The New York Times Magazine

FEBRUARY 26, 2017

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THE FUTURE OF WORK ISSUE

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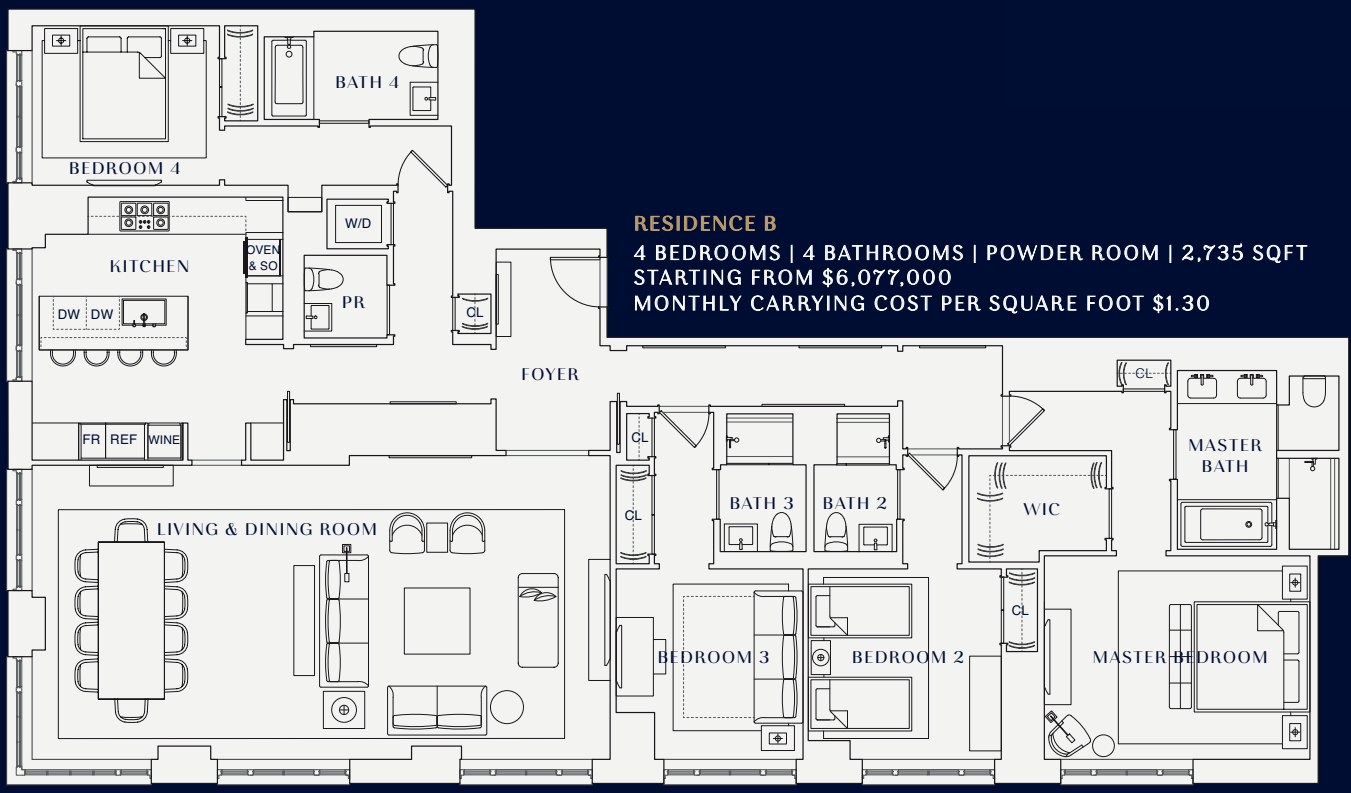

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THE FUTURE OF WORK

Continued on Page 6

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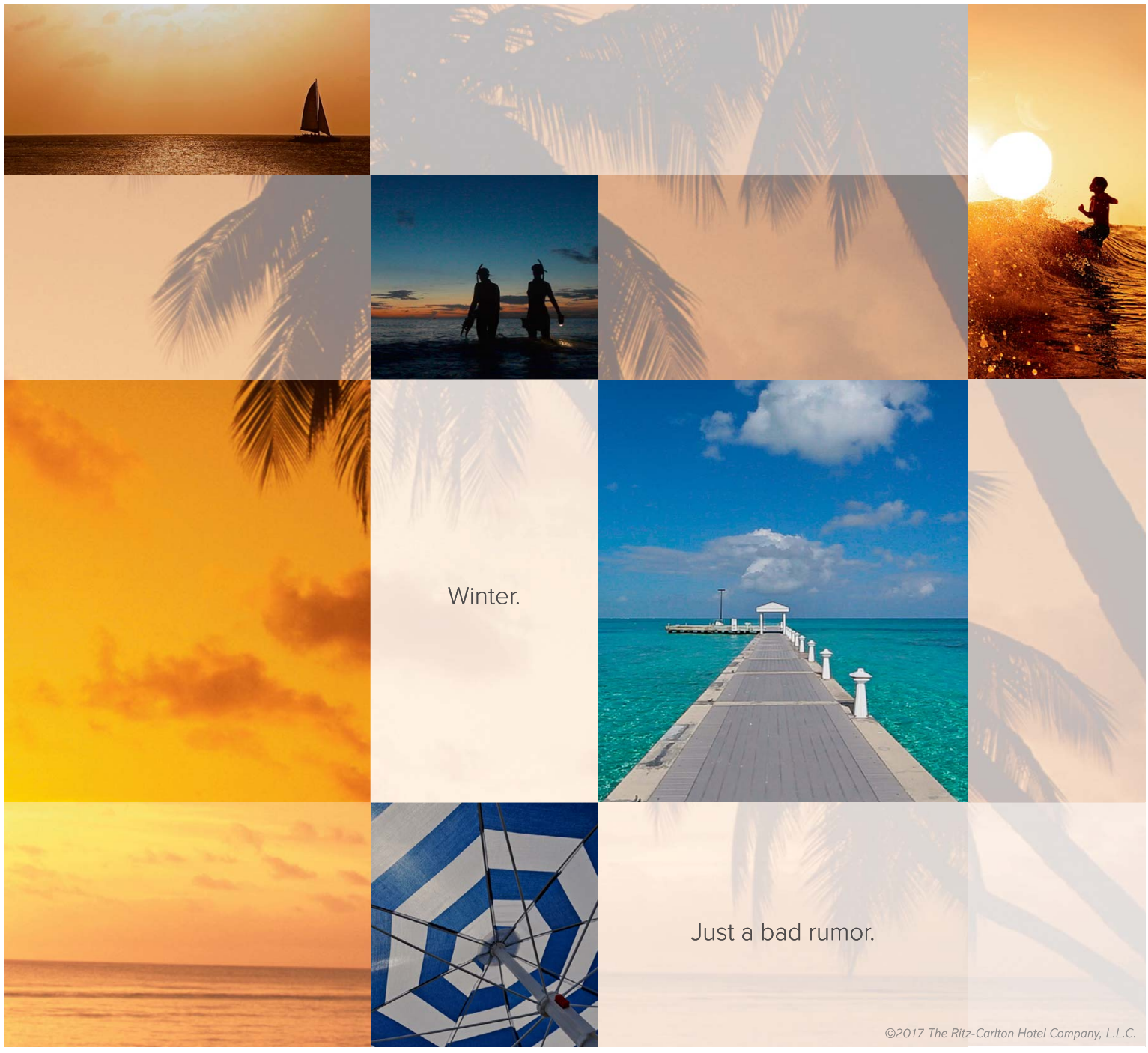
BEHIND THE COVER

Jake Silverstein, editor in chief: ‘‘The patch on the cover was modeled on old labor-union patches, a nice visual reference to the idea that our old modes of thinking about the working class in America need to be updated for a new age.’’ Patch designed by Young Jerks. Photograph by Craig Cutler for The New York Times.



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Binyamin Appelbaum *"New Jobs," Page 36*

Binyamin Appelbaum is a Washington correspondent covering economic policy for The Times. He often reports on economic conditions in communities across America, from the factory towns of the Rust Belt to the suburbs of the Sun Belt. He likes to drive around without a destination in mind, stopping when he sees people who might be willing to chat. One consistent impression: The working class is changing fast, and the rest of the country doesn't seem to be paying attention. "I wandered into a small restaurant on the ground floor of a house in Hazleton, Pa., and met a woman eating breakfast with her teenage daughter," he said. "Her father was a steelworker. She works just as hard taking care of the elderly. And when I asked about her hopes for her daughter, she laughed bitterly."

Photographed by Kathy Ryan at The New York Times on Feb. 6, 2017, at 5:57 p.m.

Ben Austen *("New Jobs," Page 36)* is working on a book about Chicago's Cabrini-Green public-housing complex.

Dan Cassaro and Dan Christofferson *(Cover and Essay, Page 27)* are partners at the Brooklyn-based creative studio Young Jerks.

Elise Craig *("New Jobs," Page 36)* is a freelance writer and editor based in San Francisco.

Craig Cutler *(Cover and Essay, Page 27)* is a photographer and director based in New York and Los Angeles.

Barbara Ehrenreich *(Essay, Page 27)* is the founding editor of the Economic Hardship Reporting Project and the author of numerous books, including "Nickel and Dimed."

Amanda Fortini *("New Jobs," Page 36)* is a contributing editor at Elle magazine.

Ruth Graham *("Retraining," Page 48)* is a contributing writer at Slate.

Kristian Hammerstad *("Automation," Page 30, and "Retraining," Page 48)* is an illustrator based in Oslo.

Jazmine Hughes *("New Jobs," Page 36)* is an associate editor for the magazine.

Jaime Lowe *("New Jobs," Page 36)* is a freelance writer and a frequent contributor to the magazine.

Annie Lowrey *("Safety Net," Page 52)* is a contributing writer at The Atlantic and a former economic-policy reporter for The Times. She is writing a book about universal basic income for Crown.

Lizzie O'Leary *("New Jobs," Page 36)* is the host of the radio program "Marketplace Weekend."

Ryan Pfluger *("New Jobs," Page 36)* is a New York- and Los Angeles-based photographer.

Andrew Renneisen *("Safety Net," Page 52)* is a documentary photographer based in Nairobi.

Carlo Rotella *("New Jobs," Page 36)* is the director of American studies at Boston College and the author, most recently, of "Playing in Time."

Eric Steuer *("New Jobs," Page 36)* is a contributing writer for Wired based in San Francisco.

Abe Streep *("New Jobs," Page 36)* is a contributing editor for Outside and a contributing writer for The California Sunday Magazine.

Kim Tingley *("Automation," Page 30)* is a contributing writer for the magazine.

The New York Times Magazine

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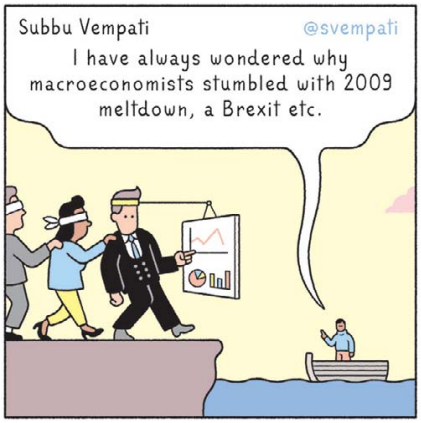
Readers respond to the 2.12.2017 issue.

RE: ON MONEY

John Lanchester wrote about the blind spots in macroeconomics.



Lanchester's provocative claim that macroeconomics is still mired in a deep and unresolved crisis invites readers to forget everything that they should know about macroeconomics and about U.S. macroeconomic performance during and after the Great Recession.

John Keynes never thought that macroeconomics, as a social science, could prevent capitalist crisis. What Keynes instead showed is that capitalist crisis does not resolve itself; only activist countercyclical policy will do that. And that is precisely what Ben Bernanke's Fed and the Obama stimulus package gave us. As the New York Times editorial board wrote in 2014 concerning the stimulus, it "prevented a second recession that could have turned into a depression." To be sure, Keynesianism à la Bernanke and Obama did not address the changes in work, careers and real growth that rightly preoccupy Americans despite the steady tightening of the labor market. Congress bears the blame, though; it went AWOL after 2010.

It is a mistake to think that the Great Recession invalidated Keynesian macroeconomics. On the contrary, it came to the rescue.
Rick Valelly, Swarthmore, Pa.

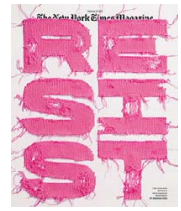
I read with great appreciation John Lanchester's account of the disciplinary crisis now afflicting economics. At least one other possible external check on conceptual inbreeding in economics has been available for decades, ready-made in the writings of Norman O. Brown. "Filthy Lucre," the penultimate chapter of Brown's 1959 book, "Life Against Death," offers a psychoanalytic interrogation and reinterpretation of "rationality" in economic life. Within the extended argument of "Filthy Lucre," whose focus on an excremental "money complex" is both deeply shocking and widely illuminating, there may lie a potential basis for better future predictive power through incorporation of irreducibly masochistic motivational components into the instrumental logic of appetitive economic "reason."

American culture, in which consumers are supposed to be king and their own motives are presumed to be both hedonic and self-transparent, will no doubt resist examination of subconscious masochism as a key factor in economic behavior. Yet the future of economics may depend upon a brutally honest consideration of masochism's role in pathologies deforming the production, distribution and consumption of goods and services.
Donald Mender, M.D., Rhinebeck, N.Y.

RE: IMMORTALITY

Mark O'Connell profiled Zoltan Istvan, an entrepreneur and presidential candidate who preaches that humans could conquer death if we tried hard enough.

I held my mother's hand as she drew her last breath at age 89, after "the best life I could have lived." It was the most profound experience of my life, along with the births of my two children. Death and birth give meaning to life; you can't have one without the other. I loved Mark O'Connell's article about two nut cases (and their cause) who show where death denial,



THE COVER, ON TWITTER

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'Death and birth give meaning to life; you can't have one without the other.'

a quintessential American condition, leads when taken to its extreme.
Deborah Clearman, New York, N.Y.

It is clear from Mark O'Connell's disturbing piece that science fiction largely fuels transhumanist dreams of greatly extended mortality and immaterial immortality. But it would seem that such fantasies rest fitfully on a fundamental bed of existential dread. In his classic book, "The Denial of Death," Ernest Becker examined various manifestations of the subject, some perverse. The immortality campaign would appear to be yet another, though futuristic.

It had seemed that my maternal grandmother would live forever until she died at almost 114. Her extreme longevity brought many losses, as siblings, two husbands, an elderly child and contemporaries predeceased her. Aside from her genetic endowment and clean living, Bubbie attributed her longevity to traits she sought to exemplify: kindness, caring, compassion, generosity, a passion for learning and good humor. And perhaps, she said half jesting, the renowned rabbi who blessed her to enjoy a long and healthy life long ago had done so "too well."

Those yearning for personal immortality would do well to attend instead to their inner lives and also to crucial factors that greatly undermine the quality of others' lives in today's world, ending hundreds of millions of them prematurely.
Stephen E. Levick, Narberth, Pa.

CORRECTION:

A picture caption with an article on Feb. 12 about Sheriff Louis Ackal carried a credit that misspelled the given name of the photographer. The picture of Sheriff Ackal was taken by Dwayne Fatherree, not Duane.

Send your thoughts to magazine@nytimes.com.

Photo illustration by Sagmeister and Walsh

Illustrations by Giacomo Gambineri

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*Once **'public'** schools existed to create a shared purpose and strengthen our nation. These days, many parents think only about how their own children can get a step ahead.*
By Nikole Hannah-Jones

Common Sense

In the days leading up to and after Betsy DeVos's confirmation as secretary of education, a hashtag spread across Twitter: #publicschoolproud. Parents and teachers tweeted photos of their kids studying, performing, eating lunch together. People of all races tweeted about how public schools changed them, saved them, helped them succeed. The hashtag and storytelling was a rebuttal to DeVos, who called traditional public schools a "dead end" and who bankrolled efforts to pass reforms in Michigan, her home state, that would funnel public funds in the form of vouchers into religious and privately operated schools and encouraged the proliferation of for-profit charter schools. The tweets railed against DeVos's labeling of public schools as an industry that needed to adopt the free-market principles of competition and choice. #Publicschoolproud was seen as an effort to show that public schools still mattered. ¶ But the enthusiastic defense obscured a larger truth: We began moving away from the "public" in public education a long time ago. In fact, treating public schools like a business these

days is largely a matter of fact in many places. Parents have pushed for school-choice policies that encourage shopping for public schools that they hope will give their children an advantage and for the expansion of charter schools that are run by private organizations with public funds. Large numbers of public schools have selective admissions policies that keep most kids out. And parents pay top dollar to buy into neighborhoods zoned to "good" public schools that can be as exclusive as private ones. The glaring reality is, whether we are talking about schools or other institutions, it seems as if we have forgotten what "public" really means.

The word derives from the Latin word *publicus*, meaning "of the people." This concept — that the government belongs to the people and the government should provide for the good of the people — was foundational to the world's nascent democracies. Where once citizens paid taxes to the monarchy in the hope that it would serve the public too, in democracies they paid taxes directly for infrastructure and institutions that benefited society as a whole. The tax dollars of ancient Athenians and Romans built roads and aqueducts, but they also provided free meals to widows whose husbands died in war. "Public" stood not just for how something was financed — with the tax dollars of citizens — but for a communal ownership of institutions and for a society that privileged the common good over individual advancement.

Early on, it was this investment in public institutions that set America apart from other countries. Public hospitals ensured that even the indigent received good medical care — health problems for some could turn into epidemics for us all. Public parks gave access to the great outdoors not just to the wealthy who could retreat to their country estates but to the masses in the nation's cities. Every state invested in public universities. Public schools became widespread in the 1800s, not to provide an advantage for particular individuals but with the understanding that shuffling the wealthy and working class together (though not black Americans and other racial minorities) would create a common sense of citizenship and national identity, that it would tie together the fates of the haves and the have-nots and that doing so benefited the nation. A sense of the public good was a unifying force because it meant that the rich and the poor, the powerful and the meek, shared the spoils — as well as the burdens — of this messy democracy.

Achieving this has never been an easy feat. The tension between individual striving and the common good, between the beliefs that strong government protects and provides for its citizens and that big government leads to tyranny, has always existed in this country. As a result, support for public institutions and expansive government has ebbed and flowed. When Franklin Delano Roosevelt, in response to the Great Depression, ushered through the biggest expansion of federal programs in our nation's history, he did so because he thought that government regulation was necessary to empower common people against corporations and banks but also that government should provide certain protections for its citizens. Under the New Deal, we got Social Security and unemployment insurance. Federal housing projects — public housing — meant quality dwellings for the nation's working people. Federal works projects employed millions of out-of-work Americans and brought infrastructure to communities that had not been able to pay for it on their own.

We began moving away from the 'public' in public education a long time ago.

At the same time, the New Deal stoked the ire of a small-government, antiregulation minority, who began to push back, though it would take some decades before their views became mainstream. They promoted free-market principles, deregulation and the privatization of functions normally handled by the government and sought to define all things — like the benefits of education — strictly in terms of their economic value.

Nonetheless, Roosevelt's government expansion was widely supported, and Americans elected him to an unprecedented four terms as president. But the broad support of public programs and institutions hinged on a narrow definition

Illustration by Matt Chase

of who that public was: white Americans. To get his New Deal passed, Roosevelt compromised with white Southerners in Congress, and much of the legislation either explicitly or implicitly discriminated against black citizens, denying them many of its benefits.

As the civil rights movement gained ground in the 1950s and 1960s, however, a series of court rulings and new laws ensured that black Americans now had the same legal rights to public schools, libraries, parks and swimming pools as white Americans. But as black Americans became part of the public, white Americans began to pull away. Instead of sharing their public pools with black residents — whose tax dollars had also paid for them — white Americans founded private clubs (often with public funds) or withdrew behind their fences where they dug their own pools. Public housing was once seen as a community good that drew presidents for photo ops. But after federal housing policies helped white Americans buy their own homes in the suburbs, black Americans, who could not get government-subsidized mortgages, languished in public housing, which became stigmatized. Where once public transportation showed a city's forward progress, white communities began to fight its expansion, fearing it would give unwanted people access to their enclaves.

And white Americans began to withdraw from public schools or move away from school districts with large numbers of black children once the courts started mandating desegregation. Some communities shuttered public schools altogether rather than allow black children to share publicly funded schools with white children. The very voucher movement that is at the heart of DeVos's educational ideas was born of white opposition to school desegregation as state and local governments offered white children vouchers to pay for private schools — known as segregation academies — that sprouted across the South after the Supreme Court struck down school segregation in 1954.

"What had been enjoyed as a public thing by white citizens became a place of forced encounter with other people from whom they wanted to be separate," Bonnie Honig, a professor of political science and modern culture and media at Brown University and author of the forthcoming book "Public Things: Democracy in Disrepair," told me. "The attractiveness of private schools and other forms of privatization are not just driven by economization but by the desire to control the community with which you interact."

Even when they fail, the guiding values of public institutions, of the public good, are equality and justice. The guiding value of the free market is profit. The for-profit charters DeVos helped expand have not provided an appreciably better education for Detroit's children, yet they've continued to expand because they are profitable — or as Tom Watkins, Michigan's former education superintendent, said, "In a number of cases, people are making a boatload of money, and the kids aren't getting educated."

Democracy works only if those who have the money or the power to opt out of public things choose instead to opt in for the common good. It's called a social contract, and we've seen what happens in cities where the social contract is broken: White residents vote against tax hikes to fund schools where they don't send their children, parks go untended and libraries shutter because affluent people feel no obligation to help pay for things they don't need. "The existence of public things — to meet each other, to fight about, to pay for together, to enjoy, to complain about — this is absolutely indispensable to democratic life," Honig says.

As black Americans became part of the public, white Americans began to pull away.

If there is hope for a renewal of our belief in public institutions and a common good, it may reside in the public schools. Nine of 10 children attend one, a rate of participation that few, if any, other public bodies can claim, and schools, as segregated as many are, remain one of the few institutions where Americans of different classes and races mix. The vast multiracial, socioeconomically diverse defense of public schools that DeVos set off may show that we have not yet given up on the ideals of the public — and on ourselves. ◆

Floating with leviathans in a sheltered part of the South Pacific, where pilot and humpback whales congregate to raise their newborn calves.

Photographs by Klaus Thymann

In the Heart of the Sea: Additional photographs are at nytimes.com/magazine.

Photographer:
Klaus Thymann

Home:
London

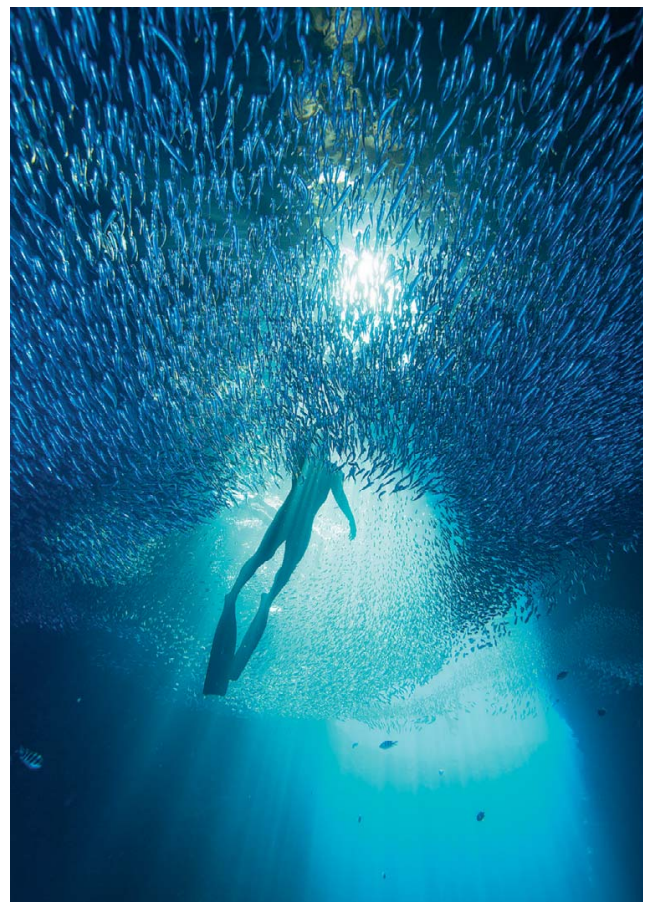
Destination:
Vava'u, Tonga

About:
The South Pacific archipelago of Vava'u, which consists of 61 islands, is an annual stop each fall for migrating pilot and humpback whales and their newborn calves.

