters that constrain their simulations. They suggest their approach can be used to figure how other fossil species moved, including those relevant to other major transitions in vertebrate evolution—such as the evolution of upright walking or active flight.

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But would one need comparably well-preserved fossils, which are awfully hard to come by, to apply this method to another species? “That’s the $10,000,000 question,” Hutchinson says. “I think it is a matter of degree—one could apply the method to other fossils with somewhat less confidence if they had less marvelous preservation. Or one could be creative and find ways to improve the method: add new data on extant (or even extra fossil) species to help ‘bracket’ what the extinct animal might have done or not done, or include data on muscles or something else to help constrain the simulations and robot further.”

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Credit: Nick Higgins

NSF announces awards to shape the human-technology partnership for the well-being of workers and their productivity

Convergent research to respond to the changing work landscape

Each project brings together researchers from different disciplines to solve vexing research issues.

- [Credit and Larger Version](#)

November 5, 2018

The National Science Foundation (NSF) is investing over $25 million in 26 projects to advance the cognitive and physical capabilities of workers in the context of human-technology interactions. These new awards will address critical social, technical, educational and economic needs in the workplace.

The awards were issued under the Future of Work at the Human-Technology Frontier (FW-HTF), one of 10 Big Ideas for Future NSF Investments announced by NSF in 2016.

The new projects will advance human-technology collaboration in the workplace and focus on enhancing productivity, innovation and learning. Research will provide foundations for augmenting human cognition, including:

- Models for social understanding and interaction.
- Teaching and learning.
- Biases in judgment.
Attention, memory and more.

Research also will work to advance the field of embodied intelligent cognitive assistants, systems that harness machine intelligence to enhance human cognitive and physical capabilities. These interactive cyber-physical systems involve robots, exoskeletons, virtual reality and augmented reality, including in autonomous vehicles and the built environment.

The award amounts range from $750,000 to $3 million each for three to five years, depending on the scope, duration and team size for the project.

"The landscape of jobs and work is changing at unprecedented speed, driven by the development of new technologies that have moved into an expanding array of manufacturing, knowledge and service occupations," said Dawn Tilbury, NSF's assistant director for Engineering. "These changes promise benefits to the nation in terms of increased productivity, opportunity for innovation, the creation of new industries and occupations as well as sustained global leadership."

Each project brings together researchers from different disciplines to solve a vexing research problem, integrating knowledge, methods and expertise to catalyze discovery and innovation. This approach is known as Growing Convergence Research, another one of NSF's Big Ideas.

A condition of the awards is that they must study human-technology interaction within the broader socioeconomic framework of jobs and work, and must also be attentive to social and economic impacts that can benefit workers, like training and workforce development.

"The impact of emerging technologies goes beyond individual workers to the transformation of occupations and entire industries," said Arthur Lupia, NSF's assistant director for Social, Behavioral & Economics Sciences. "This research addresses the effect of future work technologies on workers and provides the means to grow and transmit the requisite skills."

The funded projects include:

- An embodied intelligent cognitive assistant to enhance cognitive performance of shift workers, Akane Sano, William Marsh Rice University; Tanzeem Choudhury, Cornell University; Deepak Ganesan and Tauhidur Rahman, University of Massachusetts Amherst
- Augmenting and advancing cognitive performance of control room operators for power grid resiliency, Alexandra von Meier, University of California-Berkeley; Anurag Srivastava, Paul Whitney, Anjan Bose, Adam Hahn and Saeed Lotfifard, Washington State University; Gautam Biswas and Abhishek Dubey, Vanderbilt University
- Augmented cognition for teaching: Transforming teacher work with intelligent cognitive assistants, James Lester and Bradford Mott, North Carolina State University; Krista Glazewski, Thomas Brush and Cindy Hmelo-Silver, Indiana University
- Enhancing human capabilities through virtual personal embodied assistants in self-contained eyeglasses-based augmented reality systems, Gordon Wetzstein and Jeremy Bailenson, Stanford University; Henry Fuchs, Jan-Michael Frahm, Mohit Bansal, Prudence Plummer and Felicia Williams, University of North Carolina at Chapel Hill
- The next mobile office: Safe and productive work in automated vehicles, Raffaella Sadun, Harvard University; Andrew Kun, University of New Hampshire; Linda Boyle, University of Washington; Orit Shaer, Wellesley College; John Lee, University of Wisconsin-Madison
• Integrating cognitive science and intelligent systems to enhance geoscience practice, Basil Tikoff, University of Wisconsin-Madison; Thomas Shipley and Alexandra Davatzes, Temple University; M. Ani Hsieh, University of Pennsylvania

• Pre-skilling workers, understanding labor force implications and designing future factory human-robot workflows using a physical simulation platform, Kylie Peppler, Indiana University; Daron Acemoglu, Massachusetts Institute of Technology; Karthik Ramani, Thomas Redick, Shimon Nof and Alexander Quinn, Purdue University

• The future of classroom work: Automated teaching assistants, Kurt VanLehn, Arizona State University

• Future of firefighting and career training - advancing cognitive, communication, and decision making capabilities of firefighters, Aidong Lu, Wei Zhao, Aixi Zhou and Weichao Wang, University of North Carolina at Charlotte

• Human-machine teaming for medical decision making, Suchi Saria, David Newman-Toker, Chien-Ming Huang, Martin Makary and William Padula, Johns Hopkins University

• Whole-body exoskeletons for advanced vocational enhancement (WEAVE), Divya Srinivasan, Nathan Lau, Alexander Leonessa, Suqin Ge and Maury Nussbaum, Virginia Polytechnic Institute and State University

• First person view and augmented reality for airborne embodied intelligent cognitive assistants, Craig Woolsey, Joseph Gabbard, Pratap Tokekar and Matthew Hebdon, Virginia Polytechnic Institute and State University

-NSF-

The convergence of neuroscience and artificial intelligence

Julián Estévez

Several researchers in the field of artificial intelligence (AI) are warning about an AI winter, which means that scientists might lose the interest on the discipline, institutions reduce drastically the funding towards its research and lose presence in the public debate. It wouldn’t be the first AI winter though. The last two decades have been a period of almost-unrivalled optimism about this subject. Hardware, big datasets and deep learning have finally created artificial intelligence that wows consumers and funders alike. However, we are still ages from obtaining a general AI or more human-like systems.

Personally, I wouldn’t be so sure about this decrease in the AI discipline research, but I’m convinced that from now on, this area will get along much more with neuroscience and its rules. We can call an AI winter to the period that will be needed in order to make another step forward towards the better understanding of how the human brain learns and gets the information from the environment with the help of these two sciences. This article describes the tendencies of the researchers towards this direction and some practical examples of the neuroscience contribution.

It’s paradoxical the situation now, as in its origins AI was based on neuroscience and psychology. Due to the later development and expansion of each of those subjects, limits became clearer and the interaction got lost.

Neuroscience provides two advantages for AI. First, neuroscience provides a rich source of inspiration for new types of algorithms, independent of mathematical ideas that have largely dominated traditional approaches to AI, such as deep learning and neural networks. Second, neuroscience can provide validation of...
AI techniques that already exist. If a known algorithm is subsequently found to be implemented in the brain, then that is strong support for its plausibility as an integral component of an overall general intelligence system.

However, it’s in this point where scientists two trends differ. Researchers like Henry Markram, Dharmendra Modha, Stephen Larson are focused on the complete simulation of the brain, even from a biological point of view. They estimate that a million lines of codes are enough for this purpose. They are trying to replicate all the synapses, dendrites, axon firings so that they get to understand how the brain learns, gets information about the environment and even how to fight against mental diseases. However, in this article, I’ll talk more about some works which just try to reproduce the learning process, from an engineering point of view.

Reinforcement learning

Neuroscience has put back reinforcement learning (RL) into fashion again. It was never a trendy tool to observe: this algorithm is computationally very inefficient, and it requires hundreds or thousands of experiments to reach the optimal value. But this experimentation of different states and decisions is becoming a great advantage for the modelling and representation of some crucial human abilities.

For instance, RL has become a good representation of the learning of motor skills in animals and humans. It pursues the learning through repetition of an action. Just try to remember how you learned to ride on a bike, or swimming, or how you got used to knowing by heart the way back home in a new city. It is a sum of trial and error decisions in which the person weights the good decisions that made him achieve the equilibrium or get to the destiny.

Moreover, a great achievement has been the combination of deep neural networks with RL, which represents the usage of episodic memories. RL in this sense represents the natural learning of skills, for instance, the rules of a game. This information remains stored and next, it’s used by a neural network system that will use the allocated information from RL to obtain the optimum solution or will make sense of the past experiences to understand a process with a certain complexity. This usage of deep RL has proved to be valid to simulate how children gain experience and commonsense by interacting with the environment.

Finally, RL is also turning up to be the direction towards the capability of imagining and planning of people. Humans can forecast long-term future outcomes through simulation-based planning thanks to a model of the environment learned through experience.

Attention

Up until quite recently, most neural network models (typically convolutional) worked directly on entire images or video frames, with equal priority given to all image pixels at the earliest stage of processing. However, this is not how the brain works. Really, it focuses attention on moving objects, colours, or specific parts. Therefore, this kind of image recognition algorithms is implementing the attention, which also reduces their computational cost.

Continual learning

One of the main characteristics of the human brain is the ability to continuously learn without forgetting the previously acquired knowledge or skills. In the case of neural networks, until recently, every new piece of knowledge implied the retraining of the neural network and it was catastrophic for the relationships. This phenomenon is represented by the weights and bias, which represent the way to knowledge of a neural network. Now, researchers are developing a form of elastic weight consolidation in order to be able to use the same neural network system to learn different things without losing any information.

Efficient learning
Humans have a great ability to rapidly learn about new concepts from only a handful of examples, which makes knowledge and learning very flexible. This is a very hard task for AI. However, recent learning models are creating neural networks that learn. It can be easily understandable with the following example. A child has a natural ability to recognize different handwritten letters, even they are written by different persons and styles. Neural networks are adapting this effect, by leveraging prior experience with related problems, to support one-shot concept learning.

This is also related to how humans transfer learning. Normally, a person who knows how to use a laptop or drive a car can generally use an unfamiliar computer or vehicle.

Conclusions

It’s not only AI who will benefit from the neuroscience feedback. In the opposite direction, AI and mainly machine-learning algorithms transformed forever neuroscience and the tools to analyze MRI, make diagnoses out of big-data and develop new medicaments.

The new era of both sciences won’t be able to evolve one without the other ↓.

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written by

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Cedric Burnside carries the mantle — the joy and the burdens and the history of the North Mississippi hill country blues, a style like no other in Southern music. And his life ain’t that different from what he plays.

Story by Brian Foster | Photographs by Adam Smith
The road to Cedric Burnside’s home.

- B E N T O N C O U N T Y -

Slow down at the top of the hill, pass the country rock road on the left, shotgun church on the right, faded lines on the road in the middle. Come down the way slow, into the yard easy. Don’t matter where you park. It had taken me awhile to get there, but when I got there I knew.

“Mane, sorry I took so long!” I shout to Cedric from the driveway, loud for no reason.

From his front door he calls back — “Come on in, man. Get you a seat” — so fast that it could have all been one word, so familiar it could have been an echo, or family.

“It’s good to see you again,” I tell him as I step up and inside, passing up a couch toward the front of the house for a chair at a table toward the back. It’s been some months since we first met — on a sidewalk under string lights in Oxford, Mississippi — and not that long since we last talked, just about a week ago.

In the time in between, I met and talked with Cedric a lot. I saw him play a live radio show in a bookstore and talked to him for a little while after. I danced during his set at a storefront spot and talked to him for a long time before. I met with him, his wife Shaquonna, and two of his three daughters in the front booth of a soul
food restaurant in Mississippi. He leaned to the side and whispered to me in the back of a music venue in Alabama.

“Hey again!” Shaquonna appears from a room with a warm greeting and a wide smile. We hug.

I put my stuff down slow, careful not to disturb the jumbo-sized Bible on one side of the table, tempted to try my luck with the cornbread on the other.

“We just waiting on them peas to cook down,” Cedric says, quickly doubling back to make sure. “You eat purple hull peas.” It was less a question and more an assignment. Shaquonna laughs before stepping outside. I take a deep breath before starting in.

“I just got a few more questions for you,” I say.

I have come to Benton County, Mississippi, to sit with Cedric Burnside, to listen to him talk about his music — hill country blues — and his life.
Cedric standing at his front door, looking out over his land.

He tells me his music is his heart and soul, that it has brought him a lot and a long way. He has played shows around the world, from his hometown of Chulahoma, Mississippi, to Toronto to Denmark and back again. He has recorded eight studio albums and played behind and alongside some of the foremost figures in the blues tradition. He has won more than a dozen individual awards and has led or contributed to four Grammy-nominated projects, most recently his 2018 release Benton County Relic.

He tells me his music is “unorthodox,” “different from anything you ever heard.” It is defined by an upbeat tempo and driving percussion, guided more by feeling and intuition than convention. It is everything Mississippi has ever been, drawing its life from the land, sacred soil. It is nothing if not the legacy of everyday folks, living their days deliberately, trying to dodge death in the night. It carries the weight of names — heavy — from McDowell to Jessie Mae to R.L. It is both a remnant and a seed, some parts old and some parts new. You hear it, and it reminds you of something sure, indistinct but real, like you’ve heard it before, like it’s been here before, like it seem like it might last forever.

As the day passes by and Cedric talks more, I learn that his life ain’t that different.
“I get in my feelings, and I miss him,” Cedric tells me.

The peas are cooking. The oven glows a tinted yellow. The cornbread is already cut. We are settled in. Cedric had always been warm and energetic, his demeanor always firm and full. But something seems to catch him when I ask about his late grandfather — whom he calls “Big Daddy” — hill country blues paragon R.L. Burnside. Cedric sits different. He rests back in his chair, looks straight ahead, his eyes dark and welling.

“When I get like that, I’ll write it up (in a song), because that’s how I know I’ll feel better. The music just take me back to when I was there with him, playing with him for all them years, just to know I once was there.”

Take me back there.

* * *

“The first show I ever played with my Big Daddy was Toronto, Canada,” Cedric tells me. “It was 1991. I was 13.”

The oldest of three children, Cedric grew up a free spirit, running circles around North Mississippi, unafraid of the unknown. The Toronto show was different though.

“I have to admit, Toronto scared me. It was a different place. I don’t know none of these people. I had got so used to playing at home, at the juke joints and the house parties.”

Cedric started playing around with drumsticks when he was 7. He would tap on pots and beat on buckets around the house. He would picture himself grooving beside R.L. He would learn and practice riffs with another hill country blues forefather, Junior Kimbrough. He would mimic his dad, Calvin Jackson, who was an able blues drummer in his own right. Cedric grew up wanting to be like them. He wanted to be with them. He wanted to do what seemed predestined by them, these hill country blues gods, to do what seemed to run in this family.

“It was in my blood to play the blues,” he says. “Watching my Big Daddy as a kid, watching my dad play drums, watching my family. I always was that kid sitting right there in front, watching them, wanting to do what they was doing.”

For much of his early life, Cedric had front row seats to an epic concert. His grandfather R.L. would throw house parties two or three times a month, turning their four-room home in Chulahoma into a jam-packed concert hall that could’ve sold out anywhere in the world. The headliners were a blues who’s who: Robert Cage, T-Model Ford, Paul Wine Jones, Big Jack Johnson, Frank Frost, Othar Turner, Jessie Mae Hemphill. The audience was just as wide-ranging.

“People came from miles around,” Cedric says. “I’m talkin’ bout 30, 40 ...” — his voice grows louder as the distance gets longer — “… 50, 60 miles just to hear that music!”
T. MODEL FORD & PAUL WINE JONES

I try to picture the scene: moonshine passing from closed fist to open mouth. A wisp of smoke trailing from a doobie. Kids laughing and rolling in the yard around the house. Mothers, wives, aunties, and cousins sitting and dancing divine, faces still, like royalty. Cedric frozen in place, watching it all, his imagination placing him just behind his Big Daddy, keeping the pocket and singing along.

Up the road from R.L. Burnside’s house parties was Junior Kimbrough’s Juke, a small building “in the middle of nowhere” — just off Highway 4 outside of Holly Springs, Mississippi — that seemed to attract everybody from everywhere.

“People wouldn’t even go home.” Cedric closes his eyes. “They come (to the juke joint) straight from work. I’m talkin’ ’bout oil on they pants, smut on they face … I remember one guy would come in, soon as he hit the door; he’d pay his money, pop that moonshine, walk across that floor, dancing already before he got in good!”

Cedric might well have been describing the certainty of a Sunday morning church service, the first verse of “Amazing Grace,” or how he took his coffee (dark with a generous helping of honey). He was just talking about his life.

“Ten years old, I was in there with them,” he explains. “Me and my uncle Gary Burnside. Sometimes with Mr. Junior Kimbrough or my Big Daddy, their drummer wouldn’t show up or their bass player wouldn’t show up, and me and my uncle Gary would have to be the back-up band.”

“In the Juke Joint at 10,” I say, question and answer.
“The police come in, and they would hide us behind the beer coolers in the back. The police leave, and we right back to playing,” Cedric says.

We laugh.

“That’s hill country blues,” he gives his story a bookend, tapping the table in rhythm.

Junior Kimbrough’s Juke, a small building “in the middle of nowhere” — just off Highway 4 outside of Holly Springs, Mississippi — that seemed to attract everybody from everywhere.

* * *

By most folkloric and historical accounts, the blues originated around the turn of the 20th century in the Delta region of Mississippi. As black Southerners dealt with the violent, inhumane conditions of enslavement, and eventually sharecropping and tenant farming, they crafted an expressive and communicative back channel, a way to talk to each other, uplift each other, narrate their lives, and subvert the powers that be. That back channel might have started with a field holler, or a moaned spiritual, or a knowing glance. Eventually it echoed as the blues. Over the next 100 years, as black folks moved from the rural South to urban places, across the country and back again, carrying and creating new sounds along the way, the blues multiplied.

In an earlier conversation, Cedric had given me a lesson. “You got Delta blues, Piedmont blues, Texas blues, Chicago blues,” he had said with authority, like he had told a thousand folks that same thing a thousand times.
“All that’s going to have that one-four-five.” He explained the significance of the I-IV-V chord progression in most blues subgenres.

“Hill country is different. … It don’t have that one-four-five. I call it feel music. It’s real up-tempo. It’s real, I call it, unorthodox. The old cats that played it, they just changed when they got ready. They might stay on the one for two or three minutes.” Something in his description was funny to him. He laughed and laughed and laughed.

Hill country blues, also referred to as North Mississippi hill country blues, is named for its origins in the “Hill Country” region of Mississippi, which spans about 13 counties in the north-central and northeastern part of the state. Characterized by heavy, rapid percussion and loosely structured, often improvisational, guitar, the hill country sound emerged in the 1960s and is most closely tied to musicians like “Mississippi” Fred McDowell, Junior Kimbrough, Jessie Mae Hemphill, and Cedric’s grandfather R.L., among others. At first a niche sub-genre, the hill country blues gained national and international popularity in the 1980s and 1990s, leading shows, festivals, and concerts from New York City to Sydney, Australia, to Toronto, Canada.
R.L. Burnside & Junior Kimbrough at Kimbrough's juke joint.

* * *

“The Toronto show was the first time I felt scared,” Cedric tells me. “I didn’t know what to expect. I just remember Big Daddy telling me,” he imitates his grandfather’s tone and tenor, “‘It’s gonna be all right, Dick.’ For some reason, he called all of us [his sons, grandsons, and nephews] Dick; and he just kept telling me, like this, ‘It’s gonna be all right, Dick.’”

R.L. Burnside died in 2005. “Early one morning, he had a heart attack and passed on, in his sleep,” Cedric says, his attention carried away, perhaps by a distant memory or something else.

I ask Cedric what did he do, how did he feel, what happened next. He sits still.

“I cried.”

Cedric and I had talked for hours and hours, over a span of months and months. Over and over, some kind of way, our conversations always circled back to R.L. Burnside. Big Daddy. Cedric had explained how R.L. stretched his meager ends wide enough to cover everybody in the family, a rugged selflessness that Cedric tries to embody in his own life. Cedric had retold R.L.’s old jokes (one about a “man and woman that had one kid”), sometimes adding his own embellishments and inflections. He had sang songs that R.L. wrote and sang,
sometimes over dinner ("Poor Black Mattie") and sometimes on the record ("Death Bell Blues"). We all had laughed about R.L.’s favorite snack, ice cream sandwiches. Cedric had talked and remembered and sighed and smiled at a hundred and one things about R.L. They had all seemed so vivid to him, so important to him — the most important thing in the world.

The Toronto trip was singular.

“I always remember Toronto,” Cedric says. “I always remember what Big Daddy told me. That carries me, even now today. ‘It’s gonna be all right, Dick. Just go up there and do what you do.’”

Cedric has recorded hundreds of songs and played hundreds of shows. He has sung lead and played background on more than a dozen albums. He is award-winning and Grammy-nominated, many times over. By any metric, he is one of the most accomplished figures in the blues tradition today, some say the best blues drummer anywhere around. His name and catalog could stand on their own. In some ways, they do stand on their own. His most recent Grammy nomination — for his first solo project — shows as much.

But there’s something about life and hill country blues that lingers, that keeps the names and legacies of the dead and gone from being dead and gone all the way. That’s how it is with R.L. Burnside.

“People tell me all the time, I remind them of him. It makes me feel good. What was in him is in me.”

Cedric’s voice trails off.

The pot on the stove bubbles over.
R.L. Burnside, left. His grandson Cedric on drums, right.

- K I T C H E N -

“I loved my Big Mama, just like I loved my Big Daddy.” Cedric reflects on his grandmother and R.L.’s wife, Alice Mae Burnside.

He has returned to his seat after stirring the peas and setting the lid to the side. Shaqonna is back in the house, leaning over the back of the couch, her eyes fixed on Cedric, like mine.