The first few days, we didn't see a single whale. But you get a long way with determination. We saw a group of pilot whales first — seeing them is very rare. They're fast and about twice the length of humans. The next day, we saw a few humpbacks. They did a swim-by, which is like a minute in real time but felt like an eternity in the water. Later that day, I saw a mother and her calf, between 4 and 5 weeks old. It seemed as if he was looking at me. He was really curious, and he came so close that I couldn't keep him in one frame. The mother stayed out of the frame. I don't think she saw me as a threat.

We had a really magical moment the next day when nine whales had a heat run. A lot of male whales blow huge bubbles to show off. All you can do is hold your breath; I did a free-diving course to train for this. At one point, there were eight males showing off for one female. If you have ever wondered what it would be like to be as small as a mosquito, that was it for me. All of a sudden, whales are coming from the left and the right. We decided that I would just shoot while my swimming partner, Falanisi Tongia, pulled me in the direction I wanted to go. The whales were breaching and changing direction and slapping their tails. The tail that propels the whale has an immense power; I was wearing a full-body wet suit with the idea that if I was knocked unconscious, I would float.

As told to Jaime Lowe



Far left: "They're so big that you can whiz around fairly quickly. I had a belt that had my camera clipped on, so I could swim with both arms and both legs. I was trying to swim around so that the whales were top and back lit, so that they were outlined."

Near left, top: "I put up a one-man tent on this island. When I was gone, there was nothing left there. Once the wind blew, you couldn't even see my footsteps."

Near left, bottom: "In this cave there was a school of fish. I had my swimming partner go in to give a sense of scale. I used a flash, and you can see the light reflected off the fish."

Subway Napping

By Abigail Deutsch

Subway riders: Piotr Redlinski

In high school, I lived my longest days. I chiseled my morning routine into a trim half-hour (shower, clothes, Cheerios), and at 6:40 a.m., I raced to the subway, squeezed into a car, gazed uncomprehendingly at my chemistry notes, popped out onto Chambers Street and shot westward to school. And when classes concluded at 3:40, I did not, like a normal person, go home; I went to the school-newspaper office and edited, and wrote, and wondered if anyone would ever kiss me, and eventually, after darkness had fallen, drifted back across Chambers to board the train uptown.

How I loved the train uptown. My feeling as the 6 pulled into the station was like that of the toddler who spots an ice-cream truck rounding the corner, only my treat of choice was sleep. To school I took the express, for time was of the essence, but from school I took the local, for time no longer mattered, and I wanted merely to sit and doze. My naps were efficient, a city dweller's naps; they unfurled with near-mechanical precision. As the train left each station, I slipped out of consciousness. As it slowed upon arrival at the next, I re-entered the waking world. Among the shoppers who boarded at Canal, the students at Hunter, the doctors at Lenox Hill, I slept. Each time I woke, I became half-aware of the industry of the world — and then I slept again.

Is there a more quintessentially urban act?

Subway slumber was one of my few acts of rebellion in those days. I was a sweet kid, with a ready smile, a ravenous appetite for good grades and an oddly long to-do list. I had fun only

Photo illustration by Ben Grandgenett

on the rare occasions when my homework happened to be fun. But flying beneath the city streets, jostled by the Discman-toting masses, I retreated into myself and refused to do anything at all.

Sleeping on the subway is a storied tradition in New York. Among the ranks of nappers past, none fascinates me more than Henry Shelby, the cheerful, well-educated vagrant who choreographed overnight ballets of subway rides, hopping from the Eighth Avenue Express to the Sixth Avenue and back, snoozing for hours on end. (Unlike most who spend their nights on the subway, Shelby appears to have been homeless by choice.) Shelby inspired the 1956 Harper's Magazine article "Subways Are for Sleeping," which detailed the nuances of his technique. Between midnight and 1, boarding at the front of the Eighth Avenue train nearly guaranteed a seat; certain station bathrooms, at certain moments, proved ideal for illicit cigarette breaks. Each time I scan the cars of an arriving train, seeking out the emptiest one and — all too often — running after it, I think of Shelby, who stands for an important principle of subway naps: They both demand and reward strategy.

Shelby's zeal is instructive, because sleeping is the best version of what we all do on trains anyway: as little as possible, ideally while ignoring one another. Why wouldn't we? To survive the lack of literal space — so the familiar argument runs — we create metaphorical space. We listen to music, play Candy Crush, laugh dutifully at advertisements for storage units. We disconnect.

Yet this particular brand of disconnection, I believe, implies its opposite. To ignore strangers on a train is also to pledge faith in them. We don't watch them because we don't think we need to, and we don't think we need to because — for some reason — we assume they're harmless. Sleep, as the greater withdrawal, requires greater faith. Usually we sleep in the company of those we trust most: lovers, family members, friends. To nap among fellow riders suggests there is something of the lover, family member or friend in them. It feels subversive and pleasurable, like — well, like sleeping with strangers.

When I mention my love of subway napping to my own friends, they nod politely, then immediately try to dissuade me from ever doing it again. "Don't you get nervous?" they ask. But I don't. Late at night, in a semi-empty car, I glance at my company and detect nothing of concern. The possibility that my reaction is misguided only increases my satisfaction. In my waking, aboveground life, I often worry for no reason; here — notwithstanding the relative safety of today's New York — I probably should worry but do not. In more ways than one, subway sleeping lets me enter a different state.

If anything improves on subway sleeping, it's subway waking. In "Swann's Way," Proust describes the disorientation that follows awakening in the dark: "When I woke in the middle of the night, since I did not know where I was, I did not even understand in the first moment who I was." No such trouble awaits the subway waker. The moment your eyes open to the neon glare, you glimpse a comfortingly familiar sight. Shiny blue benches, advertisements for breast reductions and breast augmentations, and above all, people: the guy across from you, listening to music; the woman next to you, staring into space. Not for a moment can you doubt where you are, or who you are. You are a city person, a person dwelling among people. Is there a more quintessentially urban act than the subway nap? Even when the snoozing commuter stays still, she is moving, and even when she withdraws into herself, she is joining the crowd. ◆

Soporific New York City Subway Rides

Longest with no transfer: The A train from 207th Street in Manhattan to Far Rockaway (more than 31 miles).

Longest with transfer: The 2 train from 241st Street in the Bronx, with a transfer to the A train (more than 38 miles).

Longest interval between stations: The A train between J.F.K. Airport and Broad Channel (3.5 miles).

Tip By Jaime Lowe

How to Block Out Pain

"Pain is a personal experience, and success comes from self-management," says David Tauben, clinical professor in the department of pain medicine at the University of Washington. Respond to pain calmly — worry and fear activate the neural pathways through which pain travels and can amplify the sensations that cause it in the first place. Because pain has both mental and physical components, some researchers who study it combine psychology with the physical effects. "Be careful of negative thoughts and worrying," Tauben says. "If it's difficult to control them, find a professional to help you, like a psychologist or counselor."

Ask yourself if the pain needs urgent medical attention or if it is something you can self-manage. "It is important to understand the difference between danger and damage," Tauben says. If you sense danger, seek trusted medical attention immediately to get a diagnosis. Otherwise, deep breathing and relaxation techniques can help in the short term, while "visual, auditory or breathing exercises to calm the pain system are helpful — diaphragmatic breathing to relax or yoga or tai chi help," Tauben says. "If you think your pain is a disaster, you'll behave like it's a disaster." Basic lifestyle choices, like a healthy diet and exercise, can influence pain self-management in the long-term. A behavioral-health trainer or physical therapist might also be able to help.

Once you master the ability to calm yourself in the face of pain, try self-hypnosis. "Think of a nice place where you're safe, and go to that place in your mind's eye," Tauben says. "You have to train yourself to be in a calm, comfortable place physically or emotionally and practice that feeling when things are going well, so that when things aren't going well, you can get back to it." Set the scene: a beach, its smells, the sound of the waves. Imagine what all five senses are experiencing.

Also, active engagement in challenges that are important to you can override the feeling of pain. Tauben shares a slide with his students showing a print of a medieval Arab warrior who is using his own cut-off leg as a weapon. "If you've got something that is far more important than the sensation entering the body you're experiencing," Tauben says, "the pain disappears, and you focus on what is most meaningful." ◆

Illustration by Radio

Can a Therapist Fake His Online Reviews?

I am caught between competing ethical requirements. I am a mental-health professional with substantial experience; some people call me an expert. I recently expanded my private-practice hours. To increase patient numbers, I joined an online referral service (at considerable expense). Here's where the ethical dilemma comes in: Like most "locator" sites, the service includes "customer" ratings. The site reps instructed me to have current patients complete the ratings. My professional training (I'm a psychotherapist) made it very clear that it is a big no-no to solicit testimonials from patients; doing so can badly interfere with the treatment relationship. Patients are in treatment for their own needs and should not be required to consider the therapist's other actual or prospective patients. (Psychotherapy isn't a simple commercial transaction.) So my professional-ethics training tells me to leave any ratings up to any patients who find me through the site, which then asks them to rate me. This would mean virtually no traffic through the site.

Discussions with fellow clinicians have revealed that many if not most have "primed the pump" with favorable "reviews," written by friends or family members or by the therapists themselves. This thought makes me very queasy! But it seems to be a necessary action in the online marketplace. Basic ethics say not to lie, especially self-servingly. Still, I'm wondering about the ethics of depriving potential patients of the ability to find me (by remaining essentially invisible on the site) and to see if I might be able to help them.

So what do you think of this solution? I have submitted a few ratings to the site, directly quoting my actual, satisfied patients but using made-up names. My thinking is that the patients' spontaneous comments about our work are real, but I haven't made an improper demand of anyone. Furthermore, because I genuinely believe I may be able to help a potential patient who might read the reviews, fudging their origins doesn't seem like too bad a con. I think the worst harm my actions might cause is that someone meets with me once and determines that I'm not the right therapist for him or her; that's actually fine and a pretty common event. And readers know better than to take customer reviews too seriously, right?

Please tell me my approach isn't too grievous a wrong; otherwise, I'm out a big chunk of change on the site fee.

Name Withheld

You speak of competing ethical requirements. I understand what one of them is: honesty. What I don't get is what the countervailing ethical requirement is supposed to be. The only candidate you offer is a supposed ethical duty to make your powers as a healer known to people who need them. If there were such a duty, talented psychotherapists would mostly be violating it. So what you have, on the one side, is a wrong; on the other side, a bunch of excuses.

This is a common form of dishonesty, you point out. "But everybody does it" is an excuse we learn in grade school. Parents can reply, with the Bible: "Thou shalt not follow a multitude to do evil." (That's Exodus 23:2. Exodus 23:1 begins, "Thou shalt not raise a false report.") Now, "evil" seems a bit tough here, because what you're doing is less harmful than it might be. Many people discount these customer ratings, because they are aware that these reports, like yours, are often fakes. They indeed "know better than to take customer reviews too seriously." But then your reports are either going to have little effect or they'll selectively persuade the ignorant and the credulous. Taking advantage of people with these epistemic weaknesses is exploiting the vulnerable.

You maintain that your form of fakery is better than the straight-out inventions of others, because your ratings are based on things that clients have actually said. But because these are not real reports, readers are not getting a reflection of the real views of your clientele: What if a fair sampling would include some critics? You suggest that it's a "fairly common event" for people to decide that you're not the right therapist for them. Bothering to rate someone positively is a sign of satisfaction; it's conceivable that the fact your clients haven't done so is itself evidence of something. I'm putting aside the issue of whether metrics of consumer enthusiasm are entirely appropriate in the realm

To submit a query: Send an email to ethicist@nytimes.com; or send mail to The Ethicist, The New York Times Magazine, 620 Eighth Avenue, New York, N.Y. 10018. (Include a daytime phone number.)

Bonus Advice From Judge John Hodgman

Tianna writes: I live in L.A. with my boyfriend, Skeeter. He is a talented musician known for his towering pompadour; he gets compliments on it all the time. I love his style and his confidence. However, he uses a thick hair pomade and sometimes goes for months without washing the grease out. I ask you to order him to shampoo his hair every two weeks.

I will make the order, but I have low hopes for compliance. Because Skeeter is not merely a musician; he is specifically a drummer in a rock band. (Yeah. I stalked you. It wasn't hard. Turns out, a grown man with a pompadour who calls himself Skeeter wants to be found.) The point is: You live with a drummer. That is a lifestyle choice you made, one as bold and ill considered as being a drummer in the first place. And while you're both adorable (and I now follow you on Instagram), you made your bed, and it is full of hair grease.

Illustration by Kyle Hilton

Illustration by Tomi Um

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of psychotherapy. (Imagine Dora on Sigmund Freud: "Worst. Analysis. Ever.")

That you are embedded in this ethical morass is not, of course, your fault. It sounds as if the people who created the website you signed up for have invented a permanent temptation to dishonesty and done little to obviate it. (A "closed-loop" system — which aims to restrict comments to registered, verified patients who have seen the practitioners — is harder to game in the way you describe.) The web, like every technology, creates new opportunities both for doing wrong and for doing right. Print made possible the wide circulation of lies as well as of truths; so, too, did the telegraph, the radio and television. Indeed, language itself is like this: no lies, no truths. There are three mechanisms for counteracting falsehoods: exposure, the education of consumers and the conscience of the producers. The last of these, as your letter suggests, isn't to be relied upon. Your one consolation, and ours, is that your dishonesty is a mere grain of sand on the great mountain of falsehood. Still, you should take these fake ratings down. If you want to replace them, why not write, under your own name, a paragraph summarizing the comments of satisfied patients?

What you have, on the one side, is a wrong; on the other side, a bunch of excuses.

This past week, my primary-care physician called me with some startling news: iron-deficiency anemia. She was so concerned with my results that she ordered a colonoscopy and upper endoscopy to look for internal bleeding and recommended I take ferrous gluconate to increase my iron levels.

I have no history of iron deficiency or anemia. The more I thought about it, the more I thought of a possible cause. I have been donating blood on a regular basis for the last several years at a local bloodmobile. After the first few times, I was turned away because my iron level was found to be too low. Next blood drive, no problem. The latest was another story. The staff nurse pricked my finger and told me my iron was too low but then said something along these lines, "Oh, let me get so and so, she can always get the proper reading." Just like that, my iron level was high enough to donate, which I did. When I asked how that could be, she said, "She knows how to get the proper reading, she has to poke a little deeper." Hmm.

My doctor now thinks that donating blood could be the reason for my iron-deficient anemia. She was shocked to learn that the staff in the bloodmobile neglected to suggest I contact my doctor and blatantly manipulated the results to make me eligible to donate blood.

Is it my responsibility to alert the teaching hospital that operates these blood drives? I feel horrible that someone has possibly been given my iron-deficient blood.

Maura Toomey, Brookline, Mass.

The helping professions may themselves be in need of help: That seems to be the lesson of the day. It looks as if you have important information about the way some blood donations are conducted in your area. What the staff nurse said suggests that what happened to you may have happened to others. A large-scale 2011 study found iron deficiency in a large portion of regular donors — about two-thirds of the women and half of the men — and those were just people whose donations had been accepted. As your doctor is aware, regular donation can result in (and worsen) iron deficiency and anemia. And of course, there are good recipient-side reasons iron-deficient blood, which doesn't carry oxygen very well, should be avoided. (Anemia can also be a symptom of transmissible diseases.) So for the sake of both donors and recipients, it's a bad idea to ignore signs of anemia in those who donate at blood drives. You should indeed notify the hospital that runs the bloodmobile. It may be too late to stop your blood from being used, because it's not going to be stored for more than six weeks. But sharing your experience with the relevant officials could help prevent this abuse of the proper protocols from continuing. ◆

Kwame Anthony Appiah *teaches philosophy at N.Y.U. He is the author of "Cosmopolitanism" and "The Honor Code: How Moral Revolutions Happen."*

Take It Slow

Partaking in *aperitivo* time, that easy stretch of sipping and snacking.

Last month, as I sat in an elegant hotel bar in Rome, I caught myself wondering if there can be such a thing as too much magnificence in a single place. With its antiquity ("Just go to the Colosseum, face east and shout, 'Moira,'" my friend joked when I asked how to get to her house), its art and its food, Rome nearly overwhelmed me with its aesthetic and alimentary too-much-ness.

Aperitivo time is the perfect antidote to all that. During that blessed and blissful hour (or two, or three) of easygoing snacking and drinking and talking, time slows, and stress slips away. In Rome, I met the local author — and *aperitivo* enthusiast — Elizabeth Minchilli, whose most recent book is "Eating Rome." "I love *aperitivo* time in Rome because it can be anything you want," she told me. "It's that in-between time of day — not work, not dinner — when you can meet as few or as many friends for as long or as short as you like and drink as much or as little as you like. Many other 'meals' in Italy have so many rules. But with *aperitivo*, it's a social opportunity that you can put your own spin on."

Yes, you may drink as much or as little as you wish, but during *aperitivo* time, no one seems to drink too much. Drunkenness is not the objective, and it helps that many of the favored drinks are relatively low in alcohol: a glass of wine, a spritz of some kind. In the latter category, Moira's husband, Damiano Abeni, introduced me to the Pirlo, a classic from his native Brescia in northern Italy. The recipe is as simple as it gets: Campari and a dry, sparkling white wine — ideally Pignoletto frizzante.

Among *aperitivi*, there's a place for stronger stuff, too, in the form of classic Italian cocktails — just sipped a bit more slowly. That elegant hotel bar I found myself in was the Stravinskij at the Hotel de Russie, where, with exceptional grace and premium ingredients, a bartender made me an exemplary Negroni that cured me of my Negroni fatigue and reminded me of the drink's charms. I also like the Negroni variant called the Cyn-Cyn, which calls for Cynar instead of Campari, and is a favorite of Elizabeth's.

And the effects of drink are always mitigated by the presence of food: Good, salty cheese, cured meats, bread and olives frequently appear, but I had pizza, and even sashimi, at *aperitivo* gatherings. The ritual is equally unfussy at home in a small group before dinner or in a crowd at a bar. The snacks at the Stravinskij were more rarefied — salmon and other seafood — than the usual *aperitivo* offerings, but the relaxed, leisurely pace remained.

Aperitivo time is among the most civilized drinking traditions I've ever witnessed. There is no pressure, no pretension: It's all unhurried, unforced pleasure. "Piano, piano," they say in Rome. Slowly, gently. ◆

Cyn-Cyn
Adapted from Elizabeth Minchilli

1 oz. Cynar

1 oz. gin

1 oz. red vermouth

Meyer lemon (if possible — if not, regular lemon will suffice)

Pour liquids into a rocks glass, and add a squeeze of Meyer lemon. Add as much ice as will fit. Optional garnish: a twist of lemon peel.

Pirlo
Adapted from Damiano Abeni

1 part Campari

2-3 parts dry sparkling Italian white wine (preferably Pignoletto frizzante, never prosecco)

Half an orange slice to garnish

To a large, balloon-style wineglass, add the Campari and the wine. Garnish with a half slice of orange. (You can drop it right into the glass, as Damiano does.) In warm weather, feel free to add ice.

Food stylist: Hadas Smirnoff. Prop stylist: Rebecca Bartoshesky.

Photograph by Gentl and Hyers

Mother Knows Best

Buttered swordfish for the children — with plenty of sauce for the adults.

Photograph by Gentl and Hyers

Food stylist: Hadas Smirnoff. Prop stylist: Rebecca Bartoshesky.

My kids did not die from too many meals of plain buttered pasta.

I cannot possibly count how many times I have been sought out by some mom with an urgent, hard, particular shine in her eye who wants to know, needs to know, how and what I feed my children. As I am in fact a woman, a restaurant chef and a parent of two, it's an understandable mistake. Let me disappoint straight away: My priority has never been having kids who eat; it is about having kids who sleep. Nobody wants to get home from a restaurant job at 1:30 in the morning, stir themselves a medicinal, soporific negroni, shower off the greasy stink of a commercial kitchen and finally hit the pillow around 3 a.m., only to hear the cracking thunder of her alert and chipper darlings at 6:30 a.m. I decided I could tolerate all the Cheddar Goldfish and the years of plain buttered pasta as long as they slept till 11 a.m.

I was also a little jumpy about making the dinner table some weird proxy outlet for ego trips or power trips. Once, on a summer vacation to Corsica, my mother forced one of my brothers to stay at the dinner table until he finished his plate of oily, slick ratatouille — a texture that made him gag — and in the end, he not only never ate it, but the struggle went on for a full 48 hours, escalating to such heights that the boy went missing the next day, was not found by dark, was not found by midnight and was only returned by the local gendarmes the following evening. I was anxious for him, and also for her. She was not equipped to make five different dinners for five different kids at their varying stages of a developing palate, nor to tolerate it. And I knew a guy who would bring his 3-year-old daughter to my restaurant all the time — dressed exclusively in black punk-rock-band T-shirts and black leggings — and incessantly advertise his suffocating pride at the fact that she "loved" the monkfish liver at Prune and the sea urchin at, as I recall, Le Bernardin. I know I was supposed to be impressed, but it made me squirm.

I prefer the family dinner table to be pretty pleasant for everyone at it, including the stressed-out and lonely parents who most often find themselves home solo — either by dint of divorce, single parenting or baton-relaying (one parent stays late at work while the other is tasked with getting home in time to feed the little people) — and who find themselves with only 20 or so urgent minutes to get the job done, not to mention a stubborn kid who won't eat, well, ratatouille, for example.

If you find yourself in the bland, boring, beige phase, when different textures cannot butt up against another on the same plate, or one speck of parsley can contaminate the whole dinner, I encourage you to find all the white foods you can actually love — cauliflower, chicken, fish, rice, apples, bread, eggs, banana — and go at them with deft ambidexterity: a plain piece of swordfish for those who will run away from home otherwise, and a lively piquant pan sauce — in this case lemony, capery piccata — for those who will drink themselves to an early death if they don't have something adult and interesting at the table to eat. In other words, sauce, but at all times, on the side. Unless we are discussing real food scarcity or a diagnosed medical condition, I wish I had encouraged all those moms who have cornered me over the years to fix themselves a small bowl of something acidic and buttery and lively and herbaceous and drop it on the dinner table and take it a little easier over the plain-fish and plain-rice phases of their otherwise perfectly healthy kids.

My kids did not die from too many meals of plain buttered pasta, or plain buttered chicken, or plain buttered swordfish, or plain buttered cauliflower. And they were not harmed by mercury or pesticides or hidden high-fructose corn syrup because I always shopped right. They were not kids to brag about, necessarily, from a culinary perspective, nor were they easy to take to more ambitious friends' houses or better restaurants for the longest time. I had to disappoint a lot of nerve-racked mothers along the way who thought I had the magic answer. But we've lately rounded the corner, as one likes sushi and they both like ramen and broccoli and one asks for hot sauce and creamed spinach while the other has started craving the tart brightness of lemon juice — affording me an experience I thought I had forsaken long ago, that of hearing the second-greatest sound in the whole world: "Mama, I think this is the best swordfish you have ever made." Which is outranked only by the No. 1 greatest sound of all time: the 13-hour through-the-night-and-into-the-late-morning stretch of silence of my champion sleepers.