“Big Mama was the sweetest lady.” Cedric’s voice was light.

“What do you remember about her?” I ask him.

He describes a scene from a thousand Mississippi mornings.

* * *

A pot clangs — soon followed by the soft crack of an egg, the blunt clink of a plate on a countertop, the sound of a fork in motion.

It’s early, around 4:30 in the morning. The sun isn’t up yet, but Alice Mae Burnside is. She moves around the kitchen with precision, her feet and hands in sync like drums. She hums to herself. The smell of Jack Mackerel creeps through the house. The bite of sliced onion cuts sharp and hangs heavy. A pot of white rice bubbles and pops.

Alice Mae knows it won’t be long before the house stirs. The sound and smell of cooking food will do that. There will soon be 16 children — or 12, or 19, depending on the day — Cedric among them, all energetic and hungry.

“The house we stayed in was a sharecropper house,” Cedric tells me. “Like, a shotgun house. It had four rooms, and when I say four rooms, I mean four rooms.” He pauses for effect. “Total.”

Through most of his adolescent and teenage years, Cedric grew up in and around Chulahoma. The main house that he lived in (the family moved between a few) had a kitchen and living room, two bedrooms, a porch, and a lot of outside. The elders in the family — primarily R.L., Alice Mae, and Cedric’s mother, Linda — kept a garden out back. Sometimes Cedric worked alongside them. More often he watched in wonder close by.

“I used to love the smell of the fresh dirt,” he says. “That smell when you first plow up that garden. Me and my uncle Gary used to just sit out and watch.”

Around Cedric and Gary were anywhere from 20 to 30 other folks — Cedric’s two siblings, Sonya and Cody, and a legion of cousins, aunts, uncles, and family friends. Like many other black families making their way in Mississippi in the 1980s and 1990s, the Burnside family lived a strained life. Until Cedric was 13, the family house did not have running water.

“No bathtub, no sinks. None of that,” he tells me. “We hauled water for a bunch of years. … We had to walk to our neighbor’s.” Cedric explains the nearest source of fresh water was a neighbor’s house a quarter of a mile away, the next nearest a mile further than that. “We walk three, four ...” — his voice gets louder as the distance gets longer — “five, six miles sometimes. I know because we had to tote them water jugs on our back.” He smiles and chuckles to himself, though it didn’t seem from humor or amusement. “We did what we had to do.”
“How often do you go back?” I had asked him in an earlier conversation over barbecue from a soul food restaurant in Holly Springs, Mississippi.

“I try not to go back,” he said quickly, almost before I could finish.

“You try not to,” I repeated him.

“I try not to go back. There were some chaotic situations there; and every time I see the house I think about those situations, the things we had to go through, all the people that stayed in that house, that slept on the floor and slept on couches, the struggles that my mama and Big Mama went through in that house. I don’t need to go back to remember that.”

Reflecting on that conversation, I ask him, “What’s your happiest memory of then? … What’s the happiest memory of you and Big Mama?”

A thin smirk creeps over Cedric’s face. This one is for real.

“Me and my Big Mama, we used to trade $20 every year on our birthdays. She would give me $20 on my birthday, and when her birthday come, I would give her $20 right back, every year until she passed.”
I laugh, and I wonder. I wonder how he manages to do both, to hold dearly to those times that make him smirk and feel light, while wanting to let go of the ones that make him quiet and dark. I wonder how he makes sure to remember what he wants to remember, and move on from what he wants to forget. I wonder if he actually wants to forget, if there is some feeling that will meet him halfway. I wonder, and I wonder, but I stay quiet. The house does, too.

“My Big Mama passed in 2008,” he continues. “Yeah, 2008. She just, she just died.” He waits for the right word to find him. “Peacefully.”

Cedric says a few more things and then stops. Shaquonna has joined us at the table. She sits across from me and close to him. She leans in and grabs his hand, and then mine. I close my eyes.

“Dear God,” she begins, giving thanks for the food, and for each other, and for all the memories that Cedric was laying bare, the ones he had kept pushed down, that ones he had carried and carried and carried.

She finishes, and we say, “Amen,” but all of our heads stay bowed a little longer. I guess they had some extra prayers to pray, like me.

“Bon appétit,” Cedric says without a hint of sarcasm or humor. “Them purple hull peas you eating,” he reminds me. It is time.
The house is quiet for a while, save for the phantom echo of a clanging pot, the sound of our hands in motion.

“I always tell this story about my mama,” Cedric begins. “My mama, my Big Daddy, and my Big Mama was out on the road. I think they was coming from West Memphis, and mama water broke … and so they stopped at this little clinic. She said the doctor’s last name was hell; so, I was brought into this world by Dr. Hell.” We both laugh. There was some irony somewhere in there.

Cedric talks about his Big Daddy R.L. and his Big Mama Alice Mae with wonder and reverence. They were his North Stars, lighting the path and showing the way. He talks about his mother Linda Burnside with longing. She was his compass, a close companion that helped him walk.

“Oh man, my mama was my everything.” The bottom falls out of his voice. “My everything.”

Cedric grew up with Linda. She lived in the Burnside house with R.L., Alice Mae, and all the kids. Cedric remembers being with her a lot, caring for her deeply. Their relationship lasted his whole life — or theirs — even when Cedric paid rent on his own place at 18 years old, even when he saved up enough money to move into that place at 19, even when he had to move back in the family house the same year and out for good the next one. Then and before — since that Toronto show — he had been playing for a dozen blues showmen, from Junior Kimbrough and Robert Cage to his grandad and whoever else would have him.

“Blues been paying my bills my whole life,” he had explained in earlier conversation. “The longest job I had was about two weeks, and it was at a factory.” Shaquonna and Cedric’s oldest daughter Lashiya laughed. Eventually I did too, Cedric smiling the whole time.

“Being able to go out there on the road and bring money back, it made me feel like a man. I could help my Big Daddy bring food in the house. I could help my mom buy her prescriptions, help her buy shoes and clothes for my brother and my sister. It made me feel like a father figure.”

We had talked about Cedric’s own father only briefly — a fleeting reference here and there. “I longed for my dad to be around, but he just wasn’t,” Cedric had told me. “Me and my sister took care of him in his last days. … He couldn’t talk because he had had surgery, and they had to cut out his tongue. He died with head and throat cancer.”

The conversation about his mom brings his dad up again. “I would tell him I had to go out of town, and he would write down on paper, ‘I know you gotta do what you gotta do, go ahead and do it.’ Something in him opens up. “I would play songs for him, and he would tell me what he thought about them. He would just throw his thumbs up.”

I wonder, and this time I ask. “In that time when you were looking after him, do you think that was love? Had y’all smoothed things out?”

He sighs as deeply as I have ever heard him, gets quiet for a long time.

“It wasn’t love. It wasn’t nothing like I loved my dad. I did what I had to do because I had to do it.” His words were an echo.
It was 2015 when Cedric’s father died. Two years later, his mother did, too. “She was 58,” he tells me. “The doctor called. It was 4:30 in the morning … I was on the road … drove all the way from the Carolinas … crying like a little baby the whole way.”

Cedric at home playing guitar, his daughter Portrika Burnside looking on.

I hear what could be a car muttering past, but it’s hard to tell. It could have been the wind. It could have been something else. Shaqonna is again on the couch, her elbow pressed into the backrest, her body fully turned toward Cedric, her eyes fixed on him and crying. She wipes her cheeks, swipes a finger beneath her glasses, sniffs, loves.

I sit and wait.

“And the hardest thing I had to do, the hardest thing, I had a couple shows coming up. … I was going to cancel them because she had passed, but I couldn’t cancel them. I needed to make that money for the funeral.” Cedric explains that Linda had a burial insurance policy but had not satisfied the required waiting period. “It was one of the hardest feelings I ever felt.”

Where was the show?

* * *

“San Francisco, California. I flew out there four days after mama died.”

I imagine what it was like. Standing room only, I bet. It had to be. A lot of Cedric’s shows are like that. I imagine small and large groups huddled around tables crowded with half-empty plates, clapping and patting
their feet off beat. I see a flickering stage light — on and off, until it just stays off. I see stragglers and loners leaning against walls, lit up by dim lights and the blues.

“It’s all right to dance a little,” I hear Cedric say — because he always says it, his lips pressed against the mic, his head jolted to the side.

Cedric tells me he was in San Francisco, the last stop on one of those stretches where he’d have too many shows in too many cities over not too many nights.

“I was just sitting there on stage, crying on stage, singing as hard as I could, but I was hurt, man. Tears in my eyes, I was hurt. … I think about that show all the time. I’m just sitting there playing and my mom, she gone, and I’m doing this show because I have to pay for her funeral.”

Cedric always keeps his guitar in arm’s reach. “I sit there on my couch, I think about the lyrics, I think about what I want them to say.”

Cedric talks about performing his music with a reverence reserved for only the most special of things, with a fondness that he had only found in family.

“Every time I go out there on stage, I know I’mma give it my all. It might be a thousand people. It might be 300 people. It might be just me and you. I’mma give it my all.”

Most people think of the blues as a style of music, perhaps as a set of tough experiences. For Cedric, the blues is more. It is flesh and bone. It is life and love. It is his spirit and soul and heart.

“It’s what I am, and who I am,” he says.
When he plays, he is doing more than singing, more than drumming, more than gripping and playing his guitar. Something else is working around him, something ... heavier. A conjuring.

“Sometimes I sit there on stage, and it’s like I can feel their energy in the room. They’re watching me. I can just feel it.”

His audiences can feel it, too.

“I see the people dancing, their eyes closed.” Cedric talks with a deep sense of satisfaction. “That music takes ’em to another dimension. It takes them somewhere else. They listen at the music so hard. They dance.” There is a brief urgency in Cedric’s voice, like he’s figured out something new. “It takes me back to the juke joint days, to some of the people that came there for that music. They would dance all night long, you know, and shut their eyes and just do it because they love the music.”

Cedric’s performances are always full of emotion, spirits. They always show his heart and his soul. They show his technical mastery too. He’s been playing drums for 33 years and mostly taught himself. About 14 years ago, he added guitar to his repertoire. He taught himself that, too. He sings and writes songs. He is an encyclopedia of blues history, and a how-to guide for blues playing, and his trophy cabinet bears proof. He is the nine-time recipient of the Memphis Blues Award for Best Blues Drummer (2008, 2009, 2010, 2011, 2013, 2014, 2015, 2016, 2017) and has received three similar nods from Living Blues Magazine (2016, 2017, 2018). He has been a contributor on three Grammy-nominated projects, including his grandfather’s Burnside on Burnside (2002), Roll and Tumble by R.L. Boyce (2017), and Descendants of Hill Country (2015) with his uncle Gary; and recently a nomination all his own — for his 2018 project Benton County Relic.
“I appreciate the accolades,” he tells me, “but … I just love the music. I’ve been getting accolades my whole life. You win some, you lose some; but that don’t change how I feel about the music. It don’t change what I’m trying to do with the music.”