Swordfish Piccata

Time: 15 minutes

- **1½ pounds swordfish steak, cut into ¾-inch slabs**
- **Salt and pepper**
- **½ cup Wondra flour**
- **2 tablespoons grapeseed oil**
- **9 tablespoons butter**
- **1 tablespoon finely minced shallot**
- **⅙ cup dry white wine**
- **2 tablespoons capers**
- **Juice of ½ lemon plus 2 lemon "cheeks" for garnish**
- **1 tablespoon minced parsley, plus a sprig for garnish**

1. Season the swordfish gently but evenly on both sides with salt and pepper.

2. Dredge the fish in the flour, patting off any excess.

3. In a cast-iron or nonstick skillet, heat grapeseed oil until just smoking over medium-high heat. Add in 2 tablespoons of the butter until melted and bubbling, about 30 seconds.

4. Place the swordfish in the pan and cook, turning once, until browned on both sides, about 3-4 minutes each side. Work in batches if necessary to avoid overcrowding the pan.

5. Transfer the swordfish to a warm plate, and remove any excess fat from the sauté pan.

6. While the pan is still hot, melt 1 tablespoon of butter, sweat the shallots and cook until soft and cooked through, being careful not to brown. About 30 seconds.

7. Deglaze the pan with the white wine, and reduce by half.

8. Add the capers and lemon juice, and cook for 1 minute.

9. Take the pan off the heat, and add in the remaining 6 tablespoons of butter, 1 tablespoon at a time, swirling the pan continuously to emulsify the butter.

10. Add in the minced parsley, and season to taste.

11. Spoon the sauce over the fish, and garnish with a lemon cheek and a parsley stem.

Serves 2. ◆

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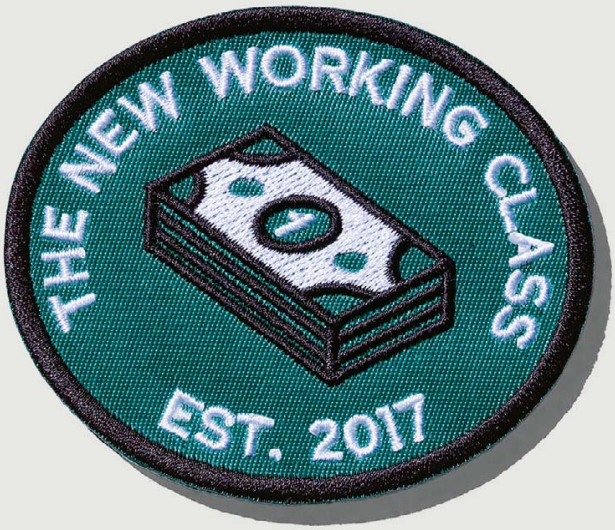
Today's working-class jobs are very different, are being held by very different people and are found in very different industries than those that built the American dream — and our idea of the working class — in the mid-20th century. Why can't American politics and policy catch up?

Patches illustrated by Young Jerks Photographs by Craig Cutler



NEW JOBS REQUIRE NEW IDEAS — AND NEW WAYS OF ORGANIZING. BY BARBARA EHRENREICH

The working class, or at least the white part, has emerged as our great national mystery. Traditionally Democratic, they helped elect a flamboyantly ostentatious billionaire to the presidency. "What's wrong with them?" the liberal pundits keep asking. Why do they believe Trump's promises? Are they stupid or just deplorably racist? Why did the working class align itself against its own interests?

I was born into this elusive class and remain firmly connected to it through friendships and family. In the 1980s, for example, I personally anchored a working-class cultural hub in my own home on Long Island. The attraction was not me but my husband (then) and longtime friend Gary Stevenson, a former warehouse worker who had become an organizer for the Teamsters union. You may think of the Long Island suburbs as a bedroom community for Manhattan commuters or a portal to the Hamptons, but they were then also an industrial center, with more than 20,000 workers employed at Grumman alone. When my sister moved into our basement from Colorado, she quickly found a job in a factory within a mile of our house, as did thousands of other people, some of them bused in from the Bronx. Mostly we hosted local residents who passed through our house for evening meetings or weekend gatherings — truck drivers, factory workers, janitors and eventually nurses. My job was to make chili and keep room in the fridge for the baked ziti others would invariably bring. I once tried to explain the concept of "democratic socialism" to some machine-shop workers and went off on a brief peroration against the Soviet Union. They stared at me glumly across the kitchen counter until one growled, "At least they have health care over there."

By the time my little crew was gathering in the ranch house, working-class aspirations were everywhere being trampled underfoot. In 1981, President Reagan busted the air traffic controllers' union by firing more than 11,000 striking workers — a clear signal of what was to come. A few years later, we hosted a picnic for Jim Guyette, the leader of a militant meatpacking local in Minnesota that had undertaken a wildcat strike against Hormel (and of course no Hormel products were served at our picnic). But labor had entered into an age of givebacks and concessions. Grovel was the message, or go without a job. Even the "mighty mighty" unions of the old labor chant, the ones that our little group had struggled both to build and to democratize, were threatened with extinction. Within a year, the wildcat local was crushed by its own parent union, the United Food and Commercial Workers.

Steel mills went quiet, the mines where my father and grandfather had worked shut down, factories fled south of the border. Much more was lost in the process than just the jobs; an entire way of life, central to the American mythos, was coming to an end. The available jobs, in fields like retail sales and health care, were ill paid, making it harder for a man without a college education to support a family on his own. I could see this in my own extended family, where the grandsons of miners and railroad workers were taking jobs as delivery-truck drivers and fast-food restaurant managers or even competing with their wives to become retail workers or practical nurses. As Susan Faludi observed in her 1999 book "Stiffed," the deindustrialization of America led to a profound masculinity crisis: What did it mean to be a man when a man could no longer support a family?

It wasn't just a way of life that was dying but also many of those who had lived it. Research in 2015 by Angus Deaton, a Nobel laureate in economics, with his wife, Anne Case, showed that the mortality gap between college-educated whites and non-college-educated whites had been widening rapidly since 1999. A couple of months later, economists at the Brookings Institution found that for men born in 1920, there was a six-year difference in life expectancy between the top 10 percent of earners and the bottom 10 percent. For men born in 1950, that difference more than doubled, to 14 years. Smoking, which is now mostly a working-class habit, could account for only a third of the excess deaths. The rest were apparently attributable to alcoholism, drug overdoses and suicide, usually by gunshot — what are often called "diseases of despair."

In the new economic landscape of low-paid service jobs, some of the old nostrums of the left have stopped making sense. "Full employment," for example, was the mantra of the unions for decades, but what did it mean when so many jobs no longer paid enough to live on? The idea had been that if everyone who wanted a job could get one, employers would have to raise wages to attract new workers. But when I went out as an undercover journalist in the late 1990s to test the viability of entry-level jobs, I found my co-workers — waitstaff, nursing-home workers, maids with a cleaning service, Walmart "associates" — living for the most part in poverty. As I reported in the resulting book, "Nickel and Dimed," some were homeless and slept in their cars, while others skipped lunch because they couldn't afford anything more than a snack-size bag of Doritos. They were full-time workers, and this was a time, like the present, of nearly full employment.

The other popular solution to the crisis of the working class was job retraining. If ours is a "knowledge economy" — which sounds so much better than a "low-wage economy" — unemployed workers would just have to get their game on and upgrade to more useful skills. President Obama promoted job retraining, as did Hillary Clinton as a presidential candidate, along with many Republicans. The problem was that no one was sure what to train people in; computer skills were in vogue in the '90s, welding has gone in and out of style and careers in the still-growing health sector are supposed to be the best bets now. Nor is there any clear measure of the effectiveness of existing retraining programs. In 2011, the Government

Accountability Office found the federal government supporting 47 job-training projects as of 2009, of which only five had been evaluated in the previous five years. Paul Ryan has repeatedly praised a program in his hometown, Janesville, Wis., but a 2012 ProPublica study found that laid-off people who went through it were less likely to find jobs than those who did not.

No matter how good the retraining program, the idea that people should be endlessly malleable and ready to recreate themselves to accommodate every change in the job market is probably not realistic and certainly not respectful of existing skills. In the early '90s, I had dinner at a Pizza Hut with a laid-off miner in Butte, Mont. (actually, there are no other kinds of miners in Butte). He was in his 50s, and he chuckled when he told me that he was being advised to get a degree in nursing. I couldn't help laughing too — not at the gender incongruity but at the notion that a man whose tools had been a pickax and dynamite should now so radically change his relation to the world. No wonder that when blue-collar workers were given the choice between job retraining, as proffered by Clinton, and somehow, miraculously, bringing their old jobs back, as proposed by Trump, they went for the latter.

Now when politicians invoke "the working class," they are likely to gesture, anachronistically, to an abandoned factory. They might more accurately use a hospital or a fast-food restaurant as a prop. The new working class contains many of the traditional blue-collar occupations — truck driver, electrician, plumber — but by and large its members are more likely to wield mops than hammers, and bedpans rather than trowels. Demographically, too, the working class has evolved from the heavily white male grouping that used to assemble at my house in the 1980s; black and Hispanic people have long been a big, if unacknowledged, part of the working class, and now it's more female and contains many more immigrants as well. If the stereotype of the old working class was a man in a hard hat, the new one is better represented as a woman chanting, *"El pueblo unido jamás será vencido!"* (The people united will never be defeated!)

The old jobs aren't coming back, but there is another way to address the crisis brought about by deindustrialization: Pay all workers better. The big labor innovation of the 21st century has been campaigns seeking to raise local or state minimum wages. Activists have succeeded in passing living-wage laws in more than a hundred counties and municipalities since 1994 by appealing to a simple sense of justice: Why should someone work full time, year-round, and not make enough to pay for rent and other basics? Surveys found large majorities favoring an increase in the minimum wage; college students, church members and unions rallied to local campaigns. Unions started taking on formerly neglected constituencies like janitors, home health aides and day laborers. And where the unions have faltered, entirely new kinds of organizations sprang up: associations sometimes backed by unions and sometimes by philanthropic foundations — Our Walmart, the National Domestic Workers Alliance and the Restaurant Opportunities Centers United.

Our old scene on Long Island is long gone: the house sold, the old friendships frayed by age and distance. I miss it. As a group, we had no particular ideology, but our vision, which was articulated through our parties rather than any manifesto, was utopian, especially in the context of Long Island, where if you wanted any help from the county, you had to be a registered Republican. If we had a single theme, it could be summed up in the old-fashioned word "solidarity": If you join my picket line, I'll join yours, and maybe we'll all go protest together, along with the kids, at the chemical plant that was oozing toxins into our soil — followed by a barbecue in my backyard. We were not interested in small-P politics. We wanted a world in which everyone's work was honored and every voice heard.

I never expected to be part of anything like that again until, in 2004, I discovered a similar, far-better-organized group in Fort Wayne, Ind. The Northeast Indiana Central Labor Council, as it was then called, brought together Mexican immigrant construction workers and the native-born building-trade union members they had been brought in to replace, laid-off foundry workers and Burmese factory workers, adjunct professors and janitors. Their goal, according to the president at the time, Tom Lewandowski, a former General Electric factory worker who served in the 1990s as the A.F.L.-C.I.O.'s liaison to the Polish insurgent movement Solidarnosc, was to create a "culture of solidarity." They were inspired by the realization that it's not enough to organize people with jobs; you have to organize the unemployed as well as the "anxiously employed" — meaning potentially the entire community. Their not-so-secret tactic was parties and picnics, some of which I was lucky enough to attend.

WE WANTED A WORLD IN WHICH EVERYONE'S WORK WAS HONORED AND EVERY VOICE HEARD.

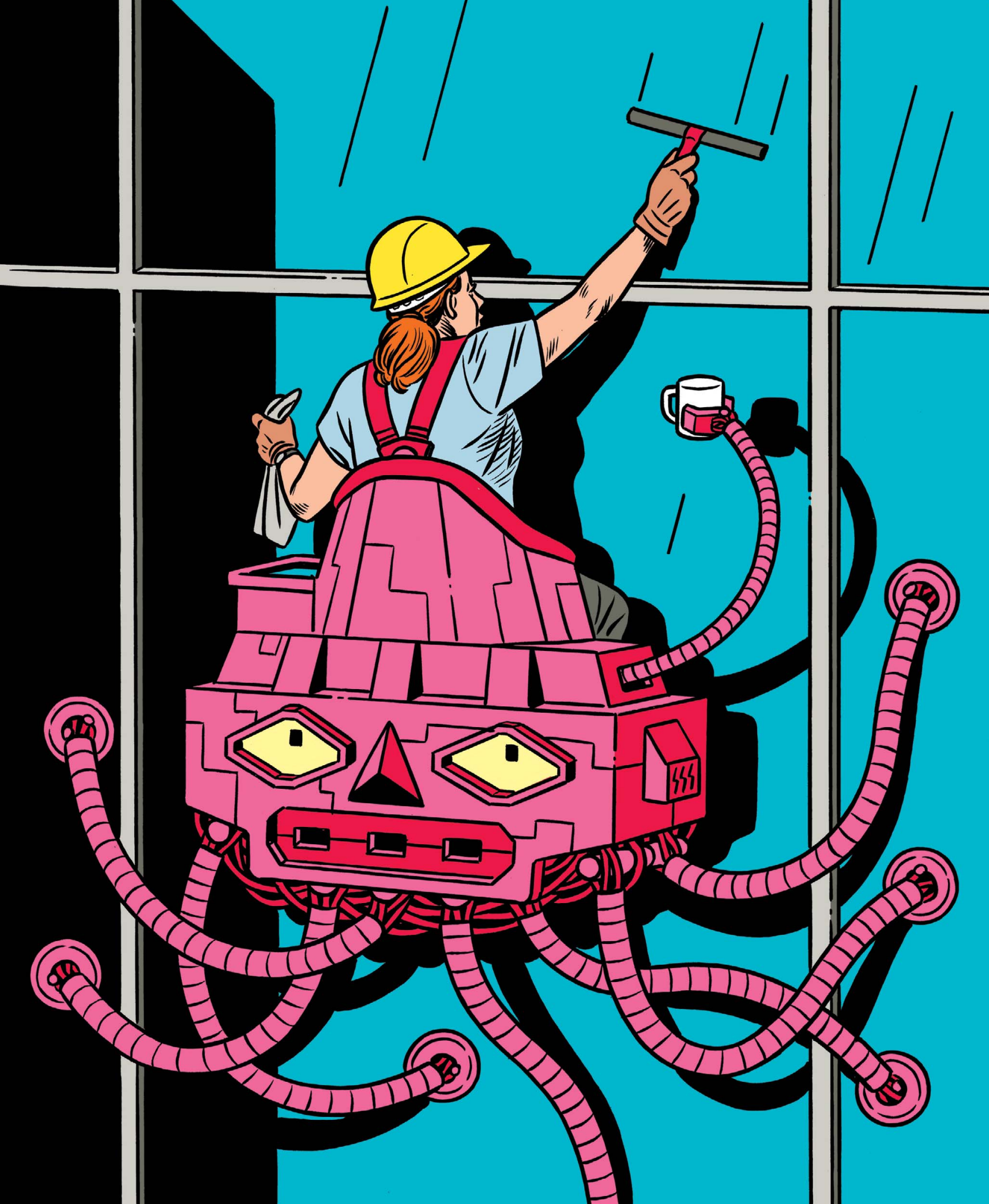
The scene in Fort Wayne featured people of all colors and collar colors, legal and undocumented workers, liberals and political conservatives, some of whom supported Trump in the last election. It showed that a new kind of solidarity was in reach, even if the old unions may not be ready. In 2016, the ailing A.F.L.-C.I.O., which for more than six decades has struggled to hold the labor movement together, suddenly dissolved the Northeast Indiana Central Labor Council, citing obscure bureaucratic imperatives. But the labor council was undaunted. It promptly reinvented itself as the Workers' Project and drew more than 6,000 people to the local Labor Day picnic, despite having lost its internet access and office equipment to the A.F.L.-C.I.O.

When I last talked to Tom Lewandowski, in early February, the Workers' Project had just succeeded in organizing 20 Costco contract workers into a collective unit of their own and were planning to celebrate with, of course, a party. The human urge to make common cause — and have a good time doing it — is hard to suppress. ◆

Patches illustrated by Young Jerks. Photographs by Craig Cutler for The New York Times.

THE MOST IMPORTANT FRONTIER FOR ROBOTS IS NOT THE WORK THEY TAKE FROM HUMANS BUT THE WORK THEY DO WITH HUMANS — WHICH REQUIRES A LOT OF LEARNING ON BOTH SIDES. BY KIM TINGLEY

Illustration by KRISTIAN HAMMERSTAD



THE robots were Joe McGillivray's idea. The first one arrived at Dynamic Group in Ramsey, Minn., by pickup truck in two cardboard boxes. With a mixture of excitement and trepidation, McGillivray watched as a vendor unpacked two silver tubes, assorted blue-and-gray joints and a touch screen and put them all together. When he was finished 10 minutes later, McGillivray beheld an arm that, had its segments not all been able to swivel 360 degrees, might have belonged to a very large N.B.A. player or a fairly small giant. Its "shoulder" was mounted to a waist-high pedestal on wheels. If it were to hail someone across the room, its "elbow" would reach eye level. Below its "wrist," which was triple-jointed for extra dexterity, there were sockets for various attachments. McGillivray, not sure yet if he wanted to keep the contraption, stuck a piece of clear tape to the wrist and drew a happy face on it, which made the arm look a bit as if it were putting on a puppet show. He hoped that this would help it look nonthreatening.

McGillivray is the 38-year-old chief executive of Dynamic, a maker of molds for the mass production of small plastic and metal parts, from 3M Scotch-tape dispensers to bullets. The company was founded 40 years ago by his father, Peter, and Peter's friend Dave Kalina, both tool and die makers, in Kalina's basement. Machining like theirs is labor-intensive. Even as the business expanded to more than 100 employees in two warehouses in Ramsey — a manufacturing town founded by French traders and settled in the 1850s on the banks of the Mississippi River — many of its customers switched to competitors overseas, induced by improvements in the technologies of developing nations coupled with falling trade barriers. But McGillivray and Kalina found a lucrative niche making molds for the most intricate medical products. Orthodontic braces, for example, use brackets that have unique shapes based on the angles of the teeth to which they will be affixed; the bracket molds, which are injected with powdered steel, must be cut to a degree of precision 40 times thinner than a hair. Thanks largely to the skill of Dynamic's machinists, the company did more than survive; it prospered. Then came the Great Recession. For the first time, McGillivray and Kalina, once able to offer bonuses, struggled to make payroll. To keep going, they needed to produce more molds or cut costs, or both.

Last month, on a damp, gray day, Joe McGillivray took me on a tour of one of Dynamic's facilities, a former steel factory adjacent to a railroad track. The walls were painted cream with green trim, and the thick hum of motors made the cavernous space feel almost cozy. He led me to an injection press the size of a bakery oven. Inside, a nozzle moved up and down, shooting molten plastic into a mold, where it cooled around the end of a catheter tube. The resulting piece, when the tube was placed in a patient, would be used as a connector by a surgeon threading tools like scopes or stents into his or her body. A young man in a hairnet, gloves and goggles sat at a table facing the press. The robot was beside him.

Before the robot arrived, McGillivray told me, four people worked the press. One inserted the catheter tubes into a frame that held them still; one set the frame on a mold, ran it through the press and took it out; one removed the finished tubes from the frame and trimmed away excess plastic; and one inspected the final products. The process was unforgiving: If an operator hit the stop button an instant too late, the plastic burned, ruining the part. Inevitably, even the nimblest foursomes produced lots of scrap.

Now, as we watched, the operator inserted two tubes into a frame and put it on a rack. The robot, which had a sensor and a magnetic pad attached to its end, tapped the frame with its pad to pick it up, pivoted and gently placed the frame on a mold inside the press. Then it cocked its wrist and nudged a button with one of the pad's corners. A wheel inside the press spun like a lazy susan, 180 degrees, positioning the mold beneath the nozzle and bringing around a second mold with a frame of cooled catheters. Next the robot lifted this frame and moved it to a trimmer that ejected the catheters. Finally, it stacked the empty frame beside the operator. The cycle took 35 seconds. All the while, the operator examined finished catheters and inserted tubes into frames at a steady but unhurried pace.

It wasn't the robot's speed that was revolutionary, McGillivray said; other automated machines could do the same things faster. The innovation was its "collaborative" ability: This robot is safe to work with. If it bumps into someone, it stops. (McGillivray, a father of three young daughters whose standards of personal responsibility are marked even by Minnesotan standards, tested this feature on himself first: "Let's just say it hit a fleshy part of my body, and I didn't like it. But it didn't leave a bruise.") This meant that he didn't have to build an expensive, semi-permanent safety cage around it. And because the robot is easy to move and reprogram, it can quickly be reassigned to whatever unique processes are required to fill the one-off orders Dynamic typically receives.

The robot's price tag was $35,000, and within two months, it paid for itself by quadrupling the efficiency of the press and eliminating scrap. There was one caveat, though: "Productivity did decrease when we first put the robots in," McGillivray said, "because they're so dang fun to watch." He has since purchased two more of them from Universal Robots, a Danish company, and hired a technician to maintain them. No one was laid off, and the company's finances are sounder than they have been in nearly 20 years. "I guess I'm kind of an evangelist," he told me.

"It's just a machine?" my husband said, when he saw a picture of the arm I had flown a thousand miles to see. "I thought you said it was a *robot*." In fact, it was both — a robot is technically just a machine run by a computer — but I knew what he meant because I had gone there with the same expectation. I presumed that the robot would look and act like a human and, consequently, that it would make me and the people who worked with it a little uncomfortable.

The more I talked with engineers and civilians alike, the more I came to believe that this feeling was hardly unusual and that it went beyond the perfectly rational fear that a robot might take your job. "My deep worry is that every time you see a robot doing what a human does, there's this visceral response — it's human nature," Julie Shah, a professor of aeronautics and astronautics at M.I.T. and the leader of its Interactive Robotics Group, told me. This response is so intense, and so crucial to people's acceptance or rejection of robots, that Masahiro Mori, a Japanese robotics professor, famously graphed it in 1970. He found that our affinity for robots increases as they come to look more and more human — until the point when the likeness is similar enough to momentarily fool the eye. Once the illusion is discovered, the viewer is unsettled and affinity plunges, a dip Mori dubbed "the uncanny valley." The danger is that our uneasiness will prevent us from preparing for a future in which robots interact with humans in increasingly sophisticated ways, and one that — thanks to rapid advances in computing and mechanical engineering — is coming, and coming soon.

Much of the current political upheaval in the United States and other Western democracies can be traced to how threatened we feel when faced with this future. Central to Donald Trump's presidential campaign, and presumably to his victories in manufacturing states like Michigan, Ohio and Pennsylvania, was his promise to bring back the 10 percent of factory jobs that have disappeared in the wake of the Great Recession. But the fact is, American manufacturers are producing more products now than they were before the crash, with fewer workers, which suggests that those missing jobs have been automated. And while collaborative robots are showing up on factory floors first — where automation has always debuted, taking

on repetitive, heavy and hazardous work — they are likely to find their way into other workplaces soon. (The "collaborative" label, widely used to imply coexistence, is a bit misleading; robots that can learn, problem-solve and simulate human emotion are still confined mostly to laboratories.) Already, surgical robots make it possible via remote control to perform low-risk operations in outpatient settings; robot home-health aids may soon help people with limited mobility get out of bed, cook meals and perform other routine tasks; and driverless vehicles are poised to take over the transportation and trucking industries. It doesn't take much imagination to see how similar algorithms, or operating instructions, could enable robots to do many of the tasks required of waiters, maids and hospital workers. A few years ago, Amazon purchased Kiva Systems, which coordinates warehouse robots whose job is to move heavy boxes to stations where human stockers, whose fine motor skills have yet to be affordably mechanized, transfer the boxes to shelves.

"We're moving into an era where people and infrastructure are in a more fluid relationship," says David Mindell, a professor of aerospace engineering and the history of technology at M.I.T. The question is who will reap the economic rewards of that change. "We tend to think that automation, generally speaking, replaces humans, but really in the big picture that isn't true," James Bessen, an economist at Boston University, told me. Instead, it makes goods cheaper, increasing demand and creating more jobs. Only when a product or service becomes so cheap and ubiquitous that lowering its price can't get people to buy any more of it does automation result in significant unemployment — unless the displaced workers are absorbed by a growing market for a different product or service, or the labor force shrinks.

Collaborative robots, designed to fill flexible roles and be smaller and easier to integrate among employees and existing machines, may have a subtler effect, raising the need for more nuanced measures of their socioeconomic impact. In one recent study, Carl Frey and Michael Osborne of the University of Oxford broke down 702 occupations in the United States in detail and analyzed the probability that they would be computerized. Nearly half of those jobs were found to have a "high risk" of being automated within the next few decades. Telemarketers, accountants, retail salespeople, technical writers and real estate agents would be first; chemical engineers, clergy, athletic trainers and dentists last. Conversely, a new McKinsey Global Institute report argues that we should stop considering "entire occupations" and instead focus on "individual activities." A server must deliver and clear plates (tasks a robot might take over), but he or she also observes diners and anticipates their needs (tasks at which people are still far superior). From this perspective, fewer than 5 percent of careers can be completely automated using existing technology — but "about half of all the activities people are paid to do in the world's work force could potentially be."

In the West, Frankenstein's monster embodies the threat of cutting-edge technology. We adopted the word "robot" from a popular 1921 play by the Czech writer Karel Capek about a factory that turns out robots, from *robota*, a Czech word for forced labor, who rise up and exterminate humanity. But the citizens of Singapore, Korea and Japan, the world's leading users of industrial robots, and China, the most rapidly growing market for them, generally don't share the same anxieties. In the Japanese canon, new technology often arrives as weaponry that Japanese scientists turn against an aggressor. (The nuclear parable of "Tetsuwan Atom," a 1960s TV show about a heroic Japanese robot with an "atomic" heart, was lost in translation when it arrived in America as "Astro Boy.") Viewing them through a different cultural lens, might we expect collaborative robots to augment a person's skills, increasing his or her productivity — and thus value — without ruining any lives? Could we look forward to programming these machines to make our jobs better without fear of them usurping us? Or is it naïve to imagine that, if we cooperate with the robots, there won't come a day when they can do everything we can do, only better, and their owners become our masters?

Ever since the invention of the transistor in 1947 started the transformation of computing — just a couple of years after the United States destroyed Hiroshima and Nagasaki with atomic bombs — philosophers have anticipated a day when intelligent machines would do all our work for us. Some pictured a dystopia like the one Jeremy Rifkin described in his 1995 book, "The End of Work": "Like a deadly epidemic inexorably working its way through the marketplace, the strange, seemingly inexplicable new economic disease spreads, destroying lives and destabilizing whole communities in its wake."

Others envisioned a society in which profits were distributed evenly in the form of a basic income, leaving people to spend their time as they pleased. The Rev. Dr. Martin Luther King Jr., in his final sermon, exhorted his congregation toward this idyll of equality and freedom. "Yes, we do live in a period where changes are taking place," he said, naming "automation and cybernation" among them. "And there is still the voice crying through the vista of time saying, 'Behold, I make all things new; former things are passed away.' "

Still others believed both scenarios were equally plausible and the outcome would depend upon how judiciously we regulated new technologies, nuclear fission being a powerful example, so that they reduced, rather than increased, human suffering. Chief among them was Norbert Wiener, a mathematics professor at M.I.T., who coined the term "cybernetics" to describe the study of the relationship between living beings and robots. "We can be humble and live a good life with the aid of machines," he wrote, "or we can be arrogant and die."

'THIS ONE IS COMPLETELY SAFE. IT'S KIND OF LIKE A PET DOG. I FORGET IT'S THERE.'

Anyone wishing to cross the threshold of the General Motors automotive assembly plant in Lake Orion, Mich., just outside Detroit, must sit in the lobby and watch a safety video. From a TV mounted in a corner above a realistic-looking ficus tree, a pleasant female voice details all the possible things inside that could hurt you: loud noises, flying objects, sharp metal, molten metal, falls from high places and collisions with mobile equipment. It's both a testament to one of the main applications for collaborative industrial robots — to take over dangerous work from people and to be less dangerous to work with — and an illustration of the difficulties inherent in getting them to do and be so.

The physical world presents robots with challenges that most toddlers navigate with ease: selecting a Lego from a bin, falling over and standing back up. The *(Continued on Page 58)*

Freedom. That's all Alecia Wesner is looking for. Since she was young, the 42-year-old lighting designer has lived with Type 1 diabetes. That means she's dependent on insulin, the hormone required to turn sugar into energy, and must frequently test her blood sugar levels by pricking her finger and monitoring the patterns on a glucose sensor. She also has to wear a pump that regulates the delivery of her insulin. Every day, Alecia has to make treatment decisions to keep her blood sugar levels stable, and the toughest time to do this is at night, when she should be sleeping.

Recently, Alecia took part in a clinical study held by The Mount Sinai Hospital to test a revolutionary new approach to managing her disease. First, Alecia was outfitted with a different type of glucose sensor that reported her blood sugar levels every five minutes. Then, that information was transmitted to a smartphone preloaded with an advanced algorithm that calculates exactly how much insulin will be

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required and instructs the pump to regulate the dosage accordingly. Best of all: The entire process is completed wirelessly, and requires no additional input or decisions from the patient at any point during the night.

It worked so well that for the first time in years, Alecia didn't have to worry about her blood sugar levels. And although the system is awaiting further studies prior to final approval for general usage, the results have been so positive that some doctors are already calling it an "artificial pancreas." In other words, it's real relief, made possible with help from a real source of hope: Mount Sinai.

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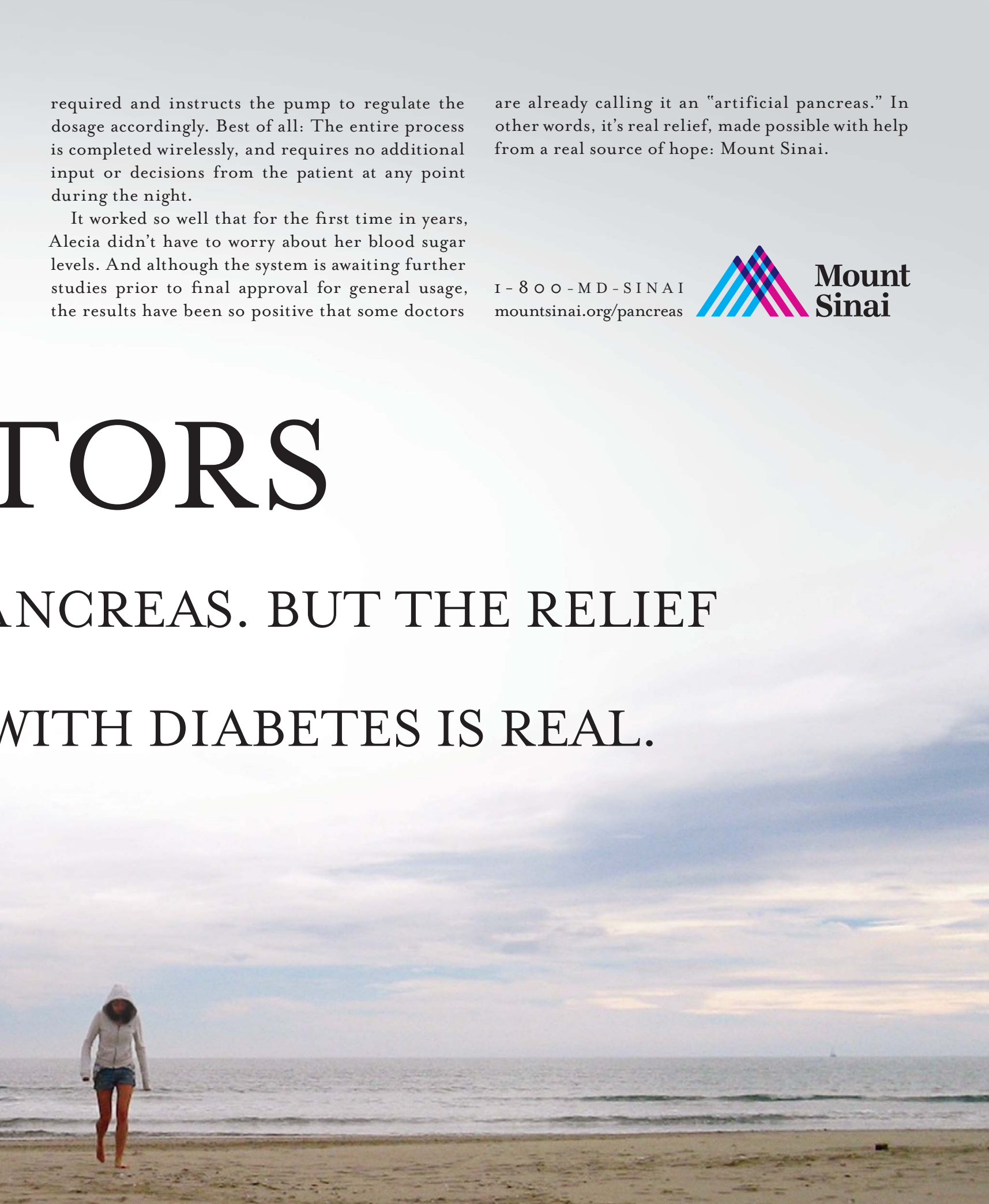
WITH DIABETES IS REAL.



POPULAR IDEAS ABOUT THE W OUT OF DATE. HERE ARE NIN STORY OF WHAT THE AMERIC — AND WILL DO TOMORROW. PI

Forget the images of men in hard hats standing before factory gates, of men with coal-blackened faces, of men perched high above New York City on steel beams. The emerging face of the American working class is a Hispanic woman who has never set foot on a factory floor. That's not the kind of work much of the working class does anymore. Instead of making things, they are more often paid to serve people: to care for someone else's children or someone else's parents; to clean another family's home.

The decline of the old working class has meant both an economic triumph for the nation and a personal tribulation for many of the workers. Technological progress has made American farms and factories more productive than ever, creating great wealth and cutting the cost of food and most other products. But the work no longer requires large numbers of workers. In 1900, factories and farms employed 60 percent of the work force. By 1950, a half-century later, those two sectors employed 36 percent. In 2014, they employed less than 10 percent.

For more than a century, since the trend was first documented, people have been prophesying a dire future in which the working class would no longer work. In 1964, a group of prominent liberals wrote President Johnson to warn of a "cybernation revolution" inexorably creating "a

ORKING CLASS ARE WOEFULLY E PEOPLE WHO TELL A TRUER AN WORK FORCE DOES TODAY

HOTOGRAPHS BY RYAN PFLUGER

permanent impoverished and jobless class established in the midst of potential abundance."

Machines have taken the jobs of millions of Americans, and there is every indication that the trend will continue. In October, Budweiser successfully tested a self-driving truck by delivering beer more than 120 miles to a warehouse in Colorado. In December, Amazon opened a small convenience store near its Seattle headquarters that has no cashiers. Customers — for now, Amazon employees only — are billed automatically as they leave the store. In January, Bank of America opened branches in Denver and Minneapolis that are staffed by a lone employee, A.T.M.s and video terminals. And Americans are making a growing share of purchases online: about 8.4 percent of retail sales in 2016. These changes are driven by consumer preferences, not just by corporate cost-cutting imperatives. People like shopping in bed in the middle of the night. People like that computers make fewer mistakes. And people grow accustomed to computers. A few years ago, I watched a woman walk up to a bank teller and ask where she could find an A.T.M. The teller asked if she could help. No, the woman said, she just needed to withdraw some money.

But the forecasters were wrong in the most important respect. Workers continue to find work, but now the jobs are in service. Taking care

of aging baby boomers, in particular, has become by far the largest driver of job growth in the American economy. Among the occupations the Bureau of Labor Statistics expects to grow most rapidly over the next decade: physical-therapy assistants, home health aides, occupational-therapy assistants, nurse practitioners, physical therapists, occupational-therapy aides, physician assistants. . . . You get the idea. Nine of the 12 fastest-growing fields are different ways of saying "nurse."

In 1950, service work made up about 40 percent of working-class labor in the United States. By 2005, that share had climbed to 56 percent, according to data from a 2013 analysis by the economists David Autor at M.I.T. and David Dorn at the University of Zurich. The available evidence, Autor said, suggests that this trend has continued "very rapidly" over the last decade, increasing the share of American workers who work in the service industries.

The rise of service-sector employment reflects the fact that Americans on average have more money to spend and that we are spending relatively less of that money on physical goods, because those goods have become cheaper. It took 10.5 hours of work at average wages to buy a bicycle in 1979; it took just four hours in 2015. Most Americans don't want a second and third bicycle, so that leaves more money for other purposes. And increasingly, the money is spent on services: help around the home, entertainment and vacations and, most of all, education and health care.

These jobs are difficult to mechanize or to perform with greater efficiency. Convalescents cannot be trained to eat more quickly. A phlebotomist cannot draw blood from two arms at once. Robots, as yet, cannot change diapers. Moreover, consumers may have an emotional investment in seeing this caring work performed by people rather than machines. They may be willing to pay for a personal touch.

Another limitation on our ability to program computers to do the work of people is summarized by the observation of the Hungarian scientist Michael Polanyi that "we can know more than we can tell." Consider the work of a security guard, who is basically tasked with sounding the alarm if something doesn't seem right. Technology improves security, but it is not easy to write a formula approximating intuition.

The Cassandras, however, were right to warn about poverty in the midst of abundance. Personal-service providers — "servants," as they once were called — tend to be poorly paid. There is little job security; the benefits are meager; the work is physically demanding and emotionally draining. It is not particularly surprising that women and immigrants have been more likely to take these jobs than native-born men. For many of the caretaking service jobs, less than 10 percent of the work force is male.

The wages of service work increasingly determine the welfare of the American working class and, to a substantial degree, the broader economy. But politicians have paid little attention. That's partly because Americans continue to view service work as a way station, not a way of life. Teenagers get their first job at McDonald's; mothers dip back into the work force as receptionists; seniors make a little extra money as Walmart greeters. The reality is that these are the kinds of jobs millions of Americans hold for their entire working lives. And increasingly, these are the jobs their children will perform, too.

—Binyamin Appelbaum

WE CONTINUE TO VIEW SERVICE WORK AS A WAY STATION.

1.

OFELIA BERSABE

Santa Clara, Calif.
The Home Health Aide
By Elise Craig

Two major events in Ofelia Bersabe's life persuaded her to become a home health aide. In 2008, the Bay Area electronics company where she worked for 21 years as a sample-department supervisor let her go in a mass layoff. And that same year, her mother, whom she followed to the United States from the Philippines nearly two decades earlier, died. "When she passed away in my arms, I felt that I hadn't given her the full attention I wanted to," Bersabe said. "I promised myself that I would concentrate on taking care of women, especially seniors. In that way, I feel like I'm still taking care of her."

Nine years later, at age 69, Bersabe is among nearly a million Americans who work as home health aides, a field that is expected to grow 38 percent by 2024, faster than most other occupations, thanks in large part to the aging baby-boom population. Already a senior herself, Bersabe works 65 hours a week caring for two elderly clients with dementia. She spends five 12- and 14-hour night shifts in her clients' homes, providing companionship, reminders to take medicine and light housekeeping for one client, and everything from bathing and dressing to diaper changing for the other.

Having two jobs is partly a necessity and partly a hedge; should one of her clients die, she can still rely on income from the other. She also needs the money. Because she is a member of the Service Employees International Union Local 2015, the agencies that Bersabe works for pay her $16.13 and $11 an hour. California's current minimum wage is $10.50, but the living wage for someone like Bersabe is $11.29.

Bersabe is grateful for the money and has no complaints about her wages, but she acknowledges that making a living in the Bay Area's technology bubble is tough. She lost her house after the 2008 layoff, and she and her husband, who works nights as a security guard, now share a three-bedroom apartment rental behind Levi's Stadium, where the 49ers play, with two other elderly couples.

The gratitude Bersabe's clients show her — one kisses her when she arrives — is incredibly fulfilling, she said, but the work is hard. Dementia patients can be very unpredictable. "I have a very tame cat, and when they start to have sun-downing" — the late-afternoon confusion that can be a symptom of dementia — "I have a wild tiger," she said. "But it's not the person herself, it's the sickness." Once, when a client began to get agitated and yell at Bersabe, she sneaked around to the front door and rang the doorbell. The client welcomed Bersabe as an old friend that she hadn't seen in a long time.

Bersabe expects to work through her 70s and 80s and maybe even into her 90s. "I'll work as long as I can stand on my own two legs," she said. "As long as I can drive and walk and God permits me, I'll enjoy the job I love." Bersabe has no intention of being a burden to her three children, who have families of their own and are scattered from Kentucky to the Philippines. "Honestly, I am thinking, when the time comes, who is going to take care of me?" she said. "I don't want to bother my kids. I want them to see me as a kicking woman, like I was before."

Photograph by Ryan Pfluger for The New York Times

2.

SONIA UFOT

Brooklyn
The Hair Braider
By Jazmine Hughes

On a recent visit to Jennifer's Beauty World, in Flatbush, Brooklyn, Sonia Ufot started by detangling my tightly coiled hair and blow-drying it pin-straight, then she parted a small section into an individual plait, wrapped a section of filler hair around the root and braided it straight down for 16 inches. She repeated this step around 80 more times, over the course of about six hours, all that time spent either standing or hunched over on a high stool. "It takes time and patience for you to be able to stand on your feet for hours to braid somebody's hair," she said, "so you really have to love doing it."

Ufot, 38, has known how to braid since she was 15; she picked up the skill in Warri, Nigeria, where she was born. A family friend owned a braiding shop, and she visited every day, watching the women do their work and, eventually, persuading them to let her practice on their customers' heads. She majored in economics at Delta State University in Nigeria, but while she was at school, she found out she had thyroid cancer and eventually moved to the United States for treatment. She started braiding hair for the money and never returned to economics. "There's more money doing hair," she told me. And because she's in such high demand, Ufot can work 12 to 15 hour days, sometimes seven days a week, depending on appointments. She charges between $100 to $250 for each style, depending on its intricacy. She hasn't gone on vacation in five years.

Unlike most people trained in cosmetology, braiders, many of whom are immigrants, don't use chemicals, sharp objects or heat; just a comb, oil, water and their hands. Individual states legislate the requirements for becoming a licensed hair braider; in several, braiders — even those with a pre-existing knowledge of braiding — are required to complete more than 2,000 hours of training at cosmetology schools, which can cost tens of thousands of dollars and whose classes have almost nothing to do with styling black women's hair. Many cosmetology schools don't even offer braiding instruction.

In 2016, Iowa ended its cosmetology-license requirement for hair braiders, allowing them instead to pass basic health-and-sanitation exams with the state; Nebraska, too, recently ended its laborious stipulation of 2,100 hours of cosmetology training for natural hair braiders. In New York, braiders are required to obtain a natural-hair license, which allows the stylists to perform the chemical-free techniques of styling black hair — for example, shampooing hair, applying extensions, making dreadlocks, braiding — and not much else. It costs about $70 and mandates schooling, which costs more. But many braiders operate without licenses.

Ufot wants to go to cosmetology school; her goal is to enroll by year's end, if she can get enough financial aid. She figures it will cost her about $15,000, so she'll continue braiding and attend night classes as long she can get someone to look after her 6-year-old daughter. She told me that she wants to learn how to do all types of hair — dyeing, perms — and dreams of owning her own shop. "I want to get my cosmetology license so I'm able to do all of the things," she told me, laughing. "I want to be able to cut white people's hair!"

3.

ADRIANA ALVAREZ

Cicero, Ill.
The Fast-Food Worker
By Ben Austen

Adriana Alvarez was leaving her McDonald's at the end of a daylong shift in 2014 when a man stopped her in the parking lot. She'd noticed him inside, buying coffee, and now he asked if she'd heard about the Fight for $15. Laughing, she said $15 an hour for fast-food work sounded crazy. She was racing to pick up her son Manny from day care, but she talked with the guy later that evening. She told him that she earned $8.50 an hour, just 25 cents above the Illinois minimum wage. She'd been at the same McDonald's in Cicero, a largely Latino town west of Chicago, for about four years. In all that time, she had one raise: 10 cents. The man explained that she'd been cheated even out of her low pay: Workers at restaurants had been required, illegally, to punch out before tallying up their registers or breaking down French-fry boxes. "I think about it now," Alvarez says. "God, I was stupid."

A few weeks after meeting the organizer, Alvarez said, she and her co-workers handed in a petition demanding that the store manager show them more respect in front of customers. Not only did the yelling stop, she said, but they soon received a raise of as much as 75 cents. "Pushing works," Alvarez says she learned. In March 2014, she joined her first rally, a multicity coordinated Fight for $15 day of action.

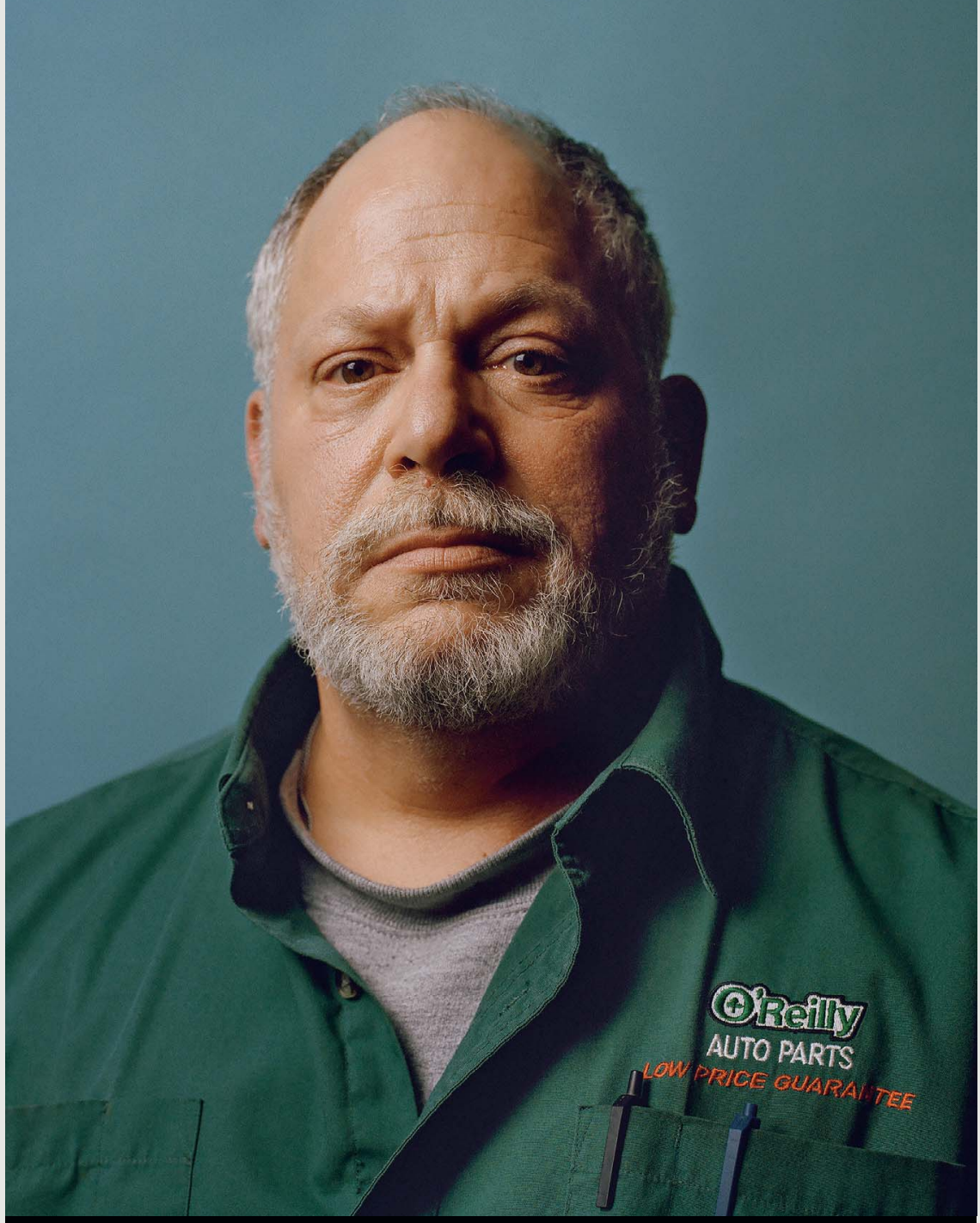
Alvarez is now 24 and still works at the same McDonald's. Nationally, jobs in retail and food services

Photographs by Ryan Pfluger for The New York Times

outnumber those in manufacturing by more than two to one. The country's largest private employers include Walmart, McDonald's, Kroger and the conglomeration of KFC, Pizza Hut and Taco Bell. These chains are no longer places just for teenagers to work part time: The average age of a fast-food employee has climbed to 29; like Alvarez, a third of them have spent some time in college.