I talked to him two days after Benton County Relic lost its Grammy bid.

“Young man!” I shout into the phone, loud for no reason. “You 40 right now, and you gon’ live till you 86. How many records can you do in 46 mo’ years?”

He thinks. “About a hundred.” He laughs, though I suspect his estimate was only partly a joke.

“At least one of them gon’ get you a Grammy! You got time,” I laugh with him, only partly joking, too.

“I got time.”

It doesn’t take Cedric long to finish eating, or for our conversation to shift back from his music and performances to his folks and his family. As we clear the table, we keep on talking.

“What’s the thing that Mrs. Linda taught you that you still carry with you most?” I ask him.
“She always told me to stay in my Bible and to look to God first for everything. She never would tell me anything without telling me to look to God first, no matter what the circumstances.”

The table is clean. Nothing is left but the Bible. I glance down at it, its crisp white pages, its illegible words and scribble lines, a pair of pens resting in the crease.

I can’t help but wonder if that’s how he keeps Mrs. Linda close — by keeping God close.

“Every morning (me and Shaquonna) get up, we will read Psalms 91 and 92,” he tells me, his voice again firm and full.

It is a good thing to give thanks unto the Lord, and to sing praises unto thy name.

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“I had one brother — Cody,” Cedric tells me matter-of-factly. He had mentioned his brother only a few times. Reflecting on the life and lessons of his grandfather made Cedric proud. Talking about his Big Mama made him smile. His dad made him still. His mother made him quiet. Reflecting on his only brother Cody made him something else, something different.

“May he rest in peace,” Cedric whispers.

In the moment, Cedric seems to realize something — that being on the road, playing the blues, had coursed through so much of his life, his whole life. He was born in Memphis — on the road. He had had one of his most formative experiences with R.L. in Toronto — on the road. He had learned of his mother’s death while out of town — on the road. He made the money for her funeral in San Francisco — on the road.

“I was on the road when (Cody) passed, too,” he says, his face a straight line.

Where?

** * * *

“I was in a studio in New Orleans,” he tells me, “recording my album Hear Me When I Say. I was recording the album, and Cody called me. He told me he was having chest pains. He told me he was gon’ start working out and all that. … I told him (that would be good); walk around the track in the mornings. We talked for about 15 minutes. It was about 6 that evening.”

At 2 the next morning, Cedric got a call from his sister Sonya. She was panicked. Cody had fallen unconscious.

“She told me she couldn’t get him to say nothing.”

Not long after the first call, Cedric got a second one. Sonya was in the ambulance with Cody. They were en route to the hospital.

After the second call, a third one.

“She told me he was gone.” He clears his throat. “I was driving — I was smoking at the time — I lit up about two or three blunts, just trying to get,” he loses his words. “To get home. I just couldn’t believe it. It was just all of a sudden he died. He didn’t have no health problems that we knew about. He just had a heart attack and died, fell in the floor. He didn’t wake up from that.”
Cedric on his property in Benton County.

Cedric and Cody were alike and different, two sides of the same coin — or maybe the same side of different coins, however the saying goes. They both were made in the image of their Big Daddy, raised in the shadow of their mother. They both loved music. For Cedric, it was hill country; for Cody, rap.

“He used to rap all the time,” Cedric tells me. “I would be on guitar, and I would come up with something, and he would tell me, ‘Play that again, man, play it again.’ And, I would play it, and he would rap to it.”

Early in 2012, Cedric and Cody released The Way I Am, a blues-rap hybrid that was both familiar and new, like their name, like Cedric’s music and Cedric’s life. Later in 2012, Cody died.

“I miss him so much, boy,” Cedric tells me. “It was just a shock to me because he died all of a sudden. He just had a heart attack and died, fell in the floor. I think about that a lot, mane.”

Their relationship was like so many other parts of Cedric’s life. It was rich with memories and hampered by loss. It ended too soon. It finds new ways to live on and be beautiful.

“I met my wife (Shaquonna) through Cody,” Cedric tells me, his eyes finally full again, his voice hopeful and lifted. “We was introduced a bunch of years ago through him.” He laughs. Shaquonna does, too.
The two had met in the early 2000s and eventually took interest in each other.

“It was maybe in 2010 or 2011 when we actually started getting together and hanging out a little bit more,” Shaquonna explains. “(Cedric and Cody) always made me feel like I was part of the family.”

Since then, Cedric and Shaquonna have married and now live together in Benton County.

Much of Cedric’s life still plays out on the road. Now, when he comes and goes — whether from Oxford to Hattiesburg, whether from Los Angeles to Europe — she is with him. In a life that has been about the blues and family, about loss and love, about legacy and surviving, about saving things and letting things go, she is his partner and complement. She is his friend and confidant. She has connected with his three daughters— Portirka, Corlilla, and Lashiya Burnside. She is their friend and confidant, too.

“In the next year and a half, maybe two years, we pretty much thinking that we’ll start our own family. … I have thought about wanting a son, every man wants a son. But we’ll be happy with what God gives us,” Cedric says, Shaquonna lending her full endorsement.

I look at my watch.

**LAND**

“Beside the blues, who is Cedric?” I ask, knowing my time is rounding to an end — or at least an intermission.

With a confident, but unassuming, tone, Cedric outlines a set of interests that, at first, strike me as surprising; but then quickly all make sense.

“I’m a outside person. I love to explore the woods. … I did martial arts for a good 10 years, started out with jiu jitsu … did TanSu karate … did kung fu, got into weapons training, weapons like staff and stick training.”

“You do guns, too?” I ask, already knowing — and, I mean really, really already knowing — the answer.

He answers my knowing question with a knowing question of his own.

“You wanna shoot?”

Where, outside?

* * *

Down the cinder block steps, a gray van with a Benton County tag to the left, a fire pit filled with ashes and soot to the right, a straight line of concrete blocks down the middle, leading to the road. Trees on the other side.

Something called an “arctic blast” makes outside cold. Shaquonna rubs her arms together, rocks from side to side, pulls her hands into the sleeves of her coat. I squeeze my fists tight in my pockets.

Cedric aims the Mossberg shotgun calmly at a blue plastic cup draped over a stake jutting from the ground about 15 yards away.

His shot echoed. The cup spun around. Before it settled, Cedric shot again.
I took my turn, took the gun from Cedric. He told me to focus in, told me how it should rest against my shoulder, told me how to move my fingers, then stepped back and away.

It took me a long time to get it, but when I got it I knew.

Cedric stands with his youngest daughter, Portrika, as she aims at a target. His middle daughter, Corlilla, looks on.

I felt it — deep, indistinct but real, like I had known it before, like I had known him before, like it seem like I might know him forever. Like déjà vu. Like going to Memphis. Like the chariot coming. Like family. Like kitchens and porches and gardens, like the land, like the hills, like the country.

Low Visibility
Jim McAuley

MARCH 21, 2019 ISSUE

Twilight of the Elites: Prosperity, the Periphery, and the Future of France
by Christophe Guilluy, translated from the French by Malcolm DeBevoise
Yale University Press, 177 pp., $25.00

Driving was already expensive in France when in January 2018 the government of President Emmanuel Macron imposed a tax that raised the price of diesel fuel by 7.6 centimes per liter and of gasoline by 3.8 centimes (about 7 and 3 cents, respectively); further increases were planned for January 2019. The taxes were an attempt to cut carbon emissions and honor the president’s lofty promise to “Make Our Planet Great Again.”

Priscillia Ludosky, then a thirty-two-year-old bank employee from the Seine-et-Marne department outside Paris, had no choice but to drive into the city for work every day, and the cost of her commute was mounting.
“When you pay regularly for something, it really adds up fast, and the increase was enormous,” she told me recently. “There are lots of things I don’t like. But on that I pushed.” In late May 2018, she created a petition on Change.org entitled Pour une Baisse des Prix du Carburant à la Pompe! (For a reduction of fuel prices at the pump!)

Over the summer Ludosky’s petition—which acknowledged the “entirely honorable” aim of reducing pollution while offering six alternative policy suggestions, including subsidizing electric cars and encouraging employers to allow remote work—gave little attention. In the fall she tried again, convincing a radio host in Seine-et-Marne to interview her if the petition garnered 1,500 signatures. She posted that challenge on her Facebook page, and the signatures arrived in less than twenty-four hours. A local news site then shared the petition on its own Facebook page, and it went viral, eventually being signed by over 1.2 million people.

Éric Drouet, a thirty-three-year-old truck driver and anti-Macron militant also from Seine-et-Marne, created a Facebook event for a nationwide blockade of roads on November 17 to protest the high fuel prices. Around the same time, a fifty-one-year-old self-employed hypnotherapist named Jacline Mouraud recorded herself addressing Macron for four minutes and thirty-eight seconds and posted the video on Facebook. “You have persecuted drivers since the day you took office,” she said. “This will continue for how long?” Mouraud’s invective was viewed over six million times, and the gilets jaunes—the yellow vests, named for the high-visibility vests that French drivers are required to keep in their cars and to wear in case of emergency—were born.

Even in a country where protest is a cherished ritual of public life, the violence and vitriol of the gilets jaunes movement have stumped the government. Almost immediately it outgrew the issue of the carbon taxes and the financial burden on car-reliant French people outside major cities. In a series of Saturday demonstrations that began in mid-November and have continued for three months, a previously dormant anger has erupted. Demonstrators have beaten police officers, thrown acid in the faces of journalists, and threatened the lives of government officials. There has been violence on both sides, and the European Parliament has condemned French authorities for using “flash-ball guns” against protesters, maiming and even blinding more than a few in the crowds. But the gilets jaunes have a flair for cinematic destruction. In late November they damaged parts of the Arc de Triomphe in Paris; in early January they commandeered a forklift and rammed through the heavy doors of the ministry of state—the only time in the history of the Fifth Republic that a sitting minister had to be evacuated from a government building.

The gilets jaunes are more than a protest. This is a modern-day jacquerie, an emotional wildfire stoked in the provinces and directed against Paris and, most of all, the elite. French history since 1789 can be seen as a sequence of anti-elite movements, yet the gilets jaunes have no real precedent. Unlike the Paris Commune of 1871, this is a proletarian struggle devoid of utopian aspirations. Unlike the Poujadist movement of the mid-1950s—a confederation of shopkeepers likewise opposed to the “Americanization” of a “thieving and inhuman” state and similarly attracted to anti-Semitic conspiracy theories—the gilets jaunes include shopkeepers seemingly content to destroy shop windows. There is an aspect of carnival here: a delight in the subversion of norms, a deliberate embrace of the grotesque.

Many have said that the gilets jaunes are merely another “populist movement,” although the term is now so broad that it is nearly meaningless. Comparisons have been made to the Britain of Brexit, the United States of Donald Trump, and especially the Italy of Cinque Stelle. But the crucial difference is that the gilets jaunes are apolitical, and militantly so. They have no official platform, no leadership hierarchy, and no reliable communications. Everyone can speak for the movement, and yet no one can. When a small faction within it fielded a list of candidates for the upcoming European parliamentary elections in May, their sharpest opposition came from within: to many gilets jaunes, the ten who had put their names forward—among them a
nurse, a truck driver, and an accountant—were traitors to the cause, having dared to replicate the elite that the rest of the movement disdains.

Concessions from the government have had little effect. Under mounting pressure, Macron was forced to abandon the carbon tax planned for 2019 in a solemn televised address in mid-December. He also launched the so-called grand débat, a three-month tour of rural France designed to give him a better grasp of the concerns of ordinary people. In some of these sessions, Macron has endured more than six hours of bitter criticisms from angry provincial mayors. But these gestures have quelled neither the protests nor the anger of those who remain in the movement. Performance is the point. During the early “acts,” as the weekly demonstrations are known, members refused to meet with French prime minister Édouard Philippe, on the grounds that he would not allow the encounter to be televised, and that sentiment has persisted. Perhaps the most telling thing about the gilets jaunes is the vest they wear: a symbol of car ownership, but more fundamentally a material demand to be seen.

Inequality in France is less extreme than in the United States and Britain, but it is increasing. Among wealthy Western countries, the postwar French state—l’État-providence—is something of a marvel. France’s health and education systems remain almost entirely free while ranking among the best in the world. In 2017 the country’s ratio of tax revenue to gross domestic product was 46.2 percent, according to statistics from the Organization for Economic Co-operation and Development (OECD)—the highest redistribution level of any OECD country and a ratio that allows the state to fight poverty through a generous social protection system. Of that 46.2 percent, the French government allocated approximately 28 percent for social services.

“The French social model is so integrated that it almost seems a natural, preexisting condition,” Alexis Spire, a sociologist of inequality at the École des Hautes Études en Sciences Sociales, told me recently. A number of the gilets jaunes I met said that despite the taxes they pay, they do not feel they benefit from any social services, since they live far from urban centers. But anyone who has ever received housing assistance, a free prescription, or sixteen weeks of paid maternity leave has benefited from the social protection system. The effect of redistribution is often invisible.

And yet the rich in France have gotten much richer. Between 1983 and 2015, the vast majority of incomes in France rose by less than one percent per year, while the richest one percent of the population saw their incomes rise by 100 percent after taxes. According to World Bank statistics, the richest 20 percent now earns nearly five times as much as the bottom 20 percent. This represents a stark shift from the Trente Glorieuses, France’s thirty-year economic boom after World War II. As the economist Thomas Piketty has pointed out, between 1950 and 1983, most French incomes rose steadily by approximately 4 percent per year; the nation’s top incomes rose by only one percent.

What has become painfully visible, however, is the extent of the country’s geographical fractures. Paris has always been the undisputed center of politics, culture, and commerce, but France was once also a country that cherished and protected its vibrant provincial life. This was la France profonde, a clichéd but genuinely existing France of tranquil stone villages and local boulangeries with lines around the block on Sundays. “Douce France, cher pays de mon enfance,” goes the beloved song by the crooner Charles Trenet. “Mon village, au clocher aux maisons sages.” These days, the maisons sages are vacant, and the country boulangeries are closed.

The story is familiar: the arrival of large multinational megastores on the outskirts of provincial French towns and cities has threatened, and in many cases asphyxiated, local businesses. In the once-bustling centers of towns like Avignon, Agen, Calais, and Périgueux, there is now an eerie quiet: windows are often boarded up, and fewer and fewer people are to be found. This is the world evoked with a melancholy beauty in Nicolas Mathieu’s novel Leurs enfants après eux, which won the Prix Goncourt, France’s most prestigious literary prize, in 2018.
The expansion since the 1980s of France’s high-speed rail network has meant that the country’s major cities are all well connected to Paris. But there are many small towns where the future never arrived, where abandoned nineteenth-century train stations are now merely places for teenagers to make out, monuments of the way things used to be. In these towns, cars are the only way people can get to work. I met a fifty-five-year-old truck and taxi driver named Marco Pavan in the Franche-Comté in late November. What he told me then—about how carbon taxes can seem like sneers from the Parisian elite—has stayed with me. “Ask a Parisian—for him none of this is an issue, because he doesn’t need a car,” Pavan said. “There’s no bus or train to take us anywhere. We have to have a car.” I cited that remark in a Washington Post story I filed from Besançon; in the online comments section, many attacked the movement for what they saw as a backward anti-environmentalism—missing his point.

Few have written as extensively as the French geographer Christophe Guilluy on la France périphérique, a term he popularized that refers both to the people and the regions left behind by an increasingly globalized economy. Since 2010, when he published Fractures françaises, Guilluy has been investigating the myths and realities of what he calls “the trompe l’oeil of a peaceful, moderate, and consensual society.” He is one of a number of left-wing French intellectuals—among them the novelist Michel Houellebecq, the historian Georges Bensoussan, and the essayist Michel Onfray—who in recent years have argued that their beloved patrie has drifted into inexorable decline, a classic critique of the French right since 1789. But Guilluy’s decline narrative is different: he is not as concerned as the others with Islamist extremism or “decadence” broadly conceived. For him, France’s decline is structural, the result of having become a place where “the social question disappears.”

Guilluy, born in Montreuil in 1964, is something of a rarity among well-known French intellectuals: he is a product of the Paris suburbs, not of France’s storied grandes écoles. And it is clear that much of his critique is personal. As a child, Guilluy, whose family then lived in the working-class Paris neighborhood of Belleville, was forcibly relocated for a brief period to the heavily immigrant suburb of La Corneuve when their building was slated to be demolished in the midst of Paris’s urban transformation. “I saw gentrification firsthand,” he told Le Figaro in 2017. “For the natives—the natives being just as much the white worker as the young immigrant—what provoked the most problems was not the arrival of Magrebis, but that of the bobos.”

This has long been Guilluy’s battle cry, and he has focused his intellectual energy on attacking what he sees as the hypocrisy of the bobos, or bourgeois bohemians. His public debut was a short 2001 column in Libération applying that term, coined by the columnist David Brooks, to French social life. What was happening in major urban centers across the country, he wrote then, was a “ghettoization by the top of society” that excluded people like his own family.

Guilluy crystallized that argument in a 2014 book that won him the ear of the Élysée Palace and regular appearances on French radio. This was La France périphérique: comment on a sacrifié les classes populaires, in which he contended that since the mid-1980s, France’s working classes have been pushed out of the major cities to rural communities—a situation that was a ticking time bomb—partly as a result of rising prices. He advanced that view further in 2016 with La Crépuscule de la France d’en haut—now translated into English as Twilight of the Elites: Prosperity, the Periphery, and the Future of France—a pithy screed against France’s bobo elite and what he sees as its shameless embrace of a “neoliberal,” “Americanized society” and a hollow, feel-good creed of multicultural tolerance. In 2018, one month before the rise of the gilets jaunes, he published No Society, whose title comes from Margaret Thatcher’s 1987 comment that “there is no such thing as society.”
In Guilluy’s view, an immigrant working class has taken the place of the “native” working class in the banlieues on the outskirts of major cities. This native class, he argues, has been scattered throughout the country and become an “unnoticed presence” that France’s elite has “made to disappear from public consciousness” in order to consolidate its grip on power. Cities are now the exclusive preserve of the elites and their servants, and what Guilluy means by “no society” is that the visible signs of class conflict in urban daily life have vanished. This is his trompe l’oeil: rich, insulated Parisians have convinced themselves that everything is fine, while those who might say otherwise are nowhere near. “The simmering discontent of rural France has never really been taken seriously,” he writes in Twilight of the Elites.

Since November, much of the French press has declared that Guilluy essentially predicted the rise of the gilets jaunes. They seem, after all, a fulfillment of his prophecy about “the betrayal of the people” by the elites, even if he is always elusive about who exactly “the people” are. While critiques from the movement have remained a confused cloud of social media invective, Guilluy has served as its de facto interpreter.

No Society puts into words what many in the gilets jaunes have either struggled or refused to articulate. This is the hazy middle ground between warning and threat: “The populist wave coursing through the western world is only the visible part of a soft power emanating from the working classes that will force the elites to rejoin the real movement of society or else to disappear.”
For now, however, there is just one member of the elite whom the gilets jaunes wish would disappear, and calls for his violent overthrow continue even as the movement’s momentum subsides.

An intense and deeply personal hatred of Macron is the only unifying cry among the gilets jaunes. Eighteen months before the uprising began, this was the man who captured the world’s imagination and who, after populist victories in Britain and the United States, had promised a French “Third Way.” Yet the Macronian romance is already over, both at home and abroad.

To some extent, the French always turn against their presidents, but the anger Macron elicits is unique. This is less because of any particular policy than because of his demeanor and, most of all, his language. “Mr. Macron always refused to respond to us,” Muriel Gautherin, fifty-three, a podiatrist who lives in the Paris suburbs, told me at a December march on the Champs-Élysées. “It’s he who insults us, and he who should respond.” When I asked her what she found most distasteful about the French president, her answer was simple: “His words.”

She has a point. Among Macron’s earliest actions as president was to shave five euros off the monthly stipends of France’s Aide personnalisée au logement (APL), the country’s housing assistance program. Around the same time, he slashed France’s wealth tax on those with a net worth of at least €1.3 million—a holdover from the Mitterand era.

Macron came to office with a record of unrelentingly insulting the poor. In 2014, when he was France’s economic minister, he responded to the firing of nine hundred employees (most of them women) from a Breton slaughterhouse by noting that some were “mostly illiterate.” In 2016 he was caught on camera in a heated dispute with a labor activist in the Hérault. When the activist gestured to Macron’s €1,600 suit as a symbol of his privilege, the minister said, “The best way to afford a suit is to work.” In 2018 he told a young, unemployed gardener that he could find a new job if he merely “crossed the street.”

Yet nothing quite compares to the statement Macron made in inaugurating Station F, a startup incubator in the thirteenth arrondissement of Paris, housed in a converted rail depot. It is a cavernous consulate for Silicon Valley, a soaring glass campus open to all those with “big ideas” who can also pay €195 a month for a desk and can fill out an application in fluent English. (“We won’t consider any other language,” the organization’s website says.) Google, Amazon, and Microsoft all have offices in it, and in a city of terrible coffee, the espresso is predictably fabulous. In June 2017 Macron delivered a speech there. “A train station,” he said, referring to the structure’s origins, “it’s a place where we encounter those who are succeeding and those who are nothing.”

This was the moment when a large percentage of the French public learned that in the eyes of their president, they had no value. “Ceux qui ne sont rien” is a phrase that has lingered and festered. To don the yellow vest is thus to declare not only that one has value but also that one exists.

On the whole, the gilets jaunes are not the poorest members of French society, which is not surprising. As Tocqueville remarked, revolutions are fueled not by those who suffer the most, but by those whose economic status has been improving and who then experience a sudden and unexpected fall. So it seems with the gilets jaunes: most live above the poverty line but come from the precarious ranks of the lower middle class, a group that aspires to middle-class stability and seeks to secure it through palliative consumption: certain clothing brands, the latest iPhone, the newest television.