Fight for $15 doesn't operate like a traditional union: There are no contracts with employers, and Alvarez and others pay no dues. The Service Employees International Union has been its primary source of funding from its inception in New York City, in 2012. Yet Fight for $15 organizers take credit for winning wage increases for 22 million workers in America. Although the federal minimum wage of $7.25 hasn't budged since 2009, numerous cities and states since 2012 have raised their base pay to $12, $13 and even $15 an hour. Under President Trump, the effort is sure to face additional hurdles. But Fight for $15 helped lead the campaign to derail Trump's first pick for labor secretary, Andrew Puzder, organizing workers from his fast-food chains to march on their stores and to share their stories of wage theft. Low pay is an issue that crosses party lines: Two of every five U.S. workers earn less than $15 an hour.

Today Alvarez makes $11 an hour at McDonald's. She has never been put on the schedule for a full 40-hour week; she receives no benefits, health coverage or overtime. Yet the raise has allowed her to replace the moldering floorboards in her basement apartment. And Alvarez has been transformed in other ways by the labor fight. She has emerged as one of its spokeswomen, and the job has taken on a new significance. "When people say we should go back to school, I say the adjunct professors who joined us went to school," Alvarez said. "How come they're not doing better? I'm not just serving customers. I'm also serving these innocent ladies" — her co-workers — "who might not be conscious of their rights. I'm like their protector."



'I DON'T SEE HOW AUTOMATIC TRUCK DRIVERS ARE GOING TO WORK.'

4.

STUART CULVER

Brooklyn Park, Minn.
The Delivery Driver
By Jaime Lowe

Stuart Culver starts his overnight shift for O'Reilly Auto Parts at 7 p.m. and finishes about nine hours later. A relay driver, he exchanges freight — mufflers, batteries, drums of window-washer fluid — with another driver in La Crosse, Wis., and then makes deliveries to five stores on his route. The road has changed over the two decades that he has been driving trucks. "In today's day and age, it's really stressful," he says. "You're a lot more likely to be struck because of other drivers using their cellphone." The regulatory landscape has changed, too. Every year, for example, Culver has to undergo a Department of

Photographs by Ryan Pfluger for The New York Times

Transportation physical, because he has sleep apnea.

In recent years, online giants like Amazon have pushed for ever-faster delivery times, sometimes delivering orders on the same day. As consumers increase their online shopping — total retail sales in the United States increased only 2.9 percent last year, but online sales rose 15.1 percent — distribution networks have adapted by integrating more and more consumer destinations into their systems. Mark Merz, a spokesman for O'Reilly, attributes part of the company's success to "having inventory immediately available when a customer needs those parts."

Though O'Reilly extended its reach to 4,829 stores in 47 states last year and revenue surpassed $8.5 billion, that growth hasn't led to an expansion of its work force or changed the nature of its jobs. "We've been short-staffed for over six months," Culver says. "Guys are doing extra work and taking on extra stores for their routes." Culver, who belongs to the Teamsters Local 120, says he is not paid by the amount of time it takes him to complete his deliveries but according to the route driven, which varies from year to year. Culver says he made roughly $53,000 last year, earning almost $23 an hour. "Our wages haven't really gone up in the same way that other jobs' wages have gone up," he says. "I have to go to special school to get my license, and how we're treated and looked at hasn't really changed in 20 years."

Culver, who is 56, doesn't expect that technology will eliminate work like his. "I don't see how automatic truck drivers are going to work," he says. "There are so many variables." O'Reilly still needs people to operate the electric pallet jacks and hydraulic liftgates at the rear of their delivery trucks, still relies on backs and arms to unload and inspect orders. Despite the toll the work has taken on Culver — two operations to fuse vertebrae in his neck and a lower-back operation — he says he likes the job. "I'm happy doing this, I enjoy what I do," he says. "I hope I can make it to 65."

5.

SANDI DOLAN

Las Vegas
The Customer-Service Rep
By Eric Steuer

When Sandi Dolan moved to Las Vegas in 2014, to escape the cold Colorado winters, she'd been working primarily as a customer-service representative for more than a decade in the insurance industry. Dolan is remarkably upbeat, and she says she genuinely enjoys helping strangers solve problems. But she said that day after day of calls about accidents and claims made for a pretty depressing gig. "No one ever wants to talk to their insurance company," she said. "It's never a good phone call."

Not long after landing in Las Vegas, Dolan started looking for a job. She found a call-center opening with Zappos, the online shoe-and-apparel retailer. "I actually didn't know anything about the company," she said. "But after I was hired, I started talking to locals, and people were like: 'You have no idea, do you? We all tried to get in there.'"

Zappos has more than 500 people on its customer-service team, about a third of the company's total staff. Most employees work together in the company's headquarters, a 10-story building downtown that used to be Las Vegas's city hall. Employees like Dolan, who work the phones, start at $14 an hour, about a dollar less than the median wage earned by the more than 2.5 million Americans who work as customer-service representatives. But Dolan, who makes slightly more than that, points out that, unlike at many other companies, most Zappos workers are full-time employees who receive benefits like health insurance and retirement plans.

At Zappos, employees are encouraged to interact with co-workers throughout the business and eat together on campus. The company frequently hosts events, ranging from product demonstrations to scavenger hunts, which are open to all employees. Dolan said this is one thing that makes her current work so much better than previous jobs. "I've been in places where I wasn't even allowed to take a break with someone if they were a different pay grade than I was," she said.

Another difference from Dolan's previous call-center jobs is that Zappos reps aren't limited in the amount of time they are allowed to spend on each conversation. "At other jobs, I'd be stressed because I'd have to resolve each call in about five minutes in order to make my numbers," Dolan said. She knows she could be making more money somewhere else, but she wouldn't enjoy her day as much. "I figured I'd do this for six months just to get something local on my résumé so I could look for something else," she said. "But I haven't looked for a job since I stepped foot in here. I don't plan on it."

6.

RUHATIJURU SEBATUTSI

Columbus, Ohio
The Meat Cutter
By Abe Streep

Every day at 2 p.m., Ruhatijuru Sebatutsi, a Congolese refugee, rides a bus from outside Columbus, Ohio, where he lives with his wife and eight children, with 10 of his colleagues. The bus travels 40 miles southwest to Washington Court House, population about 14,000, and drops its passengers near a plant owned by the SugarCreek Packing Company, which produces pork and poultry products like bacon bits and sausage patties. Just before 4, Sebatutsi, 40, changes into the uniform of a meat cutter: cap, gloves and scrubs. Then he takes his place in a line of men and women from Myanmar, the Democratic Republic of Congo, Bhutan and rural Ohio. Sebatutsi fled war in Congo as a teenager and spent most of his life in Rwanda's sprawling Gihembe refugee camp before being relocated to Ohio in 2015. Once the shift starts, he pushes meat through cutting machines. "You push again and again," he told me through a translator. "It doesn't require a lot of knowledge." There are three breaks per nine-hour shift: 15 minutes early on, a 30-minute meal break, then 10 minutes toward the end. At 1 a.m. he takes the bus home. When he arrives, his wife and children are sleeping. He works seven days a week, making $11.50 an hour, time and a half on Saturdays and double on Sundays. "I am so lucky," he said.

Central Ohio is particularly welcoming to refugees, having resettled more than 17,000 since 1983. In November 2016, the region became a flash point for those opposed to resettlement when a Somali-born Ohio State University student was killed by police after attacking pedestrians. Still, in early February, the Columbus mayor, Andrew Ginther, signed an executive order supporting the resettlement of refugees. His reasons were economic as well as altruistic. Nearly 12 percent of Columbus is foreign-born. According to a recent study from the New American Economy, a nonprofit research-and-advocacy group, Columbus-area immigrants pay $1.2 billion a year in taxes and have an annual spending power of $3.2 billion. They work as doctors and engineers, open small businesses employing thousands, perform manual labor in warehouses and frequently do the jobs that many other Americans will not, like meatpacking.

SugarCreek is one of many meatpacking businesses nationwide that have turned to refugees. Last spring, the company approached Community Refugee and Immigration Services (CRIS), a Columbus refugee-resettlement agency. "They needed people," said CRIS's Marcus Gorman, who arranges employment for the newly resettled. "They had a lot of opportunities for entry-level workers, and they were accustomed to working with folks that spoke little to no English." Now, Gorman said, about 65 of CRIS's clients work at SugarCreek. Since Sebatutsi started last November, he has opted to work every day, which he said is the best part of the job. "There's a lot of overtime, and you can make money." But, he added, "that's also the worst thing." He is no longer able to join his family at church. All that pushing, slicing and packaging is repetitive, but it's far better than life in Gihembe. "The kids can ask you for something, you cannot provide," he said. "But here you work, you take care of your problems, you do something for yourself."

7.

GUADALUPE GUIDO

Dalton, Ga.
The Carpet Whisperer
By Lizzie O'Leary

The warehouse where Guadalupe Guido works is so bright inside that it feels like noon no matter the time of day. Huge metal racks hold row after row of carpet that will be trucked from this plant in Dalton, Ga., all over the United States. Dalton calls itself the Carpet Capital of the World, and everyone in Guido's family — her mother, father, sister and herself — work for one of Dalton's carpet companies.

Guido, who is 23 and goes by Lupe, has been working at Engineered Floors for almost two years. She has risen quickly, starting on yarn machines, before driving a Hyster forklift, working as a production clerk and now serving as a tufting scheduler. She creates orders, dictating the type of yarn to use and how much footage of carpet each job will need. "Without this person," she said of her role, "there really is no show."

In the political sphere, manufacturing work is often associated with

Photographs by Ryan Pfluger for The New York Times

men, and specifically white men. But women have always worked in carpets in Dalton and at Engineered Floors. And Dalton is about 50 percent Latino, which is reflected in the work force here. Many people in the city came from Mexico in the 1970s and '80s to work in the industry, including Guido's parents, Jose and Martina.

Lupe Guido was born in Dalton and dreamed initially of becoming a lawyer. "I talk a lot," she said with a laugh. But at 18, she wanted independence and her own money and went to work at Mohawk Industries, one of the largest carpet companies in the city, where her mother still works. It was not what her parents had in mind. "When I was growing up, it was always: 'Go to school, go to school,'" she said. "'You don't want to be working how I'm working.'"

But the carpet industry, like most of American manufacturing, has undergone radical changes. The hardest and most dangerous jobs are now performed by machines that are mostly run by computers, and those computers are watched over by people like Guido.

Engineered Floors is new in comparison to Mohawk or Shaw Industries, the two companies that have dominated Dalton for decades. But Guido has been able to move up quickly. She earns $15.50 an hour, up from $11 an hour when she started in 2015. At the end of each year, she gets a $500 bonus.

Guido said she would like to stay at Engineered Floors if she can. To do so requires vigilantly managing her time so that she can move up. She's awake at 6 a.m., clocks into her job at 7 and works a 10-hour shift until 5 p.m. After dinner with her fiancé, who also works in the carpet industry, Guido spends her nights studying for a bachelor's degree in human-resource management at Georgia Northwestern Technical College. One day, she wants to be a department manager or a plant manager. "The way I've been growing and growing," she said, "I don't want for that to stop."

More reporting by O'Leary and the producer Eliza Mills about the carpet industry in Dalton, Ga., is on Marketplace Weekend and at marketplace.org.

8.

WENDY ALMADA

Las Vegas
The Hotel Cleaner
By Amanda Fortini

Most mornings, Wendy Almada — a guest-room attendant, or G.R.A., at the Aria Resort and Casino on the Las Vegas Strip — puts on a pair of latex gloves and tackles the bathroom first. "I don't like to do beds," she said. "I like to clean bathrooms." Next she yanks off the sheets, bags them and makes up the bed. She dusts, vacuums, empties the garbage. If a light bulb is out or the carpet needs to be shampooed, she puts in a work order. She scans the room for any last detail that she might have overlooked, then clocks out and moves on to the next one. She cleans 13 rooms a day, with suites counting as two or three.

Sometimes the job is that straightforward, but often she opens the door to find what all G.R.A.s dread: a "trashed" room. "They eat and they leave all the trash everywhere: cans, food," she said, gesturing with her hands. She was seated at a folding table in a trailer parked in the lot of the Las Vegas Culinary Workers Union. "Especially the bachelor party. Oh, my God, those are bad."

'I NEVER HAD THESE RIGHTS IN ARIZONA.'

Because she is a member of the union, the job pays her $17.65 an hour. The Culinary Workers Union Local 226, chartered in 1935, is the largest union in Nevada, representing 57,000 men and women from 167 countries (its membership is 56 percent Latino and 81 percent people of color), among them cooks, bartenders, cocktail servers, porters, bellmen and guest-room attendants. The average wage of a culinary-union worker is $23 an hour, compared with the $10 an hour made by a nonunionized Las Vegas hospitality worker or the $6 an hour Almada, who is 42 and who moved to the United States from the Mexico border town of Agua Prieta (she got her green card when she was 11, and became a citizen when she was 22), was paid at her last job in a coffee-cup-making factory in Tucson.

She said she was fired from that job for taking two months' maternity leave, which prompted her and her (now former) husband to move to Las Vegas. They had heard that there were jobs at the casinos, where 90 percent of the hospitality work force on the Strip belong to the culinary union. But it was only after they divorced and she needed to support herself and her three children that Almada applied for her job at the Aria.

That was six years ago. Almada enumerates all the ways that the job and its attendant union membership has improved her life: free health insurance and pharmacy benefits; a pension; job security; and soon a $20,000 down payment she will use to buy her first house. Initially she didn't understand the benefits and regulations the union conferred. This is a common reason workers can still be taken advantage of, particularly those who don't speak English. For the past seven months, though, Almada has been on an extended, contractually allowed, union-sanctioned leave of absence to serve as an organizer at Mandalay Bay Casino; she is teaching other workers to read and understand their own contracts. "I never had these rights in Arizona," she said. "Because I had my little one, they fired me and nobody helped me. If I was working here with the union, that doesn't happen to me."

Photographs by Ryan Pfluger for The New York Times

9.

NATE AWAN

Boston
The Pipe Fitter
By Carlo Rotella

From the job site in Roxbury where he works as a union pipe fitter, Nate Awan can see the building that once housed the Phillis Wheatley Middle School, from which he was expelled for fighting and other misbehavior. "That was back in my knucklehead time," he said.

The fifth child of an overwhelmed single mother, Awan was kicked out of four schools and took a bullet in the shoulder before going to prison at 18 for trying to shoot a rival gang member. While serving a three-year sentence, he resolved that he would change his fate.

With the help of a former prosecutor who took an interest in his rehabilitation, Awan found his way into Operation Exit, a program founded in 2014 in which the city of Boston partners with unions to channel residents with criminal backgrounds into the trades. Having sampled carpentry, sheet-metal work and other options, Awan, who had always been fascinated by welding but doesn't like heights, chose pipe fitting over iron work.

There's plenty of politics in the building trades, but there's also an ethos of craft meritocracy. "It's not what you look like, it's what your clevis hangers look like," Awan said, referring to the brackets used to support pipes. "All at the same level, nothing crooked. It's about your work ethic." He's already planning to get his 5-year-old son into the local when he's old enough.

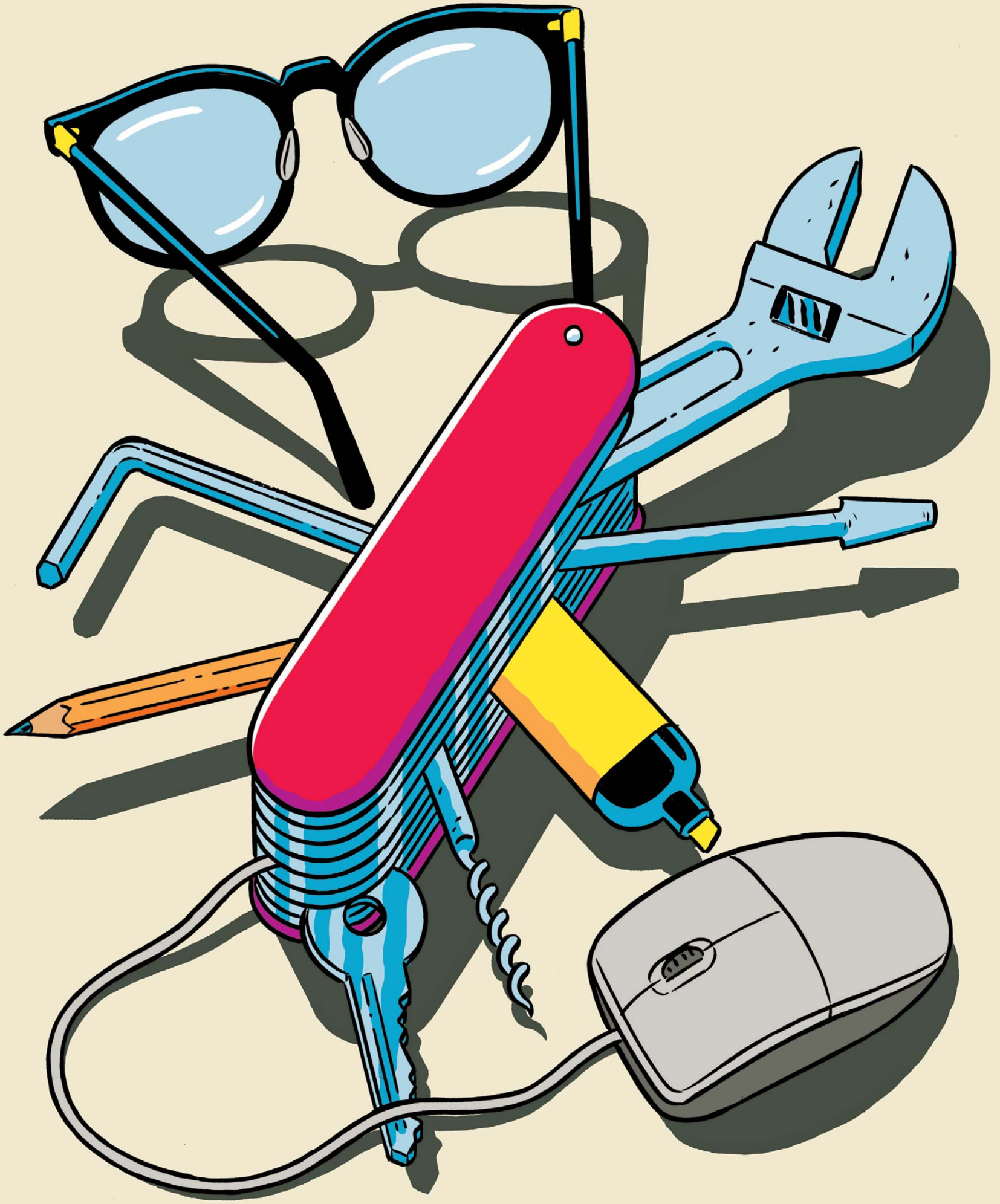
Awan, who is 28 and currently a second-year apprentice making $30 an hour plus benefits, can become a journeyman in three years, and he looks forward to continuing up the scale of seniority and pay toward the top rate of $50 or so an hour. He still lives near the Four Corners section of Dorchester where he grew up, but he's shopping for a house outside the city. "You come from no money for food, nothing, to where you're buying a house, buying a car," he said. "Your son needs a school uniform, you can get him one."

Boston's mayor, Martin Walsh, intends Operation Exit to enable this kind of transformation of prospects and consciousness. Walsh, who also grew up in Dorchester and had his own troubles (a bullet grazed his leg) before putting his life on course in the building trades, says: "We've had 80 graduates come through this program, and we're expanding from the building trades into coding and culinary arts. Some of these guys were impact players on the street. It has an effect."

Programs that reduce crime by connecting offenders and potential offenders to meaningful work are getting more attention across the country. Some, like Operation Exit, focus on re-entry after prison; others, like the Chicago CRED initiative recently started by the Emerson Collective and Arne Duncan, the former U.S. secretary of education, try to reduce gun violence by teaching job and life skills to young men adrift from both school and the labor market. It takes a significant investment of time and resources to shift a life from a dead-end trajectory to a viable future in this way, but Awan testifies to the approach's effectiveness. "I'm no surgeon or big-time prosecutor," he said, "but for me — a product of his environment, taken from my mother at 9, incarcerated at 18, sweeping and mopping in the hole in prison for 19 cents an hour, living like a peasant — this here is a lottery ticket." ◆

MANY AMERICANS ARE OUT OF WORK, OR NEED BETTER JOBS. MANY EMPLOYERS HAVE GOOD JOBS THEY CAN'T FILL. CAN TRAINING PROGRAMS MORE INTELLIGENTLY MATCH THEM UP? BY RUTH GRAHAM

Illustration by KRISTIAN HAMMERSTAD



WHEN Nathan Kecy graduated from Plymouth State University in New Hampshire a decade ago with a bachelor's degree in communications, he found himself with about $10,000 in debt and few clear career options. He first found work as a door-to-door salesman ("a pyramid scheme," he recalls) and then in telemarketing. Finally he landed a job as an infrastructure specialist for Datamatic, a Texas-based water-meter-technology company. He was traveling across the country installing meters, making a decent salary. But he lost his job after the company restructured in 2012, he said, and soon he found that his skills weren't easily transferable to a new field; Datamatic's technology was proprietary, and his expertise in the company's installation program wasn't appealing to employers outside that particular industry. He tried going into business with a friend, but the relationship soured. By then he had a baby and a fiancée, and he felt stuck.

Now 32, Kecy is a few months away from finishing a six-month certificate program in advanced composites manufacturing at Great Bay Community College in Rochester, N.H. The program operates out of a satellite campus that opened in 2013, with aid from a Labor Department grant meant to help community colleges reach "trade displaced" workers who need help training for new careers. The unemployment rate in southern New Hampshire is low, less than 3 percent. At one state job fair last summer, just 350 people showed up for 1,200 available jobs. In Strafford County, where Rochester is located, the largest employers include the University of New Hampshire and Liberty Mutual, but also manufacturers like Turbocam and Contitech. Kecy's classmates include veterans, recent high-school graduates and older workers whose careers had reached dead ends. All of them are looking for hope and a decent paycheck by acquiring a new set of skills. "Within six months, I'm going to go from regular guy to working in the aerospace community," says Tommy Florentino, a disabled veteran with a background in construction and automotive manufacturing. He has friends who went to Boston College or Suffolk University, "and they're waiters and waitresses."