In mid-December Le Monde profiled a young couple in the movement from Sens in north-central France, identified only as Arnaud and Jessica. Both twenty-six, they and their four children live in a housing project on the €2,700 per month that Arnaud earns as a truck driver, including more than €1,000 in government assistance. According to statistics from France’s Institut national de la statistique et des études économiques (Insée), this income places them right at the poverty line for a family of this size, and possibly even slightly
below it. But the expenses Arnaud and Jessica told Le Mondethey struggled to pay included karate lessons for their oldest son and pet supplies for their dog. Jessica, who does not work, told Le Monde, “Children are so mean to each other if they wear lesser brands. I don’t want their friends to make fun of them.” She said she had traveled to Paris for gilets jaunes protests on three separate weekends—journeys that presumably cost her money.

Readers of Le Monde—many of them educated, affluent, and pro-Macron—were quick to attack Arnaud and Jessica. But the sniping missed their point, which was that they felt a seemingly inescapable sense of humiliation, fearing ridicule everywhere from the Élysée Palace to their children’s school. They were explaining something profound about the gilets jaunes: the degree to which the movement is fueled by unfulfilled expectations. For many demonstrators, life is simply not as they believed it would be, or as they feel they deserve. There is an aspect of entitlement to the gilets jaunes, who are also protesting what the French call déclassement, the increasing elusiveness of the middle-class dream in a society in which economic growth has not kept pace with population increase. This entitlement appears to have alienated the gilets jaunes from immigrants and people of color, who are largely absent from their ranks and whose condition is often materially worse.2 “It’s not people who don’t have hope anymore, who don’t have a place to live, or who don’t have a job,” Rokhaya Diallo, a French activist for racial equality, told me recently, describing the movement. “It’s just that status they’re trying to preserve.”

The gilets jaunes have no substantive ideas: resentment does not an ideology make. They remain a combustible vacuum, and extremist agitators on the far right and the far left have sought to capitalize on their anger. Both Marine Le Pen of the recently renamed Rassemblement National and Jean-Luc Mélenchon of the left-wing La France Insoumise have tried hard to channel the movement’s grassroots energy into their own political parties, but the gilets jaunes have so far resisted these entreaties. The gilets jaunes also found themselves at the center of a diplomatic spat: in early February Italy’s deputy prime minister, Luigi Di Maio, met with two of their members on the outskirts of Paris in a jab at Macron. Two days later, France withdrew its ambassador to Rome for the first time since 1940, but the gilets jaunes have not attempted to exploit this attention for their own political gain. Instead there was infighting—a Twitter war over who had the right to represent the cause abroad and who did not.

The intellectual void at the heart of an amorphous movement can easily fill with the hatred of an “other.” That may already be happening to the gilets jaunes. Although a careful analysis by Le Monde concluded that race and immigration were not major concerns in the two hundred most frequently shared messages on gilet jaune Facebook pages between the beginning of the movement and January 22, a number of gilets jaunes have been recorded on camera making anti-Semitic gestures, insulting a Holocaust survivor on the Paris metro, and saying that journalists “work for the Jews.” Importantly, the gilets jaunes have never collectively denounced any of these anti-Semitic incidents—a silence perhaps inevitable for a movement that eschews organization of any kind. Likewise, a thorough study conducted by the Paris-based Fondation Jean Jaurès has shown the extent to which conspiracy theories are popular in the movement: 59 percent of those surveyed who had participated in a gilet jaunedemonstration said they believed that France’s political elites were encouraging immigration in order to replace them, and 50 percent said they believed in a global “Zionist” conspiracy.

Members of the movement are often quick to point out that the gilets jaunes are not motivated by identity politics, and yet anyone who has visited one of their demonstrations is confronted with an undeniable reality. Far too much attention has been paid to the symbolism of the yellow vests and far too little to the fact that the vast majority of those who wear them are lower-middle-class whites. In what is perhaps the most ethnically diverse society in Western Europe, can the gilets jaunes truly be said to represent “the people,” as the members of the movement often claim? Priscillia Ludosky, arguably the first gilet jaune, is a black woman. “It’s complicated, that question,” she told me. “I have no response.”
The gilets jaunes are also distinctly a minority of the French population: in a country of 67 million, as many as 282,000 have demonstrated on a single day, and that figure has consistently fallen with each passing week, down to 41,500 during “Act 14” of the protest on February 16. On two different weekends in November and December, other marches in Paris—one for women’s rights, the other against climate change—drew far bigger crowds than the gilets jaunes did. But the concerns of this minority are treated as universal by politicians, the press, and even the movement’s sharpest critics. Especially after Trump and Brexit, lower-middle-class and working-class whites command public attention even when they have no clear message.
Christophe Guilluy, Paris, 2015

French citizens of color have been protesting social inequality for years without receiving any such respect. In 2005 the killing of two minority youths by French police in the Paris suburb of Clichy-sous-Bois ignited a string of violent uprisings against police brutality, but the government declared an official state of emergency instead of launching a grand débat. In 2009, the overseas departments of Guadeloupe and Martinique saw a huge strike against the high cost of living—a forty-four-day uprising that also targeted fuel prices and demanded an increase to the minimum wage. In 2017 an almost identical protest occurred in Guyana, another French overseas department, where residents demonstrated against household goods that were as much as 12 percent more expensive than they were in mainland France, despite a lower minimum wage. The French government was slow to respond in both of these instances, while the concerns of the gilets jaunes have resulted in a personal apology from the president and a slew of concessions.

Guilluy, whose analysis of la France périphérique ultimately fails to grapple significantly with France’s decidedly peripheral overseas territories, does not shy away from the question of identity. He sees a racial element to the frustrations of la France périphérique, but he does not see this as a problem. Some of the most frustrating moments in his work come when he acknowledges but refuses to interrogate white working-class behavior that seems to be racially motivated. “Public housing in outlying communities is now a last resort for workers hoping to be able to go on living near the major cities,” he writes in Twilight of the Elites, describing the recent astronomic rise in France’s urban real estate prices. “These projects, mostly occupied by immigrant renters, are avoided by white French-born workers. Barring some utterly unforeseeable turn of events, their expulsion from the largest urban centers will be irreversible.” It would not diminish Guilluy’s broader point about la France périphérique if he acknowledged that victims of structural changes can also be intolerant.

Guilluy also regularly recycles anxieties over immigration, often from controversial theorists such as Michèle Tribalat, who is associated with the idea of le grand remplacement, the alleged “great replacement” of France’s white population by immigrants from North and Sub-Saharan Africa. In making his case about “the demographic revolution in process,” Guilluy has been accused of inflating his statistics. France, he wrote in Fractures françaises, “welcomes a little less than 200,000 legal foreigners every year.” But these claims were attacked by Patrick Weil, a leading French historian of immigration, who noted in his book Le sens de la République (2015) that Guilluy failed to consider that a large number of those 200,000 are temporary workers, students who come and go, and others of “irregular” status. Guilluy has not responded to these criticisms, and in any case his rhetoric has since grown more radical. In No Society he writes, “Multiculturalism is, intrinsically, a feeble ideology that divides and weakens.”

Whether the gilets jaunes will eventually come to agree with him is a crucial question. Like Guilluy, they are responding to real social conditions. But if, following Guilluy’s lead, they ultimately resort to the language of race and ethnicity to explain their suffering, they will have chosen to become a different movement altogether, one in which addressing inequality was never quite the point. In some ways, they have already crossed that line.

On the afternoon of Saturday, February 16, the prominent French intellectual Alain Finkielkraut got out of a taxi on the Boulevard Montparnasse. A crowd of gilets jaunes noticed him and began hurling anti-Semitic insults. The scene, recorded on video, was chilling: in the center of Paris, under a cloudless sky, a mob of visibly angry men surrounded a man they knew to be Jewish, called him a “dirty Zionist,” and told him, “go back to Tel Aviv.”

Finkielkraut’s parents were Polish refugees from the Holocaust. He was born in Paris in 1949 and has become a fixture in French cultural life, a prolific author, a host of a popular weekly broadcast on France Culture, and a member of the Académie Française, the country’s most elite literary institution. In the words of Macron, who immediately responded to the attack, he “is not only an eminent man of letters but the symbol of what the
Republic affords us all.” The irony is that Finkielkraut—another former leftist who believes that France has plunged into inexorable decline and ignored the dangers of multiculturalism—was one of the only Parisian intellectuals who had supported the gilets jaunes from the beginning.

I spoke to Finkielkraut after the attack, and he explained that the gilets jaunes had seemed to him the evidence of something authentic. “I saw an invisible France, neglected and forgotten,” he said. “Wearing fluorescent yellow vests in order to be visible—of being a ‘somewhere’ as opposed to an ‘anywhere,’ as Goodhart has said—seemed to me an absolutely legitimate critique.” The British journalist David Goodhart, popular these days in French right-wing circles, is the author of The Road to Somewhere (2017), which sees populist anger as the inevitable response to the widening gulf between those “rooted” in a particular place and cosmopolitans at home anywhere. “France is not a ‘start-up nation,’” Finkielkraut told me. “It can’t be reduced to that.”

Finkielkraut said that the attack was a sign that the reasonable critiques originally made by the gilets jaunes had vanished, and that they had no real future. “I think the movement is in the process of degradation. It’s no longer a social movement but a sect that has closed in on itself, whose discourse is no longer rational.”

Although the Paris prosecutor has opened an investigation into his attackers, Finkielkraut has not pressed charges. He told me that the episode, as violent as it was, did not necessarily suggest that all those who had worn yellow vests in recent months were anti-Semites or extremists. “Those who insulted me were not the nurses, the shopkeepers, or the small business owners,” he said, noting that he doubted he would have experienced the same prejudice at the roundabouts, the traffic circles across the country where gilets jaunes protesters gathered every Saturday. In a sense, these were the essence of the movement, which was an inchoate mobilization against many things, but perhaps none so much as loneliness. The roundabouts quickly became impromptu piazzas and a means, however small, of reclaiming a spirit of community that disappeared long ago in so many French towns and villages.

In Paris, where the remaining gilets jaunes have now focused most of their energy, the weekly protests have become little more than a despicable theater filled with scenes like the attack on Finkielkraut. There is no convincing evidence that those still wearing yellow vests are troubled by the presence of bigotry in their ranks. What is more, many gilets jaunes now seem to believe that pointing out such prejudice is somehow to become part of a government-backed conspiracy to turn public opinion against them.

Consider, for instance, a February 19 communiqué released in response to the attack on Finkielkraut from La France en Colère, one of the movement’s main online bulletins. “For many days, the government and its friends in the national media seem to have found a new technique for destabilizing public opinion and discrediting the Gilets Jaunes movement,” it begins. “We denounce the accusations and the manipulations put in place by this government adept at fake news.” But this is all the communiqué denounces; it does not address the anti-Semitic violence to which Finkielkraut was subjected, nor does it apologize to a national figure who had defended the movement when few others of his prominence dared to do the same.

A month after our last conversation, I called Priscillia Ludosky back, to see if she had any reaction to the recent turn of events in the movement her petition had launched. She was only interested in discussing what she called the French government’s “systematic abuse to manipulate public opinion.” She also believes that a government-media conspiracy will stop at nothing to smear the cause. “If there was one person who ever said something homophobic, it was on the front page of every newspaper,” she told me.