The college's 27,000-square-foot Advanced Technology and Academic Center is at the edge of a nondescript shopping center. The complex also houses a Dollar Tree, a J.C. Penney and a Kmart, where a banner out front reads, "Now hiring." Cashiers there earn close to minimum wage. But Kecy expects to earn at least $16 an hour when he graduates and to move up quickly from there. Composites is a broad field in manufacturing, with applications including automotive parts, sporting goods and prosthetics, as well as in the locally prominent aerospace industry. The state's department of economic development bills its seacoast region as "the emerging composites region," and it points to Great Bay's program as a reason for more aerospace and defense businesses in particular to relocate there. "I've got some options, which is something I've never really experienced before," Kecy says.

There's a strange disconnect between two of the big narratives about the American blue-collar work force right now. In one story, there is a population of unemployed and underemployed working-class adults for whom well-paying work seems increasingly out of reach; their jobs have gone overseas or become automated, and they find themselves working retail, or not working at all. But an apparently conflicting story comes from American employers, which have been insisting for years that they have a hard time finding workers to fill many skilled blue-collar jobs. A 2015 report from the Manufacturing Institute, for example, found that seven in 10 manufacturing executives said they faced shortages of workers with adequate tech skills. A high proportion of existing skilled workers is also nearing retirement, which means a bigger gap is looming soon. By 2025, the report warned, two million jobs will be going unfilled. (Health care, also a big focus of retraining programs, is another rapidly expanding field.)

The tantalizing promise of government-funded job training is that it can bridge the gap between those narratives in a way that benefits individual workers, employers and the country as a whole. Hard-working Americans get good jobs, employers get skilled labor and the economy benefits from their mutual good fortune. The image of that virtuous cycle has made the promotion of training programs appealing for politicians on the left and the right. Hillary Clinton proposed retraining former coal-industry workers in new careers as part of a $30 billion package meant "to ensure that coal miners and their families get the benefits they've earned and respect they deserve." Even as Republicans have voted to cut funding for training in recent years, they have paid it lip service as a way to put Americans back to work.

It's perhaps not surprising, though, that so much of the working class gravitated in the last election to Donald Trump, whose rhetoric about displaced workers was very different: blunt (if unrealistic) promises to stop old careers from disappearing, to "bring back our jobs." In its zeal for retraining, the federal government's approach to the problem has become increasingly byzantine, a dizzying constellation of programs to help struggling workers prepare for new careers. Some of them are intended for employees laid off en masse when their jobs went overseas, and others are for those who are simply unemployed and underqualified for well-paying work. In the 2009 fiscal year, the Government Accountability Office counted 47 different federal training-related programs administered by nine agencies, numbers Republicans have since used to argue that many of the programs were redundant. In his 2012 State of the Union address, even President Obama criticized the "maze of confusing training programs" unemployed workers had to navigate to get help. The Workforce Innovation and Opportunity Act, signed into law in 2014 with bipartisan support, was designed in part to streamline the government's approach.

Critics also say that job training is costly and too often ineffective. Take the primary federal effort specifically aimed at workers affected by global trade, the Labor Department's Trade Adjustment Assistance program. Through T.A.A., qualified workers can receive free retraining, typically through a community-college program like Great Bay's. The program is generous, spending more than $11,500 on each person who participated in retraining in the 2015 fiscal year. But it serves relatively few people, and recent analysis has shown iffy results: A 2012 evaluation prepared for the Labor Department found that while 85 percent of those who went through T.A.A.-funded training eventually received a certificate or degree, only 37 percent of them were working in that field four years later. (The program was later amended to include more individualized support.)

All too often, skeptics say, publicly funded training programs are a sop to well-connected companies who want taxpayers to foot the bill to train their workers. Critics also point at research suggesting that on-the-job training by employers themselves has been declining in recent years. But it simply doesn't make economic sense for most employers to do all of their own training anymore. In part, this is because of technology: Jobs in advanced manufacturing and health care require intense technological instruction, usually accompanied by classroom time. At the same time, standardization means employers often poach skilled workers from one another, which discourages them from investing a lot of time and money in training their own workers. "It's unrealistic today to think of traditional, very idiosyncratic manufacturing jobs where you're going to walk in, get a job, get trained in a bunch of very specific skills, and they'll hold onto you for decades," says Lawrence Katz, an economist at Harvard University. "That's just not the trajectory of employment anymore."

After completing the certificate program in April, Kecy will have specializations in "nondestructive testing" and "bonding and finishing," skills that set him up for specific positions that local employers have been struggling to fill. The simplest description of composites manufacturing is that it is the process of putting two materials together; adobe, for example, is a composite of straw and mud. "Advanced" composites manufacturing typically involves adding high-tech resin to woven fibers. The strong, lightweight finished products are replacing metal in many manufacturing areas, including aerospace. Great Bay students further specialize in areas like quality inspection or resin-transfer molding; the goal is that when they graduate, they are ready for high-end entry-level jobs. Advanced manufacturing in general is a strong industry in New England; a recent analysis by Deloitte and the New England Council found that in 2012, 59 percent of the region's 641,000 manufacturing jobs were "advanced."

With his certificate, Kecy is confident that he will find a job locally, and he's probably right. Great Bay's composites program was developed in a close relationship with Safran Aerospace Composites and Albany Engineered Composites, two companies that opened a shared plant in Rochester in 2014. Safran helped develop the program's curriculum and stays in touch about which specializations the company will be needing in the coming months. It guarantees interviews to all graduates of the program and has hired about 30 of the more than 170 participants so far. Over all, more than half the program's graduates have been hired by five large local manufacturers, according to its director, Debra Mattson.

That level of coordination with local industry, ideally touching on everything from curriculum to recruitment, is now seen by policy experts as a crucial dividing line between programs that work and those that don't. The federal government now emphasizes this kind of "demand driven" training in part to ensure that workers aren't being retrained with new skills as obsolete as their old ones. "A good sign is if the program was co-developed with the firm," says Mark Muro, a senior fellow at the Brookings Institution's Metropolitan Policy Program. "One of the fundamental problems is training divorced from labor-market dynamics — people being trained without the presence of jobs they could actually arrive in." (The Nordic countries, which spend more on job training in general, have a strong record in developing training with input from both industry and labor.) The evidence in the United States for demand-driven training is promising so far. A 2010 study of three such programs found that enrollees were earning almost 30 percent more than a control group two years after they began the program and were significantly more likely to be employed.

The Great Bay program has relationships with Safran, A.E.C. and other area employers, including BAE Systems, Turbocam International and the gun manufacturer Sig Sauer, which recently landed a $580 million contract with the Army. The program is short by design, and new cohorts start three times a year to ensure a steady stream of graduates for local employers. "Industry is dying for bodies, just dying for skilled workers," says Will Arvelo, Great Bay's president. "They can't wait two years."

On a snowy afternoon a few weeks ago, Kecy and his classmates in his Fundamentals of Composites Manufacturing class were at work in the "clean room." The setting looked more like a science lab than a factory. A large cooler stacked with vacuum-sealed bags of thick fabric pieces stood in the corner, and work tables held clusters of metal tubes. The class instructor, Peter Dow, watched as two teams of students worked on a project they had been planning for several weeks: constructing a three-inch carbon-fiber tube with a finished exterior. Later they would have a chance to tweak their plans and try it all over again, a lesson in the manufacturing principle of "continuous improvement."

For all the ways in which technology has changed the manufacturing industry, one of the most striking to an outsider is the appearance of the work space itself. The students in the clean room wore white coats and safety glasses as they used hair dryers and refrigerant spray to fiddle with the sticky material. Outside their small work area, the facility's spotless manufacturing lab offered the capacity to build a product from start to finish: a huge, three-dimensional loom for weaving carbon fiber, a five-axis machining center, an automatic autoclave. Practically every piece of equipment seemed to feature a keyboard or touch screen.

But manufacturing's new high-tech, high-skill profile is also what makes it daunting for many older workers looking for new careers. The dilemma illustrates some of the broader challenges of retraining later in life. Kerri Uyeno, a 43-year-old single mother of three who graduated in the Great Bay program's first cohort in 2014, began working at Safran as a bonding operator three weeks after earning her certificate. It was such a happy ending that she featured prominently in early publicity materials for the program. But she had conflicts with her supervisors and lasted just over a year in the job before quitting. She didn't work again for six months; her house went into foreclosure. An administrator at Great Bay tried to persuade her to come back and work toward her associate degree, but the prospect was exhausting. "It was so hard to get through that six months to my certificate," she said, "I just didn't have it in me to get more schooling." Today she is an office manager at a flooring showroom nearby. She still exudes pride when she talks about earning her certificate, but she also calls the experience "one of the biggest heartbreaks I've ever gone through."

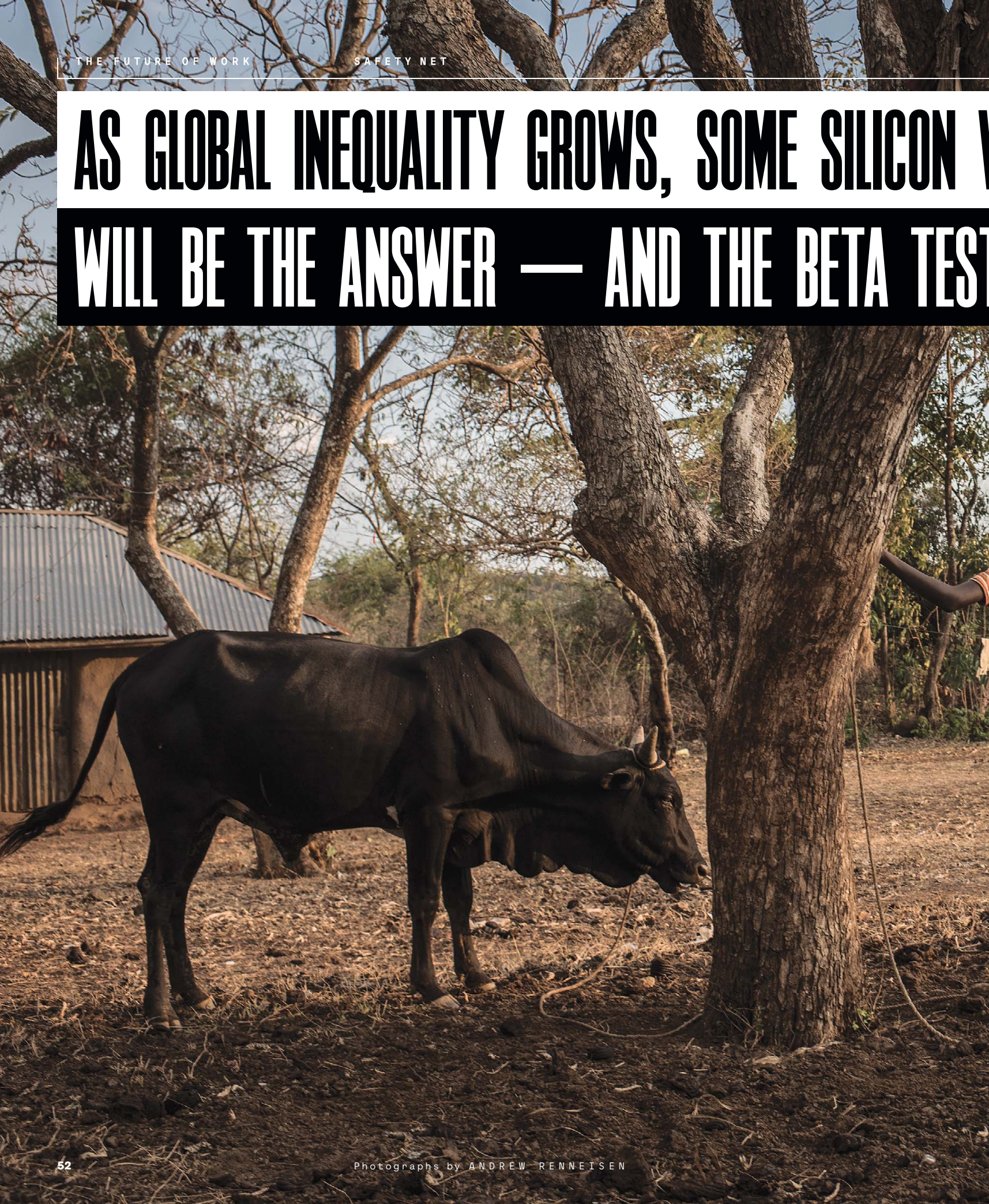
'I'VE GOT SOME OPTIONS, WHICH IS SOMETHING I'VE NEVER REALLY EXPERIENCED BEFORE.'

At 49, Dean Kandilakis is one of the oldest students in the program's current cohort. He has a master's degree in international relations, but he spent most of his career doing administrative work. "There's a really large learning curve for someone who's just re-entering from a different field," he said during a break from class. "It's been a very stressful time for me, because it's an adjustment in my identity as a human being." But he says it's worth it to feel as if he's finally becoming a specialist in something.

It can take enormous intellectual and emotional efforts to pursue retraining, especially for people who have been rattled by sudden job loss or depressed by declining career prospects. For all his grandiosity, Donald Trump's approach to working-class voters was characterized by relentless pessimism: dark visions of "poverty and heartache," warnings about Mexicans "taking our manufacturing jobs." Nostalgia, with its disdain for the present and mistrust of the future, is actually quite a gloomy sentiment. Job training, by contrast, makes the smaller-but-sunnier assurance that starting over is possible with help and time. It takes optimism on the part of both policy makers and workers. Back in the lab, Kandilakis's team had been having some difficulty with their tube; the material was too warm, and it was thickening too quickly as they molded it. "We're having some problems today," he said, but he didn't sound concerned. "Thankfully we'll have another run." ◆

AS GLOBAL INEQUALITY GROWS, SOME SILICON V

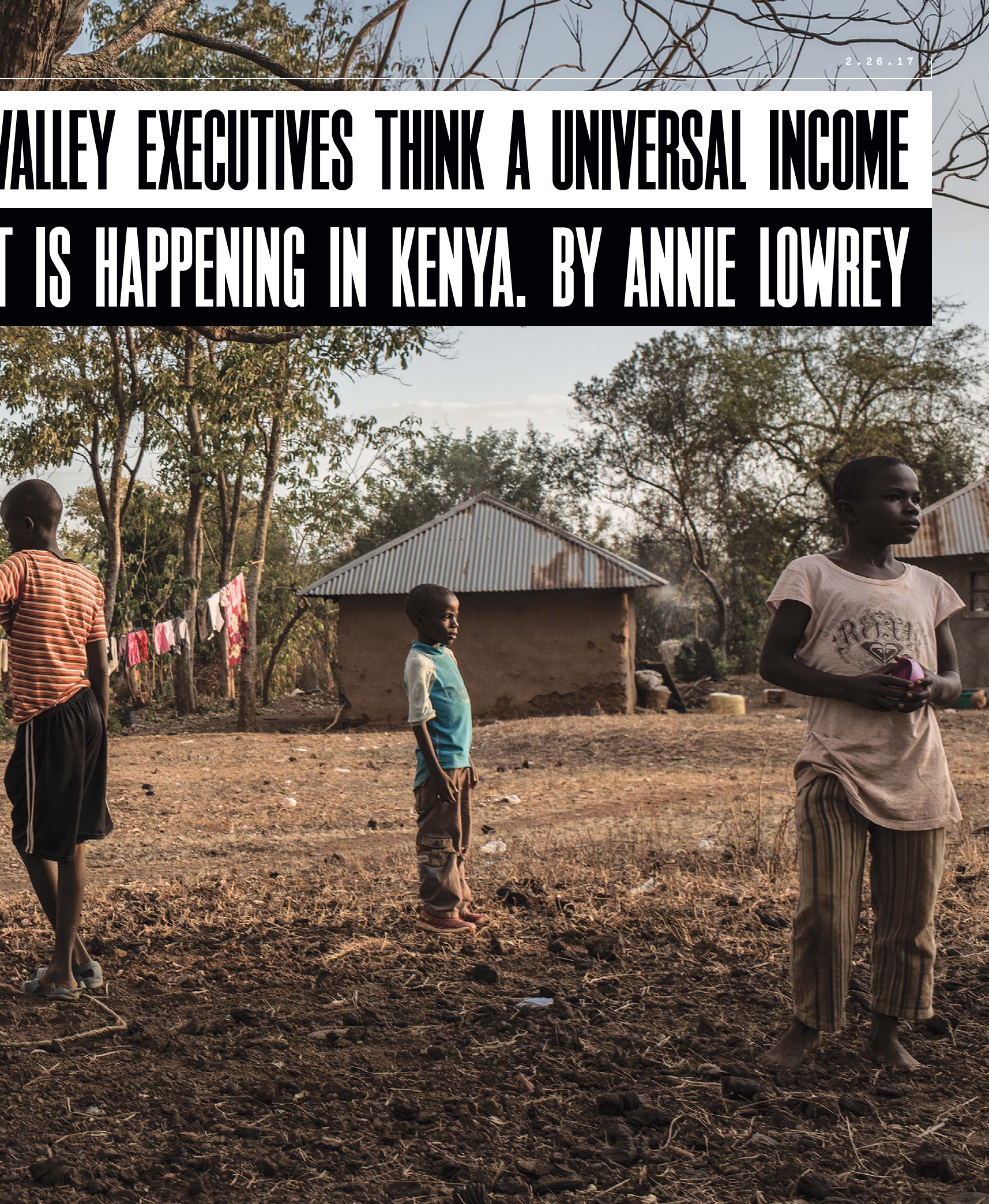
WILL BE THE ANSWER — AND THE BETA TEST



Photographs by ANDREW RENNEISEN

VALLEY EXECUTIVES THINK A UNIVERSAL INCOME

T IS HAPPENING IN KENYA. BY ANNIE LOWREY



THE village is poor, even by the standards of rural Kenya. To get there, you follow a power line along a series of unmarked roads. Eventually, that power line connects to the school at the center of town, the sole building with electricity. Homesteads fan out into the hilly bramble, connected by rugged paths. There is just one working water tap, requiring many local women to gather water from a pit in jerrycans. There is no plumbing, and some families still practice open defecation, lacking the resources to dig a latrine. There aren't even oxen strong enough to pull a plow, meaning that most farming is still done by hand. The village is poor enough that it is considered rude to eat in public, which is seen as boasting that you have food.

In October, I visited Kennedy Aswan Abagi, the village chief, at his small red-earth home, decorated with posters celebrating the death of Osama bin Laden and the lives of African heroes, including JaKogelo, or "the man from Kogelo," as locals refer to former President Barack Obama. Kogelo, where Obama's father was born, is just 20 miles from the village, which lies close to the banks of Lake Victoria. Abagi told me about the day his town's fate changed. It happened during the summer, when field officers from an American nonprofit called GiveDirectly paid a visit, making an unbelievable promise: They wanted to give everyone money, no strings attached. "I asked, 'Why this village?' " Abagi recalled, but he never got a clear answer, or one that made much sense to him.

The villagers had seen Western aid groups come through before, sure, but nearly all of them brought stuff, not money. And because many of these organizations were religious, their gifts came with moral impositions; I was told that one declined to help a young mother whose child was born out of wedlock, for example. With little sense of who would get what and how and from whom and why, rumors blossomed. One villager heard that GiveDirectly would kidnap children. Some thought that the organization was aligned with the Illuminati, or that it would blight the village with giant snakes, or that it performed blood magic. Others heard that the money was coming from Obama himself.

But the confusion faded that unseasonably cool morning in October, when a GiveDirectly team returned to explain themselves during a town meeting. Nearly all of the village's 220 people crowded into a blue-and-white tent placed near the school building, watching nervously as 13 strangers, a few of them white, sat on plastic chairs opposite them. Lydia Tala, a Kenyan GiveDirectly staff member, got up to address the group in Dholuo. She spoke at a deliberate pace, awaiting a hum and a nod from the crowd before she moved on: These visitors are from GiveDirectly. GiveDirectly is a nongovernmental organization that is not affiliated with any political party. GiveDirectly is based in the United States. GiveDirectly works with mobile phones. Each person must have his or her own mobile phone, and they must keep their PIN secret. Nobody must involve themselves in criminal activity or terrorism. This went on for nearly two hours. The children were growing restless.

Finally, Tala passed the microphone to her colleague, Brian Ouma. "People of the village," he said, "are you happy?"

"We are!" they cried in unison.

Then he laid out the particulars. "Every registered person will receive 2,280 shillings" — about $22 — "each and every month. You hear me?" The audience gasped and burst into wild applause. "Every person we register here will receive the money, I said — 2,280 shillings! Every month. This money, you will get for the next 12 years. How many years?"

"Twelve years!"

Just like that, with peals of ululation and children breaking into dance in front of the strangers, the whole village was lifted out of extreme poverty. (I have agreed to withhold its name out of concern for the villagers' safety.) The nonprofit is in the process of registering roughly 40 more villages with a total of 6,000 adult residents, giving those people a guaranteed, 12-year-long, poverty-ending income. An additional 80 villages, with 11,500 residents all together, will receive a two-year basic income. With this initiative, GiveDirectly — with an office in New York and funded in no small part by Silicon Valley — is starting the world's first true test of a universal basic income. The idea is perhaps most in vogue in chilly, left-leaning places, among them Canada, Finland, the Netherlands and Scotland. But many economists think it might have the most promise in places with poorer populations, like India and sub-Saharan Africa.

GiveDirectly wants to show the world that a basic income is a cheap, scalable way to aid the poorest people on the planet. "We have the resources to eliminate extreme poverty this year," Michael Faye, a founder of GiveDirectly, told me. But these resources are often misallocated or wasted. His nonprofit wants to upend incumbent charities, offering major donors a platform to push money to the world's neediest immediately and practically without cost.

Erick Odhiambo Madoho (second from left), shown with another villager (right) and members of the GiveDirectly team, planned to use his payments to buy fishing line to make tilapia nets.

Photograph by Andrew Renneisen for The New York Times

What happens in this village has the potential to transform foreign-aid institutions, but its effects might also be felt closer to home. A growing crowd, including many of GiveDirectly's backers in Silicon Valley, are looking at this pilot project not just as a means of charity but also as the groundwork for an argument that a universal basic income might be right for you, me and everyone else around the world too.

The basic or guaranteed income is a curious piece of intellectual flotsam that has washed ashore several times in the past half-millennium, often during periods of great economic upheaval. In "Utopia," published in 1516, Thomas More suggests it as a way to help feudal farmers hurt by the conversion of common land for public use into private land for commercial use. In "Agrarian Justice," published in 1797, Thomas Paine supports it for similar reasons, as compensation for the "loss of his or her natural inheritance, by the introduction of the system of landed property." It reappears in the writings of French radicals, of Bertrand Russell, of the Rev. Dr. Martin Luther King Jr.

Silicon Valley has recently become obsessed with basic income for reasons simultaneously generous and self-interested, as a palliative for the societal turbulence its inventions might unleash. Many technologists believe we are living at the precipice of an artificial-intelligence revolution that could vault humanity into a post-work future. In the past few years, artificially intelligent systems have become proficient at a startling number of tasks, from reading cancer scans to piloting a car to summarizing a sports game to translating prose. Any job that can be broken down into discrete, repeatable tasks — financial analytics, marketing, legal work — could be automated out of existence.

In this vision of the future, our economy could turn into a funhouse-mirror version of itself: extreme income and wealth inequality, rising poverty, mass unemployment, a shrinking prime-age labor force. It would be more George Saunders than George Jetson. But what does this all have to do with a small village in Kenya?

A universal basic income has thus far lacked what tech folks might call a proof of concept. There have been a handful of experiments, including ones in Canada, India and Namibia. Finland is sending money to unemployed people, and the Dutch city Utrecht is doing a trial run, too. But no experiment has been truly complete, studying what happens when you give a whole community money for an extended period of time — when nobody has to worry where his or her next meal is coming from or fear the loss of a job or the birth of a child.

And so, the tech industry is getting behind GiveDirectly and other organizations testing the idea out. Chris Hughes, a Facebook founder and briefly the owner of The New Republic, has started a $10 million, two-year initiative to explore the viability of a basic income. (He has also been a major donor to GiveDirectly.) The research wing of Sam Altman's start-up incubator, Y Combinator, is planning to pass out money to 1,000 families in California and another yet-to-be-determined state. Then there is GiveDirectly itself, which has attracted $24 million in donations for its basic-income effort, including money from founders of Facebook, Instagram, eBay and a number of other Silicon Valley companies. Many donors I spoke with cited their interest in the project as purely philanthropic. But others saw it as a chance to learn more about a universal basic income, a way to prove that it could work and a chance to show people the human face of a hypothetical policy fix.

In December, Altman, the 31-year-old president of Y Combinator, spoke at an anti-poverty event hosted by Stanford, the White House and the Chan Zuckerberg Initiative, the charitable institution the Facebook billionaire founded with his wife, Priscilla. Altman discussed the potential for basic income to alleviate poverty, but his speech veered back to the dark questions that hang over all this philanthropy: Is Silicon Valley about to put the world out of work? And if so, do technologists owe the world a solution?

"There have been these moments where we have had these major technology revolutions — the Agricultural Revolution, the Industrial Revolution, for example — that have really changed the world in a big way," Altman said. "I think we're in the middle or at least on the cusp of another one."

GiveDirectly may be a charity, but it speaks in the argot of Silicon Valley. It is a platform, connecting donors and recipients, that prides itself on low overhead and superior analytics. It disdains what it sees as the bloated, expensive, stuck-in-their-ways incumbents that dominate the nonprofit space. And it even has a privileged bootstrapping creation story, beginning with its 20-something founders batting the idea around in Harvard Square academic buildings and scraping together money from friends.

The idea for the nonprofit came to Michael Faye and Paul Niehaus, who is now a professor of economics at the University of California, San Diego, when they were graduate students at Harvard. Both were studying development and doing fieldwork overseas, an experience that underlined an Economics 101 lesson: Cash was more valuable to its recipients than the in-kind gifts commonly distributed by aid groups, like food or bed nets or sports equipment. If you're hungry, you cannot eat a bed net. If your village is suffering from endemic diarrhea, soccer balls won't be worth much to you. "Once you've been there, it's hard to imagine doing anything but cash," Faye told me. "It's so deeply uncomfortable to ask someone if they want cash or something else. They look at you like it's a trick question."

But at the time, distributing cash aid in a country with little to no banking infrastructure outside major cities would have required an extraordinary amount of manpower, not to mention introducing the risk of robbery and graft. But dirt-cheap mobile phones with pay-as-you-go minutes began flooding into sub-Saharan African markets in the 2000s. Enterprising Ghanaians, Kenyans and Nigerians started to use their minutes as a kind of currency. In 2007, Vodafone and the British Department for International Development together built a system, called M-Pesa, for Kenyans to transfer actual shillings from cellphone to cellphone. An estimated 96 percent of Kenyan households use the system today.

Faye and Niehaus — along with their friends Rohit Wanchoo and Jeremy Shapiro, also

'WE HAVE THE RESOURCES TO ELIMINATE EXTREME POVERTY THIS YEAR.'

Opening pages: A family homestead in the pilot-project village in Kenya.

graduate students — thought about setting up a website to raise cash in the United States and send it directly to poor Kenyans. But they never found a nonprofit that would distribute that cash abroad. They decided to do it themselves in 2008. "Because it was a start-up, and we started in grad school," Faye said, "we were open to the idea of it being wrong or failing."

The following year, Faye traveled to small Kenyan villages during the summer break, offering cash to whoever seemed poor and would take it. (The money, about $5,000, came out of the foursome's own pockets.) That, surprisingly, worked well enough to give them the confidence to start a threadbare randomized control trial the year they graduated. It found that the recipients, who received an average of $500, saw excellent outcomes: Their children were 42 percent less likely to go a whole day without eating. Domestic-violence rates dropped, and mental health improved.

In time, the nonprofit attracted the attention of Silicon Valley and its deep-pocketed young philanthropists. Two Facebook founders gave six-figure donations. Then, in the spring of 2012, Faye went to a friend's brunch in Brooklyn and met someone working for Google.org, the tech giant's giving arm. She liked the sound of GiveDirectly and arranged for Faye and Niehaus to give a presentation at Google's headquarters in Mountain View, Calif. The company ended up contributing $2.4 million.

At first, GiveDirectly handed out large lump sums, generally $1,000 spread into three payments over the course of the year. The nonprofit's field officers would locate low-income villages in Kenya, then find the poorest families in each individual village using a simple asset test (whether a family had a thatched roof or not). The field officers would introduce themselves to the town elders, explain their purpose and return to provide mobile phones and training to recipient families. Then GiveDirectly would push a button and send the money out.

On a steaming October morning, I went with two GiveDirectly executives, Joanna Macrae and Ian Bassin, to visit one of the villages that had received GiveDirectly's lump-sum payments. We took off at dawn from Kisumu, a bustling industrial city on the banks of Lake Victoria, and followed a two-lane highway to Bondo, a small trading city filled with cattle, bicycles and roadside food stands. From there, we turned inland from the lake and drove into a lush agricultural region.

The residents of this village had received money in 2013, and it was visibly better off than the basic-income pilot village. Its clearings were filled with mango plantings, its cows sturdy. A small lake on the outskirts had been lined with nets for catching fish. "Could you imagine sitting in an office in London or New York trying to figure out what this village needs?" Bassin said as he admired a well-fed cow tied up by the lakeside. "It would just be impossible."

Perhaps, but delivering money by M-Pesa has some downsides, too. We visited an older woman named Anjelina Akoth Ngalo, her joints painful and swollen with advanced malaria. Sitting in her thatched-roof hut, she told us that she had received only one payment, not the three that she was promised. She had given her phone to a woman in a nearby village who transferred the money out of it. Ngalo visited the village elder to try to get her money back, but nothing had come of it. She was now destitute, living on about $5 a week. She had not eaten since the day before, and she had run out of malaria medication. (Bassin said that less than 1 percent of recipients experience theft, crime or conflict.)

By giving money to some but not all, the organization had unwittingly strained the social fabric of some of these tight-knit tribal communities. One man we visited in a separate village nearby, Nicolus Owuor Otin, had acted as a liaison between the community and the GiveDirectly staff, showing them where different families' houses were, for instance. For that reason, he said, the other villagers thought he was determining who would get what and threatened to burn his house down.

Still, nearly all the recipients described the money as transformative. Fredrick Omondi Auma — a Burning Spear devotee wearing a Rasta-style hat and bell bottoms when we visited — had been impoverished, drinking too much, abandoned by his wife and living in a mud hut when GiveDirectly knocked on his door. He used his money to buy a motorbike to give taxi rides. He also started a small business, selling soap, salt and paraffin in a local town center; he bought two cows, one of which had given birth; and he opened a barbershop in the coastal city Mombasa. His income had gone from 600 shillings a week to 2,500 shillings — roughly $25, a princely sum for the area. His wife had returned. He had even stopped drinking as much. "I used to go out drinking with 1,000 shillings, and I'd wake up in the bar with 100 shillings," he said. "Now I go out drinking with 1,000 shillings, and I wake up at home with 900."

'COULD YOU IMAGINE SITTING IN AN OFFICE IN LONDON OR NEW YORK TRYING TO FIGURE OUT WHAT THIS VILLAGE NEEDS?'

"I didn't imagine I would be living in an iron-sheet house," he said, referring to his roof. "I didn't imagine I'd be wearing nice shoes. I didn't imagine I would have a business, and earnings from it. I didn't imagine I would be a man who owns cattle."

Many popular forms of aid have been shown to work abysmally. PlayPumps — merry-go-round-type contraptions that let children pump water from underground wells as they play — did little to improve access to clean water. Buy-a-cow programs have saddled families with animals inappropriate to their environment. Skills training and microfinance, one 2015 World Bank study found, "have shown little impact on poverty or stability, especially relative to program cost."

All across the villages of western Kenya, it was clear to me just how much aid money was wasted on unnecessary stuff. The villagers had too many jerrycans and water tanks, because a nongovernmental organization kept bringing them. There was a thriving trade in Toms canvas slip-ons: People received them free from NGO workers and then turned around and sold them in the market centers. And none of the aid groups that had visited the villages managed to help the very poorest families.

In the pilot-project village, for example, Faye and I paid a visit to a woman named Caroline Akinyi Odhiambo, who lives in a mud hut on the edge of town with her husband, Jack, a laborer, and her two small children. The most expensive

Caroline Akinyi Odhiambo wanted to buy iron sheets for her roof and then maybe pay her dowry.

thing she ever bought, she told me, was a chicken for 500 shillings, or about $5. Her family was persistently hungry. She knew of three nonprofit groups that had helped the village before GiveDirectly. One aided families with school fees, but it chose not to help her children. "I do not want to talk about it," she said.

What is worse, Faye told me, walking away from Odhiambo's hut, was that most nonprofit projects in the region were never subject to anything like an impact assessment, either. There is no way to know how well they are working, or whether that money would be better spent on something else. "The question should always be: Would we be better off just giving this money away as cash?" Faye said. "There usually is not a way to answer that question."

A vast majority of aid — 94 percent — is noncash. Donor resistance is one reason for this; it is not easy to persuade American oligarchs, British inheritors and Japanese industrialists to fork over their money to the extremely poor to use as they see fit. "There's the usual worries about welfare dependency, the whole 'Give a man a fish' thing," said Amanda Glassman, a public health and development expert at the Center for Global Development. "It's so powerful. It's really a basic psychological feature of the landscape. You'll start drinking. You'll start lying around at home because you're getting paid."

Cash also seems harder to market. American taxpayers might be perfectly happy to fund education for young women in poor countries or vaccinations for schoolchildren. But they might balk at the idea of showering money on poor, unstable countries. "The visual of putting a pill in a kid's mouth is so much more attractive to people," Glassman said.

Institutional inertia is another factor. "There are a lot of good people working in the system," Niehaus said. "And there are a lot of organizations pushing to do cash transfers. But the way they are structured and incentivized from the top down — they aren't structured to do it. They have a specific mandate, like health. Cash transfers give choice of what goal to pursue to the recipients."

Moreover, cash might force aid workers and nongovernmental organizations to confront the fact that they could be doing better by doing things differently — often by doing less. "It's easy to muster evidence that you should be giving cash instead of fertilizer," said Justin Sandefur of the Center for Global Development. "The harder argument is: You should shut down your U.S.A.I.D. program, which is bigger than the education budget of Liberia, and give the money to Liberians. That's the radical critique." Faye put it more bluntly, if half-jokingly: If cash transfers flourished, "the whole aid industry would have to fire itself."

There is something to that. One estimate, generated by Laurence Chandy and Brina Seidel of the Brookings Institution, recently calculated that the global poverty gap — meaning how much it would take to get everyone above the poverty line — was just $66 billion. That is roughly what Americans spend on lottery tickets every year, and it is about half of what the world spends on foreign aid.

In the pilot-project village, the residents had just started to work through how transformative the program would be, what they could do with the money and how different their lives could feel in 12 years. Detractors often say that no one would work in a world with a basic income, that the safety net could grow a bit too comfortable. Ultimately, what a universal income would do to workers in the rich world will remain a mystery until someone tries it out.

But here, many villagers were concerned primarily with procuring the sustenance and basic comforts that their penury had denied them. Odhiambo, the woman who had not been offered aid by the school group, planned to buy corrugated iron sheets for her roof; she considered possibly paying off her dowry. Another villager, Pamela Aooko Odero, ran a household that had been suffering from hunger, with all eight of them living on just 500 to 1,000 shillings a week. She took her money as soon as she got it and went to buy food.

Many more made plans that were entrepreneurial. Two widowed sister-wives, Margaret Aloma Abagi and Mary Abonyo Abagi, told me they planned to pool their funds together to start a small bank with some friends. Charles Omari Ager, a houseboy for the sister-wives, had his phone turned off and wrapped in a plastic bag in his pocket when the first text came in. He was driving the widows' goats and cattle from one dried-out, bramble-filled meadow to another when he happened upon an aid worker, who prompted him to pull out his phone, turn it on and wait. The text was there. The money was there. "I'm happy! I'm happy! I'm happy!" he said. He bought himself a goat that day.

When he got his money, Erick Odhiambo Madoho walked to the cow-dotted local highway nearest the village and took a *matatu*, a shared minibus, overloaded with 20 passengers, down to Lake Victoria. There he found an M-Pesa stand and converted his mobile money into shillings. He used the cash to buy the first of three rounds of filament-thin fishing line that he would need to hand-knot into nets to catch tilapia in the lake.

When the nets were done, he told me, he would rent a boat and hire a day laborer to work with him. He anticipated that his income, after costs, might reach as much as 2,000 shillings on a good day. I asked him why he hadn't saved money for nets beforehand.

He shrugged, smiled and said, "I could not." ◆

Photograph by Andrew Renneisen for The New York Times

(Continued from Page 33)

foundation of computing, transistors, are made of hard, rigid silicon, a substance at odds with the soft, flexible contours of our bodies — and the world we've designed to conform to them. "I'm just teaching robots how to pick up stuff, and I think it brings to light how much we take for granted about these things," says Siddhartha Srinivasa, a computer-science and engineering professor at the University of Washington, who designs robots to help people with spinal-cord injuries navigate everyday environments. "When you make coffee or you pick up something, you're performing these beautiful intricate maneuvers."

The collaborative robots entering manufacturing today are not doing anything nearly as elaborate. In fact, much of the technology they use is decades old. What's new is the conviction that they are safe, a position largely cemented in 2011, when the International Organization for Standardization added new language to its industrial-safety guidelines to address their implementation. Soon afterward, General Motors and its partner Fanuc (Fuji Automated Numerical Control), a Japanese robotics company whose American headquarters is a few miles from Lake Orion, initiated their first collaborative-robot project.

At 4.3 million square feet, Lake Orion is one of G.M.'s smaller plants and the only one in the United States efficient enough to produce compact cars, for which profit margins are much thinner than those of larger vehicles. Overhead, candy-colored Chevy Sonics and electric Bolt EVs travel in cages hanging from tracks near the ceiling as if en route up a ski slope. Their serene pace belies both the bodily risks posed by large moving objects that are insensitive to obstacles and the disaster lurking within all such circuits: a short anywhere along the line that decommissions the whole. On an assembly line turning out a $50,000 vehicle every minute, for instance, six hours of "unscheduled downtime" for repairs represents a potential loss of $18 million. A major benefit of Fanuc's robots, 30,000 of which are already working in G.M. plants noncollaboratively, is that 8,000 of them are linked to the internet via cloud computing, so engineers can monitor their health and recommend preventive maintenance.

The streamlined nature of operations at Lake Orion makes it an ideal testing ground for new production tools, including G.M.'s first collaborative robot, a supersize version of Dynamic's but with an exterior like that of a foam pool noodle. The engineers at G.M. and Fanuc agonized over what color it should be. Orange screamed "danger"; yellow suggested "caution." They settled on a neon-lime hue they dubbed "safety green." It stood next to a conveyor belt, lifting 35-pound tires and stacking them on a cart. The employees who once performed this duty had relinquished it gladly; even with the assistance of a lift, twisting to move the tires from belt to cart was the stuff of ergonomic nightmares.

'My big question is: Are we going to be happy? I get a lot of fulfillment from what I do. Will I have that if I work 20 hours a week?'

On the day I visited, the area supervisor was Diana Reed. A Detroit-area native, she had worked at the plant for more than a decade. Every two hours, she leaned under the robot to check tire pressures. When I asked what it was like working with it, she gestured to an earlier section of the conveyor, where behind a fence, a hydraulic press was picking up wheels and slamming them into tires with a hiss. "That one I'm scared to death of; it could crush me," she said. "This one is completely safe. It's kind of like a pet dog. I forget it's there."

Whereas the exoticism of a collaborative robot in Dynamic's workplace caused employees to stop and stare, G.M.'s robots fit right in to an already heavily automated environment. At a glance, it was actually Reed, a petite woman in a ponytail, who looked most out of place amid stacks of tires that were almost as tall as she was. I had been reading Karl Marx, who, in the wake of the Industrial Revolution, accused machines of "supplying capital with weapons against the revolts of the working class." But observing Reed in action with her robot, I could also see how collaborative robots might have a democratizing effect, giving people of various ages, sexes, dexterities and sizes an equal shot at excelling at all sorts of physically demanding careers. True democratization would require access to collaborative robots across industries, and it occurred to me that perhaps the profoundest difference between the coming wave of robot-driven automation and industrial revolutions of the past is that both Joe McGillivray and G.M. can afford to participate.

And to the extent that collaborative robots are blank slates — multifunctional and reprogrammable as opposed to major investments whose functions are determined at purchase — they offer employees an opportunity to experiment. Far more than past automations did, they give their operators, as much as their owners, the power to influence how they will be used to maximize the time the operators spend on the facets of their jobs that they find most fulfilling.

Later that afternoon, up the road, Fanuc's executives delighted in Reed's pet metaphor. She was exactly the sort of tech-savvy employee they were hoping to recruit to build, maintain and program their growing fleet of robots. We meandered through their machine shop, where classes were underway. Over the past decade, Fanuc has trained 47,000 students to use its equipment; nonetheless, the consulting firm Deloitte recently projected that two million manufacturing-related jobs will lack qualified applicants by 2025.

In the Fanuc showroom, "delta" robots — upside-down pyramids of springy arms — sorted fake batteries, EpiPens and prescription pills by shape and color, pecking at them with the speed of sewing-machine needles. Nearby, the world's largest robot arm with joints was swinging a Corvette through the air. One potential customer had debated attaching a nozzle that would allow the robot to 3-D-print a concrete house.

"My confidence in having the robots do whatever we want is through the roof," Richard Maxwell, the company's engineering director, said. The only limiting factor he could see was cost.

Fanuc's chief executive, Mike Cicco, was eager to dispel the notion that manufacturing jobs are sweaty and boring. "It's a really cool alternative for someone who doesn't want to be a lawyer," he said. "It's fun, it's rewarding —"

Claude Dinsmoor, Fanuc's general manager, finished the thought: "It's not your grandfather's manufacturing."

As it happens, my grandfather was a manufacturer — a machinist who later in life started a business with his son, my father, making voice coils for audio speakers in his garage in Bokeelia, Fla. He died at the height of a manufacturing boom born of the '90s dot-com bubble, leaving my father to handle the layoffs that came when the bubble burst a few years later and their largest customer began buying its coils directly from China. Within two years, the company had cut 100 of its 170 assembly-line workers. It now specializes in custom coils and employs about 45 people, a third of whom have been there for more than 20 years.

My father took considerable satisfaction in my assignment to, as he saw it, report his life story. For a couple of weeks, I called to regale him with visions of a future in which robots become so much like us that they teach us about ourselves. At the M.I.T. Media Lab, researchers have programmed a "growth mind-set" into robots that have enough personality to engage preschoolers in puzzle games. An initial study showed that playing with these robots, which respond to adversity with statements like "I will do better next time," increased the likelihood of children's believing that *(Continued on Page 63)*

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With the start of spring just one month away, now is the perfect time to plan an enriching and fun-filled summer for your offspring. Whether your children are of elementary school age, tweens or teens, there is simply no shortage of exceptional summer options. Specialized camps, academic programs and travel experiences provide opportunities for learning, fun, developing independence, making new friends and discovering a new interest. Summer — that magical time of year — can be transformational.

Boarding schools in Eastern Long Island and Connecticut offer a range of residential summer programs that combine academics, sports and cultural outings. These innovative programs enable middle- and high-school students to create and program their own electronic devices and robots, dive deep into marine science using the shoreline as a living laboratory, learn Mandarin or improve their tennis serve. High school students can get a head start on SAT or ACT prep.

Sleep-away camps also provide imaginative, innovative and nontraditional summer learning environments. For instance, science-oriented camps combine physics, computers and astronomy curricula with the traditional overnight experience, waterfront activities and organized land sports. Up in Maine, young people roll up their sleeves for an immersive marine science experience that includes field, classroom, offshore and laboratory work. And in Florida, one camp combines both marine science and water sports such as scuba, kayaking, sailing, windsurfing and fishing.

For athletically inclined youngsters, sports camps offer a world of specialty training. For the youngest athletes, parents can find a wealth of day-camp choices right in their own backyards, offering instruction in everything from soccer, tennis and golf to baseball, football and basketball. For athletes ready for the residential camp experience, there are sleepaway camps offering programs in one and multiweek increments.

For artistic kids, there are loads of great options, from local programs to residential overnight experiences. For budding Spielbergs or Streeps, summer film programs offer courses including filmmaking, acting, screenwriting, music video, game design, 3-D animation and much more. Kids who are dancers, sculptors, actors, painters and writers will blossom at camps that nurture, educate and encourage today's young talent on their journey to becoming tomorrow's bright stars.

High school juniors and seniors can take advantage of exciting, intellectually challenging programs at some of the nation's top private, state and city universities. These residential programs allow kids to experience college life at a particular school that may interest them. Such summer programs also help prepare students for the self-discipline and independence required for college life and learning, offering rigorous college-level courses without the pressure of formal grades. Classes run the gamut from liberal arts, management and entrepreneurship to preveterinary medicine, forensic anthropology, sports management, and climate change. A few programs sponsor college fairs enabling students to meet admissions officers from a number of schools and get a head start on the application process.

Students can also select programs designed around career choices. One university offers an immersive experience in design that explores the realms of architecture, landscape architecture, and urban planning and design. Another program provides students with an inside look at what it's like to practice law.

Still other college programs offer study-abroad options. Few experiences rival time spent on an archaeological dig in Rome while learning Italian and soaking up the city's history and culture — unless the other choice is studying global economics in Segovia. For the young global traveler who doesn't want a summer study-abroad college program, there are plenty of options. Imagine the perspective gained when a young person travels and lives with a local family in India or Cambodia.

Summertime comes but once a year. With so many creative options out there, a well-conceived summer in the right program can make all the difference. ✽

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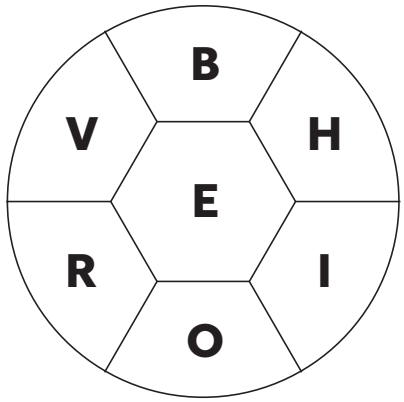
SPELLING BEE

By Frank Longo

How many common words of 5 or more letters can you spell using the letters in the hive? Every answer must use the center letter at least once. Letters may be reused in a word. At least one word will use all 7 letters. Proper names and hyphenated words are not allowed. Score 1 point for each answer, and 3 points for a word that uses all 7 letters.

Rating: 7 = good; 13 = excellent; 19 = genius



Our list of words, worth 26 points, appears with last week's answers.

HEX NUTS

By Patrick Berry

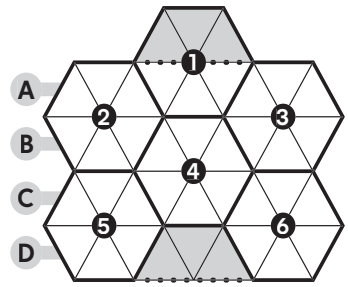
Each 9-letter Row answer reads across its correspondingly lettered row. Each 6-letter Hex answer fills its correspondingly numbered hexagon, starting in one of the 6 spaces and reading clockwise or counterclockwise. As a solving aid, the 2 shaded half-hexagons will contain the same 3-letter sequence (as if the grid were wrapping around vertically).