In the days after the attack, Finkielkraut lamented not so much the grim details of what had happened but the squandered potential of a moment that has increasingly descended into paranoid feverishness. As he told me: “This was a beautiful opportunity to reflect on who we are that’s been completely ruined.”

—February 21, 2019
1. 1

This phenomenon has been widely discussed in France since the publication of the journalist Olivier Razemon’s Comment la France a tué ses villes? (Rue de l’Échiquier, 2016). No one has written more extensively on this question in English than my fellow correspondent Adam Nossiter. See especially his dispatch from Albi, “As France’s Towns Wither, Fears of a Decline in ‘Frenchness,’” The New York Times, February 28, 2017. 

2. 2

According to the annual 2018 report on poverty from Secours Catholique, a leading French charity, of the 8.8 million people living below the poverty line in France, the groups most affected were undocumented immigrants, single mothers, and elderly women. See “État de la pauvreté en France,” www.secours-catholique.org/sites/scinternet/files/publications/rs18-bd.pdf.

https://www.nybooks.com/articles/2019/03/21/low-visibility-france-gilet-jaunes/
The Ashtray

by Raymond Carver
Issue no. 93 (Fall 1984)

You could write a story about this ashtray, for example, and a man and a woman. But the man and woman are always the two poles of your story. The North Pole and the South. Every story has these two poles—he and she.

-A.P. Chekhov

They’re alone at the kitchen table in her friend’s flat. They’ll be alone for another hour, and then her friend will be back. Outside, it’s raining—the rain coming down like needles, melting last week’s snow. They’re smoking and using the ashtray. . . . Maybe just one of them is smoking. . . . He’s smoking! Never mind. Anyway, the ashtray is filling up with cigarettes and ashes during this painful conversation.

She’s ready to break into tears at any minute. To plead with him, in fact, though she’s proud and has never asked for anything in her life. He sees what’s coming, recognizes the signs—a catch in her voice as she brings her fingers to her locket, the one her mother left her. He pushes back his chair, gets up, goes over to the window. . . . He wishes it were tomorrow and he were at the races. He wishes he was out walking, using his umbrella. . . . He strokes his moustache and wishes he were anywhere except here. But he doesn’t have any choice in the matter. He’s got to put a good face on this for everybody’s sake. God knows, he never meant for things to come to this. But it’s sink or swim now. A wrong move and he stands to lose her friend, too.

Her breathing slows. She watches him but doesn’t say anything. She knows, or thinks she knows, where this is leading. She passes a hand over her eyes, leans forward and puts her head in her hands. She’s done this a few times before, but has no idea it’s something that drives him wild. He looks away and grinds
his teeth. He lights a cigarette, shakes out
the match, stands a minute longer at the window.

Then walks back to the table and sits
down with a sigh. He drops the match in the ashtray.
She reaches for his hand, and he lets her
take it. Why not? Where’s the harm? he thinks.
Let her. His mind’s made up. She covers his
fingers with kisses, tears fall onto his wrists.

He draws on his cigarette and looks at her
as a man would look indifferently on
a cloud, a tree, or a field of oats at sunset.
He narrows his eyes against the smoke. From time
to time he uses the ashtray as he waits
for her to finish weeping.

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How Bach Will Save Your Soul: German Philosopher Josef Pieper on the Hidden Source of Music’s Supreme Power

“Music opens a path into the realm of silence.”

BY MARIA POPOVA

Some of humanity’s greatest and most fertile minds — including Oliver Sacks, Walt Whitman, Virginia Woolf, Kurt Vonnegut, Susan Sontag, Aldous Huxley, and Friedrich Nietzsche — have contemplated the power of music, and yet the question of why music moves us so remains unanswered, and perhaps unanswerable. Why is it that music can permeate our deepest memories, help us grieve, and save our lives?

Four years after his increasingly timely case for shedding the culture-crushing shackles of workaholism, the German philosopher Josef Pieper (May 4, 1904–November 6, 1997) explored the abiding puzzlement of music’s power in a speech delivered during intermission at a Bach concert in 1952, later published under the title “Thoughts About Music” in his small, enormous posthumous essay collection Only the Lover Sings: Art and Contemplation.
and Contemplation (public library) — a set of reflections titled after Augustine’s beautiful assertion that “only he who loves can sing” (which Van Gogh echoed in his insistence that art and love are one), exploring what Pieper argues is the “hidden root” of the richness of all music, fine art, and poetry: contemplation.

Piper begins his Bach speech by examining our age-old preoccupation with pinning down the elusive source of music’s singular enchantment:

Not only is music one of the most amazing and mysterious phenomena of all the world’s miranda, the things that make us wonder (and, therefore, the formal subject of any philosopher…) [but] music may be nothing but a secret philosophizing of the soul… yet, with the soul entirely oblivious, that philosophy, in fact, is happening here…. Beyond that, and above all, music prompts the philosopher’s continued interest because it is by its nature so close to the fundamentals of human existence.

Pieper considers the question of what we actually perceive when we listen to music. Surely, he points out, we perceive something greater and beyond the sum total of the specific sounds and words, something of additional intimacy and meaning, just as in poetry we “perceive more and something other than the factual, literal meaning of its words.” Echoing Aldous Huxley’s exquisite assertion that “after silence that which comes nearest to expressing the inexpressible is music,” Pieper writes:

Music opens a path into the realm of silence. Music reveals the human soul in stark “nakedness,” as it were, without the customary linguistic draperies.
With an eye to the canon of ideas about music in Western philosophy — including Schopenhauer, who believed that music is superior to all other arts for they “speak only of the shadow, but music of the essence,” and Nietzsche, who dramatized his monumental regard for music in the proclamation that “without music life would be a mistake” — Pieper summarizes the landscape of thought:

The nature of music variously [has] been understood … as nonverbal articulation of weal and woe, as wordless expression of man’s intrinsic dynamism of self-realization, a process understood as man’s journey toward ethical personhood, as the manifestation of man’s will in its aspects, as love.

All of these ideas, he suggests, can be summed up in a single formulation. A decade after the trailblazing philosopher Susanne Langer framed music as a laboratory for feeling and time, Pieper writes:

Music articulates the inner dynamism of man’s existential self, which is music’s “prime matter” (so to speak), and both share a particular characteristic — both move in time.

Much as the great Russian film director Andrei Tarkovsky would argue decades later that cinema is the art of “sculpting in time,” Pieper argues that this temporal element of music gives us a vital tool with which to sculpt our personhood:

Since music articulates the immediacy of man’s basic existential dynamism in an immediate way, the listener as well is addressed and challenged on that profound level where man’s self-realization takes place. In this existential depth of the listener, far below the level of expressible judgments, there echoes — in identical immediacy — the same vibration articulated in the audible music.

We now realize why and to what extent music plays a role in man’s formation and perfection… beyond any conscious efforts toward formation, teaching, or education.
One of Arthur Rackham’s rare 1917 illustrations for the fairy tales of the Brothers Grimm

In a passage of even more jarring pertinence to our own era of formulaic mass-produced mediocrity marketed as popular music, Pieper writes:

If we now look at our society … we observe how much the most trivial and “light” music, the “happy sound,” has become the most common and pervasive phenomenon. By its sheer banality, this music expresses quite accurately the cheap self-deception that on the inner existential level all is fine… We observe how much attention is demanded by — and willingly given to — the rhythmic beat of a certain crude and orgiastic music… Both kinds of music, the “happy sound” as well as the numbing beat, claim legitimacy as “entertainment,” as means, that is, of satisfying, without success, the boredom and existential void that are caused and increased by each other and that equally have become a common and pervasive phenomenon. We further observe how music … is frequently selected and consumed as a means of personal enchantment, of escapism, of a certain pseudo-deliverance, and as a means to achieve delight that remains merely “skin-deep” (von aussen her, as Rilke said)… We observe all this with great alarm, aware that music lays bare man’s inner existential condition, removing veil and façade (and it cannot be otherwise), while this same inner condition receives from music the most discreet impulses, for better or for worse.

Pieper returns to the subject of his speech, extolling Bach as a timeless counterpoint to this debasement of the soul in music — a supreme example of the kind of music that ennobles our personhood by inviting existential contemplation:

We observe and ponder all this and then are moved to rejoice as we become aware again and acknowledge anew that among all the various kinds of music today there still exists, also and especially, the music of Johann Sebastian Bach!

Obviously, this implies a challenge to ourselves, a challenge not easily nor “automatically” satisfied. That we are willing to listen attentively to the essential message of this music and that we let this message find an echo, as if on reverberating strings, within the immediacy of our soul is decisive. This will lead to new and rekindled clarity, authenticity, and vigor of our inward existence; to the dissatisfaction with entertaining but hollow achievements; and to a sober and perceptive alertness that is not distracted from the realities of actual life by the promise of easy pleasure proffered in superficial harmonies. Above all, this will guide us to turn with resolve, constancy, courage, and hope toward the one and only Good by whose grace our inner existential yearning finds fulfillment; the one Good praised and exalted particularly in Bach’s music with such ever-present “wordless jubilation.”

Complement this particular portion of the wholly jubilant Only the Lover Sings with Franz Kafka on the power of music and the point of making art and Aldous Huxley on why music speaks to our souls, then revisit Pieper on the neglected seedbed of creative culture.

https://www.brainpickings.org/2017/07/27/josef-pieper-only-the-lover-sings/?mc_cid=9d6d50e162&mc_eid=d1c16ac662
Auden in the Aquarium

by Cynthia Zarin

Issue no. 154 (Spring 2000)

It was a hot day in June.
Inside the aquarium it was so cool
after the bright light outside that
it seemed as if we were swimming up
the arteries of a cold broad-backed fish.

We took in the crabs, the sea urchins,
the jellyfish that shone like
Japanese lanterns, and as we looked
our reflections flitted past us
on the green glass, animated, lit,
as if this was the shade to which
they are always hoping to return,
the reason they only show themselves
on surfaces that mimic water.

At some of the tanks the lights
had been arranged so there were
no reflections—it was like looking
through a window with the sash
raised—and it was at one of these
I saw you, Wystan, your crepe-paper
face on a huge tautog, swimming alone
in a clutch of striped bass.

The bass kept opening and shutting
their mouths like sheep, or choristers
—though their singing was completely
inaudible—and along their sides
were dark inky lines, like the marks
of tire tracks. There was an eel
there too, below you, its body
an s, then an o, at home, at least

it seemed, in its permanently
Unitarian element: air filtered, fire
stamped out. The aquarium was filled
with schoolchildren, whistling,
shoving, with tourists in their
tropical clothes, waiting, as we were, for the ferry to Vineyard Haven. We stood at the tank. The glass was cold. A tent of light shown down. Your scales were the color of old silver, of smoke.

Behind you on the wall were a few carefully painted sea grasses, a few rocks, a wave but no sign of a boy, and a warning: DO NOT TAP ON GLASS for you to read backwards, in Icelandic

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Geneticists use CRISPR to cut toxic protein out of the aging equation

Nick Lavars

An audio version of this article is available to New Atlas Plus subscribers.
More audio articles

A new technology developed at the Salk Institute has revealed a new pathway in the development of anti-aging treatments (Credit: lightsource/Depositphotos)

VIEW GALLERY - 3 IMAGES

There is much we don't understand about the aging of the human body, but working with what we do know researchers continue to uncover potential new ways to slow down the process. Among them is a team of genetic scientists at the Salk Institute, which has developed a new therapy using the CRISPR/Cas9 tool that has greatly boosted the lifespan of rapidly aging mice.
The work carried out in the Salk Institute’s Gene Expression Laboratory involved mice engineered with a very rare genetic condition known as Hutchinson-Gilford progeria syndrome, or simply progeria. Caused by a mutation in the LMNA gene, the condition affects one in four million babies worldwide and leads to rapid aging, with the average life expectancy for a child born with progeria around 13 years.

Progeria is not the only degenerative disease caused by a mutation in the LMNA gene, but it is one of the most severe. In a healthy subject, the gene codes for two proteins called lamin A and lamin C. In progeria patients, it instead produces a shorter, toxic version of lamin A called progerin, which builds up quickly with and accelerates the aging process.

"Both humans and mice harboring a mutation in the LMNA gene manifest prematurely aging characteristics, such as an increase in DNA damage, loss of epigenetic marks and loss of stem cell populations," Pradeep Reddy, author on the new paper, explains to New Atlas. "Importantly, most of these phenotypes resemble the ones normally observed during aging in the general population. For this reason, progeria syndrome models are widely used to understand the mechanisms driving the process of aging and also to test the newly developed interventions in a short period of time."

— ADVERTISEMENT —
Reddy and her colleagues sought to limit the buildup of progerin by targeting the LMNA gene in the mice to blanket its toxicity. To do this, they delivered the CRISPR/Cas9 gene editing tools using an adeno-associated virus (AAV), which carried them to the right place on the DNA in order to make a critical cut and prevent the lamin A and progerin proteins from functioning, without impacting lamin C.

The scientists watched on as the treated mice became stronger and more active after two months, exhibiting improved cardiovascular health. The treatment also appeared to delay common symptoms of progeria and old age: degenerating arterial blood vessels and bradycardia (an abnormally slow heart rate). Ultimately, the treatment restored the activity levels of the progeria-afflicted mouse models to those of normal, healthy mice and increased their life span by around 25 percent.

Currently there is no cure for progeria, so this breakthrough could have significant implications for the effort to uncover new treatments. But because of its similarities in the molecular pathways associated with aging in
the general population, the scientists are hopeful their work can be adapted to target the molecular drivers of aging in all humans. And in this regard, they’ve already got some ideas.

"Among the many molecular drivers of aging, abnormalities in the nuclear envelope of the cells are observed with age," Reddy tells us. "This is due to the accumulation of the toxic form of LMNA gene product. In such cases, our method can be used to permanently fix the problem by blocking the expression of the gene."

The research was published in the journal Nature Medicine, while the short video below provides an overview of the breakthrough.

Source: Salk Institute

Members of a panel tasked with reviewing plans for clinical trials using iPS cells gather for a meeting at the health ministry on Monday. | KYODO

NATIONAL / SCIENCE & HEALTH

Japan approves world-first trial using iPS cells to treat spinal cord injuries

KYODO, AFP-JIJI

The health ministry on Monday approved the world’s first clinical test in which artificially derived stem cells will be used to treat patients with spinal cord injuries.

A team of researchers from Keio University, which filed a request for the test with the ministry, will inject neural cells produced from so-called induced pluripotent stem cells — known as iPS cells — into four people who are injured while playing sports or in traffic accidents.

It is the fifth time the government has authorized clinical studies using iPS cells. The patients, aged 18 or older, will undergo the test treatment under the care of a team led by Hideyuki Okano, a professor at the Keio University School of Medicine.
“It’s been 20 years since I started researching cell treatment. Finally we can start a clinical trial,” Okano said at a news conference in Tokyo. “We want to do our best to establish safety and provide the treatment to patients.”

Okano and his team have already succeeded in enabling a paralyzed monkey to walk again through the same approach.

The patients will have suffered lost mobility and sensation. The cells will be injected within two to four weeks of the patients’ accidents — the period in which the treatment is believed to be effective.

The team will observe the efficacy and safety of the cells for about a year while the patients undergo rehabilitation.

The cells to be transplanted will be created from iPS cells in storage at Kyoto University and will be kept frozen.

Kyoto University’s Shinya Yamanaka won the Nobel Prize in physiology or medicine in 2012 for developing iPS cells, which can grow into any type of body tissue and are seen as a promising tool for regenerative medicine and drug development.

The main purpose of Keio’s study is to confirm the safety of the neural cells to be created. The team will limit the number of cells they will transplant to 2 million but plan to increase that to up to 10 million in the future.

Every year in Japan, around 5,000 people sustain spinal cord damage, and the number of people living with some sort of spinal cord-related injury is estimated to total over 100,000.

People with existing spinal cord injuries are mostly in the chronic phase and, therefore, will not be eligible to the upcoming clinical trial.

But Masaya Nakamura, a Keio professor of orthopedics who is in charge of the procedures, said the team wants to confirm “within two to three years” the safety of the treatment for patients with chronic spinal cord injuries.

On Monday, a panel at the ministry also reviewed another plan for a clinical test in which corneas produced from iPS cells will be transplanted to treat eye diseases. The trial was proposed by an Osaka University research team. The panel did not reach a decision on the cornea trial, leaving further consideration to future discussions.

Among other clinical tests with iPS cells, the government-backed Riken institute conducted the world’s first transplant of retina cells grown from iPS cells to an individual with an eye disease in 2014.

Kyoto University also began a clinical test using iPS cells to treat Parkinson’s disease last year.

In that test, which took place in October, nerve cells created from iPS cells were transplanted into the brain of a patient in his 50s.

Parkinson’s disease reduces dopamine-producing neurons in the brain, and results in tremors in the hands and feet and stiffness in the body. While there are treatments to relieve the symptoms, there is currently no cure for the disease.

February 20, 2019

Native California medicinal plant may hold promise for treating Alzheimer’s

Salk scientists identify possible healing compound in Yerba santa

LA JOLLA—The medicinal powers of aspirin, digitalis, and the anti-malarial artemisinin all come from plants. A Salk Institute discovery of a potent neuroprotective and anti-inflammatory chemical in a native California shrub may lead to a treatment for Alzheimer’s disease based on a compound found in nature. The research appears in the February 2019 issue of the journal Redox Biology.

Yerba santa (Eriodictyon californicum) in bloom, Uvas Canyon County Park, Santa Clara County, California.
“Alzheimer’s disease is a leading cause of death in the United States,” says Senior Staff Scientist Pamela Maher, a member of Salk’s Cellular Neurobiology Laboratory, run by Professor David Schubert. “And because age is a major risk factor, researchers are looking at ways to counter aging’s effects on the brain. Our identification of sterubin as a potent neuroprotective component of a native California plant called Yerba santa (Eriodictyon californicum) is a promising step in that direction.”

Native California tribes, which dubbed the plant “holy herb” in Spanish, have long used Yerba santa for its medicinal properties. Devotees brew its leaves to treat respiratory ailments, fever and headaches; and mash it into a poultice for wounds, sore muscles and rheumatism.

To identify natural compounds that might reverse neurological disease symptoms, Maher applied a screening technique used in drug discovery to a commercial library of 400 plant extracts with known pharmacological properties. The lab had previously used this approach to identify other chemicals (called flavonoids) from plants that have anti-inflammatory and neuroprotective properties.
Through the screen, the lab identified a molecule called sterubin as Yerba santa’s most active component. The researchers tested sterubin and other plant extracts for their impact on energy depletion in mouse nerve cells, as well as other age-associated neurotoxicity and survival pathways directly related to the reduced energy metabolism, accumulation of misfolded, aggregated proteins and inflammation seen in Alzheimer’s. Sterubin had a potent anti-inflammatory impact on brain cells known as microglia. It was also an effective iron remover—potentially beneficial because iron can contribute to nerve cell damage in aging and neurodegenerative diseases. Overall, the compound was effective against multiple inducers of cell death in the nerve cells, according to Maher.

“This is a compound that was known but ignored,” Maher says. “Not only did sterubin turn out to be much more active than the other flavonoids in Yerba santa in our assays, it appears as good as, if not better than, other flavonoids we have studied.”

Next, the lab plans to test sterubin in an animal model of Alzheimer’s, then determine its drug-like characteristics and toxicity levels in animals. With that data, Maher says, it might be possible to test the compound in humans, although it would be critical to use sterubin derived from plants grown under standardized, controlled conditions. She says the team will likely generate synthetic derivatives of sterubin.

Other authors on the study are senior staff scientist Wolfgang Fischer, staff scientist Antonio Currais and postdoctoral fellows Zhibin Liang and Antonio Pinto.

This work was supported by the National Institutes of Health, the Edward N. & Della Thome Memorial Foundation and the Paul F. Glenn Center for Aging Research at the Salk Institute.

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New Research: Bone Marrow Transplants Might Prevent Aging

The brain cells of older mice looked young again.

Dan Robitzski February 21st 2019

Out With The Old

There’s new evidence to suggest that transfusions of young tissue can stave off health problems for the elderly.

After a transplantation of a healthy young mouse’s bone marrow, older mice’s brain cells were better preserved and the mice had better memories and cognitive abilities than their elderly peers, according to research published Wednesday in the journal Communications Biology — raising the possibility of a future anti-aging treatment for humans.

Blood-Borne

More specifically, the research found that the marrow prevented brain cells from receding and decaying due to age. Mice who received transfusions had brain cells with longer axons that maintained broader networks with the rest of the brain.

These mice fared better at a battery of cognitive tests than other elderly mice who didn’t receive transfusions.

“While prior studies have shown that introducing blood from young mice can reverse cognitive decline in old mice, it is not well understood how this happens,” said Helen Goodridge, a Cedars-Sinai Medical Center scientist who led the new research, in a press release. “Our research suggests one answer lies in specific properties of youthful blood cells.”

The Big “But”
The research calls to mind Ambrosia Health, the controversial blood transfusion clinic that shut its doors this week after the FDA issued a warning about its practices — but it’s worth remembering that mice aren’t people.

There’s no evidence that this mouse study is relevant to human medicine, and there’s a long road of testing ahead before anyone can say it is — though that doesn’t mean researchers aren’t excited.

“We are entering an era in which there will be more elderly people in the population, along with an increased incidence of Alzheimer’s disease, putting a huge burden on the health system,” Clive Svendsen, who is the director of the Cedars-Sinai Board of Governors Regenerative Medicine Institute and who also helped lead the research project, said in the same press release. “Our work indicates that cognitive decline in mice can be significantly reduced by simply providing young blood cells, which act on the brain to reduce the loss of synapses related to aging.”

https://futurism.com/bone-marrow-transplants-prevent-aging