ROWS

A. Birthplace of the Beatles B. Electric lawn tool (2 wds.) C. Personal quirk that might be copied by an imitator D. Painter's workplace (2 wds.)

HEXES

1. Prep for a big day, say (2 wds.) 2. Pest that infests grain silos 3. Overhaul 4. Make lovable 5. Sacred utterance 6. Nonnative speaker's stumbling blocks

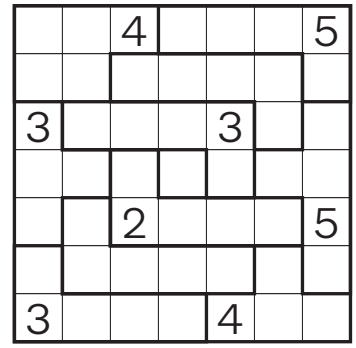


CAPSULES

By Wei-Hwa Huang

Place numbers in the grid so that each outlined region contains the numbers 1 to n, where n is the number of squares in the region. The same number can never touch itself, not even diagonally.

Ex.



CRYPTIC CROSSWORD

By Emily Cox and Henry Rathvon

ACROSS

1 Features of a lion articulated in part of a sentence (4,6)

6 Do in Superman (4)

9 Wild animal seen inhabiting a Pacific island region (10)

10 A family member, warts and all (2,2)

12 Filed out of order, with some letters haphazardly repeating nonsense (12)

15 Lunatic raving to a member of a crew (9)

17 Old Greek venue for performing verse well (5)

18 Whatever gets invested in right Japanese company (5)

19 Hotel chain popular amid holy month (6,3)

20 This European disturbed someone putting on a coat? (5,7)

24 Back, except for a member of a brass band (4)

25 Tends a high potted plant (10)

26 Beef and fish (4)

27 Casino game rigged for selfish people (10)

DOWN

1 What an excited kid in class might call a viral web phenomenon (4)

2 According to hearsay, big star is not working (4)

3 Part of a submarine taking in tugboat, say (7,5)

4 Syrian strongman equally down in the dumps (5)

5 Item in a kit refreshed underarms (5,4)

7 Be careful with that new seaside toy (4,4,2)

8 Putting the wrong label on Mr. Gordon's foe in "Flash Gordon" (10)

11 Nonprocessed nuts for you (6,6)

13 What's stupefying in airplanes: the tickets (10)

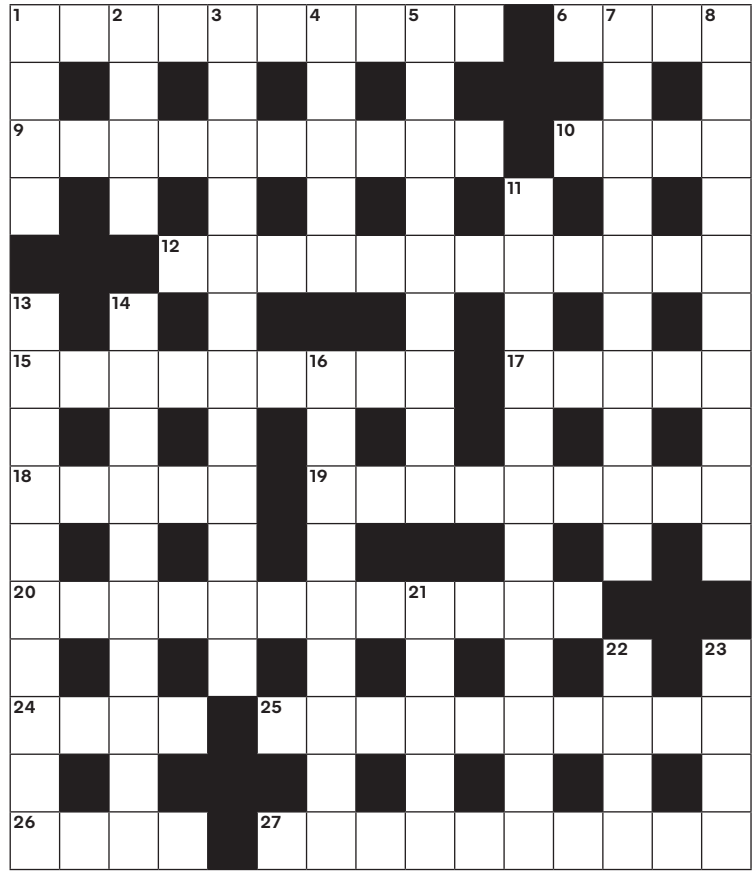
14 Common digit yet more deadened (4,6)

16 Half of that Pennsylvania railroad passing carefully (9)

21 Old Testament book not available by drone (5)

22 Prevent the free speech of a lady in pop music (4)

23 Adds water to goulash the wrong way (4)



Machines

(Continued from Page 58)

they can improve with practice: The robot was a teacher but also an experimental control for testing theories of mind. Across the street, Julie Shah is designing robots that can shadow people in highly instinctual jobs, like head nurses, and detect patterns in how they make decisions. This would enable the nurses to use them to help train rookies.

Why wouldn't such a robot just do the job itself? The number of data points required for one to "learn" to fold a towel autonomously, let alone run an E.R., is staggering. But it would be relatively easy for a person wearing virtual-reality goggles — anywhere in the world — to inhabit a robot and fold towels until enough points were collected, Louis Hyman, an economic historian at Cornell University, told me. Would-be immigrants could physically occupy jobs here from home.

Ultimately, the only impediment to the total dissemination of robots may be our appetite for human interaction. "We want a salesperson we can relate to," James Bessen told me. "We like to have a financial adviser whom we personally trust." Similarly, David Mindell said, we feel more comfortable when people help us interface with automation at places like airports.

"I think people still have value," Hyman added. "If the answer to everything is that the only people who have value are the programmers, we might as well give up."

In January, at Dynamic's annual company meeting, Joe McGillivray gave a speech. He described his vision of a system that transforms raw materials into finished products by itself. "One-touch manufacturing," he called it. He believed it would create more jobs that would pay better and be more fulfilling. "There's a knowledge they have," he said of his machine operators, "from doing this by hand for so many years, invisible algorithms they know, and none of those machines would work without that." Still, he acknowledged that even with training, not all of his employees would succeed at translating their experience into binary language. "I hope that number is very small for us, but it's troubling," he said. "My big question is: Are we going to be happy? I get a lot of fulfillment from what I do. Will I have that if I work 20 hours a week?"

There's a good chance that the greatest struggles over how to incorporate collaborative robots into the work force — and possibly the most ingenious solutions — will happen at small-to-medium-size businesses like Dynamic, where the relationships among owners, workers and robots are most intimate. In the Dynamic conference room, dubbed the Think Tank, an aquarium is populated with guppies, and the words "Creating what you imagine" are painted on the wall. It seemed a little corny, but as McGillivary described how the company had switched from a "suggestion box" to an "If you see something you can change to make your job better, just do it" mandate, a policy that by his calculations had resulted in 1,800 improvements over four years, I was reminded that engineers can solve problems only if they know about them. An inventor who has never been a server or talked at length with one is blind to the invisible preparations and attentions that make a meal in a restaurant go smoothly, and thus apt to believe that a robot need only handle plates and credit cards to do a server's job.

'I think people still have value. If the answer to everything is that the only people who have value are the programmers, we might as well give up.'

My father, who often puts in 70-hour weeks while contemplating retirement, felt an instant bond with McGillivray as I described him and the way he talked about his own small business. He understood the satisfaction, my father perceived, even pleasure that comes from tracing a path with your fingers so many times that your thoughts drift and for a moment you become inseparable from the thing you are making. On weekends, my father rises early and goes to work so that he can set up and run his machines alone, spinning copper wire into coils that will lie on an eyeball or fit in medical implants. When he returns home, his Levi's hold the same faint aroma of industrial glue I remember from childhood, when the front door opened in the evening and I threw my arms around his legs.

But as my father and my grandfather and pretty much any engineer would tell you, sentimentality is the enemy of progress. My grandfather hated the machine grease that lodged under his fingernails — that he spent hours scrubbing away. He would have loved the new robots.

"That future is coming," McGillivray told me, when I asked him how his speech was received. "We can be among the first to do it and get so far ahead that it will be hard for anyone to catch us. We can do it along with everyone else and remain competitive. Or we can not get on the train and get left behind. And I didn't see anyone disagreeing with that." ◆

Answers to puzzles of 2.19.17

UH-OH!

J	A	B	B	A	■	C	E	D	E	■	H	U	L	A	S	■	T	W	O	S
A	L	A	R	M	■	R	A	U	L	■	I	N	E	P	T	■	R	A	P	T
N	O	T	E	C	R	A	C	K	E	R	S	U	I	T	E	■	I	K	E	A
K	N	E	W	■	A	W	H	E	C	K	■	■	■	■	E	V	O	K	I	N	G
Y	E	S	■	O	C	D	■	S	T	O	N	E	D	S	I	L	E	N	C	E
■	■	■	A	N	K	A	■	■	■	■	I	V	O	T	E	D	■	G	A	S
■	C	A	R	T	E	D	■	H	A	C	K	E	R	S	■	■	M	U	S	E
N	O	G	O	A	T	S	N	O	G	L	O	R	Y	■	N	E	O	P	E	T
I	C	E	U	P	■	■	O	N	I	O	N	■	■	T	I	P	S	■	■	■
C	O	N	N	■	A	R	T	I	L	Y	■	P	A	R	T	I	■	O	W	E
H	O	T	D	O	G	B	O	N	E	■	D	I	X	I	E	C	O	P	E	S
E	N	S	■	D	O	I	N	G	■	G	I	Z	M	O	S	■	H	I	L	T
■	■	■	F	I	R	S	■	■	B	O	O	Z	E	■	■	D	W	A	D	E
A	T	H	E	N	A	■	B	R	E	A	D	A	N	D	B	O	A	T	E	R
T	O	A	D	■	■	L	O	U	R	D	E	S	■	E	E	R	I	E	R	■
A	T	V	■	D	W	A	Y	N	E	■	■	■	■	P	S	S	T	■	■	■
P	H	O	N	E	A	N	D	G	A	M	E	S	■	E	T	A	■	D	I	X
R	E	L	E	A	S	E	■	■	■	I	M	M	U	N	O	■	L	U	R	E
I	M	I	N	■	H	O	M	I	N	G	B	I	R	D	F	E	E	D	E	R
C	A	N	E	■	E	N	O	C	H	■	E	L	S	E	■	S	T	E	N	O
E	X	E	S	■	S	E	O	U	L	■	R	E	A	D	■	C	O	D	E	X

KENKEN

4	5	1	2	3
1	2	3	5	4
2	4	5	3	1
3	1	2	4	5
5	3	4	1	2

4	1	3	2	5	6	7
5	4	1	6	7	2	3
2	6	5	3	4	7	1
6	3	2	7	1	4	5
3	7	6	1	2	5	4
1	5	7	4	6	3	2
7	2	4	5	3	1	6

ACROSTIC

ESTHER SCHOR, BRIDGE OF WORDS — Like … Doctor Frankenstein, … [Zamenhof] took the "dismembered" parts of other languages and created a new being entirely. It must have been a lonely venture, being the sole speaker of a language yet to be put before the world.

A. Esperanto
B. Sunbonnet
C. Tugboat
D. Haymaker
E. Ezekiel
F. Roughly
G. Safety net
H. Cheekbone
I. Hosanna
J. Ointment
K. Red tape
L. Barter
M. Rib cage
N. Inflamed
O. Dothraki
P. Go-between
Q. Elvish
R. Outfield
S. Forest
T. Worf
U. Opulent
V. Reggae
W. Demented
X. Sea level

DOUBLE OR NOTHING

WI	DE	ST	
RE			PO
		AN	TS
TA	CK	LE	
PS		YC	HO
	ER	UP	TS

CAPSULES

1	3	2	5	1	3	2
4	5	1	3	2	4	5
1	2	6	4	1	3	1
3	4	3	2	6	5	2
2	1	5	1	4	1	3
6	3	4	6	3	2	4
5	1	2	1	5	1	6

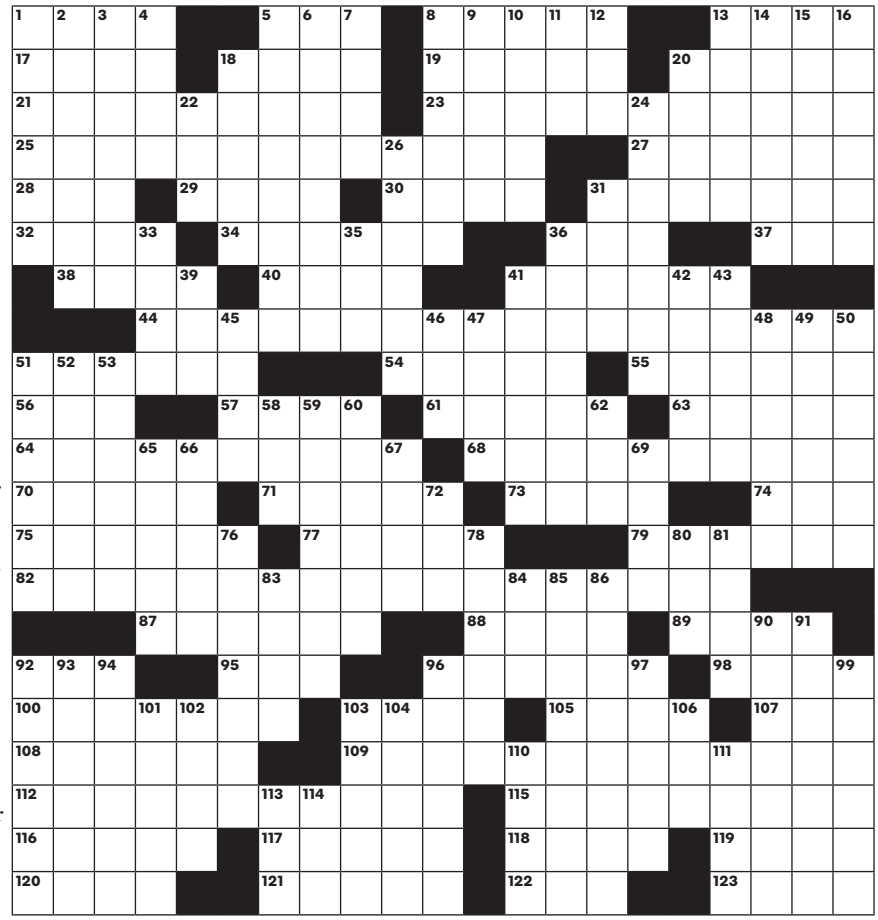
Answers to puzzle on Page 62

SPELLING BEE

Herbivore (3 points). Also: Beehive, behoove, beriberi, borer, breve, bribe, brier, eerie, eerier, error, hiree, hirer, hover, rehire, reverb, revere, reverie, revive, river, robber, rover, verve, vireo. If you found other legitimate dictionary words in the beehive, feel free to include them in your score.

MIXED FEELINGS

By Josh Knapp



2/26/17

ACROSS

1 Word before "Ooh, didn't mean to make you cry" in Queen's "Bohemian Rhapsody"
5 Maxim
8 Brother with a cross
13 Unfaithful sorts
17 Roasting place
18 Land between hills, poetically
19 __ Palmer ("Twin Peaks" victim)
20 Jacobin revolutionary who was stabbed in a bathtub
21 They're pumped to compete in a race
23 Fashionable enough for a runway model?
25 Assault involving a hatchet?
27 Broadway's Eugene __ Theater
28 Throw in
29 __ relief
30 Post-run feeling
31 1982 Dustin Hoffman film
32 Place for a sponge
34 Annoying sort
36 Bro
37 Little bit
38 Coffee brewing style
40 Some scans, for short
41 Lifesaving team
44 "Stop insisting Ra doesn't exist!"?
51 Pill-bottle info
54 Really comes down
55 A bit crude
56 Andean gold
57 Places
61 Fast-food sandwich not available in Muslim countries
63 Goes up
64 Stories from bankruptcy court?
68 Be too broke to take the bus?
70 Country singer Black
71 Grammy category
73 Beast in rare "sightings"
74 Poet/musician __ Scott-Heron
75 One who can't learn new tricks, they say
77 __-Lay
79 Doze
82 "The king really wants to be around people right now"?
87 Professor's goal, one day
88 Marvel role for Chris Hemsworth
89 Yazidis, e.g.
92 Go in (for)
95 Actor Curry
96 Go all in
98 What many 100-Across do in the spring
100 See 98-Across
103 Certain earring
105 Trader __
107 Baseball league for the Salt Lake Bees
108 "Yeah, let's do it!"
109 Celebration after a coup?
112 Negative Nancy?
115 Words before a punch line
116 Muddies
117 2% alternative
118 Moving line on a tree trunk
119 Orange-and-white Pixar title character
120 Wild revelry
121 So, so awful, with "the"
122 Rapper with the most-viewed YouTube video of all time
123 P.M. after Churchill

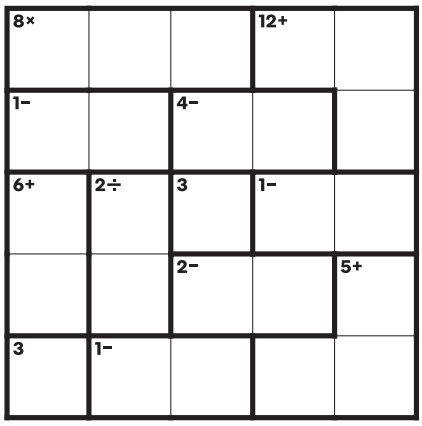
DOWN

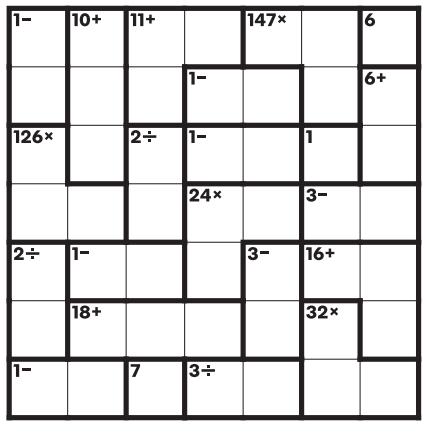
1 Weapon usually fired between a 45° and a 90° angle
2 Ducked
3 Go wherever
4 With 41-Down, first tennis player to win two Olympic singles gold medals
5 Potent sushi-bar cocktail
6 Dependent on chance
7 Against the jet stream
8 French region around Strasbourg
9 Tray of brownies, e.g.
10 Philosopher who said, "The people never give up their liberties but under some delusion"
11 Christian school in Okla.
12 Skin art, informally
13 Character resembling a hat
14 Drawer, say
15 Flower named for a Swedish botanist
16 All done up, as hair
18 Den mother
20 Like original Buddy Holly and the Crickets recordings
22 Turned
24 Detergent brand with a fabric in its name
26 Gets back on base
31 "And that's it!"
33 Abbr. on a pay stub
35 God: It.
36 Thoughtful
39 So-ugly-it's-cute pooch
41 See 4-Down
42 One-named singer once married to Xavier Cugat
43 Letter feature
45 Take back, in a way
46 CD or DVD follower
47 "__ is life"
48 "We're on!"
49 Muslim official
50 I, personally
51 E-business
52 By voice
53 One side in a pool game
58 Subject of a tinfoil-hat theory
59 Peak physical condition
60 Veer
62 Put up stakes
65 Stop seeing each other
66 Box on a mall map
67 Former tribe in western New York
69 Singer Simone
72 @@@
76 Less stormy
78 Sea creatures with remarkably high I.Q.s
80 Turn-__ (thrills)
81 Congo red and gentian violet
83 San __, Argentina
84 Volt/ampere
85 High-waisted, shamelessly unfashionable garment
86 Chief concern
90 Way overcooked
91 4:00 p.m., maybe
92 Made a declaration
93 Set adrift
94 V.I.P.
96 Instrument for Louis Armstrong
97 Doctors' orders
99 National Aviation Hall of Fame city
101 Macho
102 NASA's __ Research Center
103 Comedy
104 Crown insets
106 Letters on some lotion
110 It's a deal
111 Unbeatable
113 Net letters
114 "Well, look at that!"

Puzzles Online: Today's puzzle and more than 9,000 past puzzles, nytimes.com/crosswords ($39.95 a year). For the daily puzzle commentary: nytimes.com/wordplay.

KENKEN

Fill the grid with digits so as not to repeat a digit in any row or column, and so that the digits within each heavily outlined box will produce the target number shown, by using addition, subtraction, multiplication or division, as indicated in the box. A 5x5 grid will use the digits 1–5. A 7x7 grid will use 1–7.





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A WAY OF LIGHT

John Legend Can't Pretend Times Are Normal

Interview by Ana Marie Cox

You'll be playing Frederick Douglass in the second season of WGN America's "Underground." Do you think it's possible that President Trump was thinking of you when he described Douglass as someone who's done an amazing job? Yeah, I've been doing a lot of good things lately, and I'm getting recognized more and more! I don't think that Trump has read a book in his adult life, or that he knows anything about American history, black history, any history. I don't think he knows what's in the Constitution. I don't think he knows anything about Civil War history, or just about any kind of history. We can't expect him to know much of anything.

You released an album not long after the election, in early December. If you started making that album today, how do you think it might be different? It would probably be a little angrier, though this past album had moments of doubt and darkness, where I thought, Is it all worth it? I think there'd probably be more anger as opposed to doubt.

The idea that, because of Trump, everything is politicized now also works in the opposite direction: It reminded me a bit of some of the critical reactions to Damien Chazelle's "La La Land," which you were an executive producer for and acted in. What do you think of the recent backlash? I see both sides. Damien's been making "La La Land" for six years, so it's hard to blame him for not knowing that Donald Trump was going to be the president when his film finally came out. Damien made a film that was expressive of his artistry and his point of view, and he's been trying to make it for years — who knew that it would be released during a Trump presidency? The work, on its own, is a beautiful piece of art. Whether or not you think it's relevant during a Trump presidency, at least judge it on the merits of its artistry.

Do you think about conservatives or Trump supporters who may be your fans? Do you have a hope that your work would make them think differently? I think a lot of people are staying in their own bubbles and only hearing things that reinforce what they already believe. I don't know if they're even going to watch the kind of work that I'm putting out, that could push them or could teach them something new, but maybe life will just teach them. Maybe when Trump takes away Obamacare, and they realize that it was the Affordable Care Act that they were using to get affordable health coverage — that might teach them, more than listening to a John Legend song.

Has there been a piece of art that has affected you politically? Books have certainly affected me. In college, I took a class that centered on a book called "Obedience to Authority," which was trying to explain why an ordinary German would be a worker at a concentration camp, or why anyone would be part of a system that is so evil and corrosive, and how they deal with authority and whatever cognitive dissonance they need to have to do something so inhumane. Then we read some James Joyce and Virginia Woolf; all those books in that class opened my eyes to the way human beings deal with authority and deal with how we become inhumane. I took those classes 20 years ago, but I've been thinking about that a lot when I think about how we're reacting to Donald Trump right now.

How are you applying that thought process to contemporary times? Yeah, are we just going to go about our lives and try to be normal? I've seen a tweet going around about how a lot of people say that they would have been part of the civil rights movement, so this is basically that chance, this moment of truth for our society. Are we going to just accept inhumanity, or are we going to resist?

What young actor will play John Legend 50 years from now in the TV series? We'll see if I have a life worthy of being portrayed by anybody. ◆

Age: 38

Occupation: Singer, actor and producer

Hometown: Springfield, Ohio

Legend is a 10-time Grammy Award winner, as well as an actor and executive producer. His most recent album, "Darkness and Light," was released in 2016.

His Top 5 Political Twitter Accounts:
1. @prisonculture
2. @HeerJeet
3. @jbouie
4. @jonfavs
5. @JamesSurowiecki

Interview has been condensed and edited.

Photograph by Ian Maddox

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