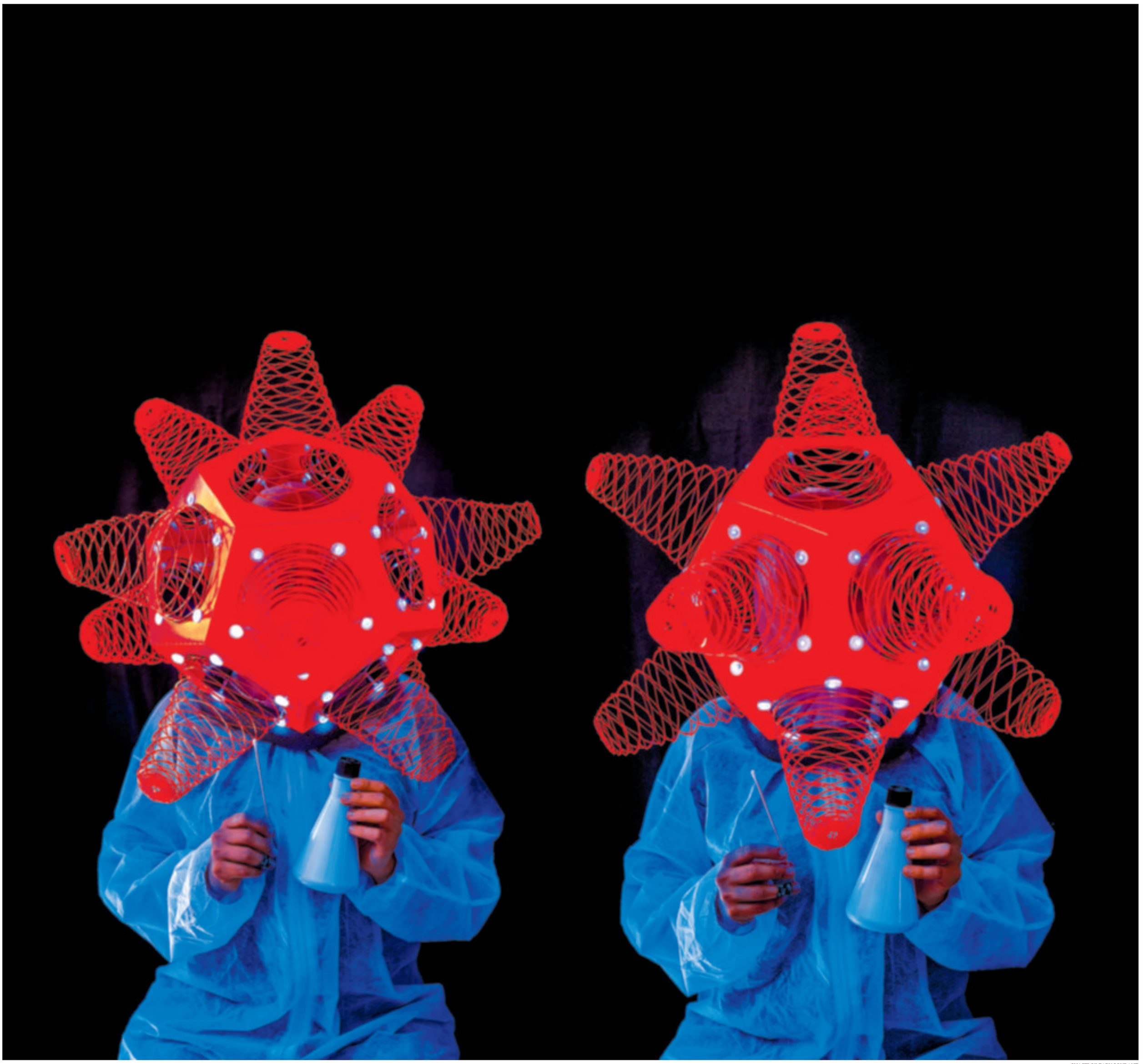
Turning Points

Global Agenda 2017



SHASTI O'LEARY SOUDANT

"Halflife" is a performance piece premised on contagion, and I believe the greatest human contagion is fear. The year 2016 created some of the deepest social and cultural divides the world has seen in over half a century. A saturation of viral information and imagery led to a form of empathy fatigue, and as a result we have quarantined our minds, cordoned ourselves off to guard against incursion and consigned our most vulnerable to the edges. We have literally lost touch. As an artist, I attempt to create opportunities to reinstate contact. — Shasti O'Leary Soudant, a transdisciplinary artist, designer and writer from New York City

The rage of 2016

As voters around the world express their anger at elites at the polls, the postwar order is crumbling. What will fill the vacuum?

BY ROGER COHEN

Roger Cohen is a columnist for The New York Times. His most recent book is "The Girl from Human Street: Ghosts of Memory in a Jewish Family."

NEW YORK The long wave unfurled at last. Perhaps it is no surprise that the two societies that felt its furious force — the United States and Britain — are also the open societies at the hub of globalized turbo-capitalism and finance. For at least a decade, accelerating since the crash of 2008, fears and resentments had been building over the impunity of elites, the dizzying disruption of technology, the influx of migrants and the precariousness of modern existence.

In Western societies, for too long, there had been no victories, no glory and diminishing certainties. Wars were waged; nobody knew how they could be won. Their wounds festered. The distance between metropolis and periphery grew into a cultural chasm. Many things became unsayable; even gender became debatable. Truth blurred, then was sidelined, in an online tribal cacophony.

Jobs went. Inequality thrust itself in your face. What the powerful said and the lives people lived were so unrelated that politics looked increasingly like a big heist. Debacle followed debacle — the euro, the Iraq War, the Great Recession — and their architects never paid. Syria encapsulated the West's newfound impotence, a kind of seeping amorality; and, in its bloody dismemberment, Syria sent into Europe a human tide that rabble-rousers seized upon.

And so the British voted to quit the European Union, symbol of a continent's triumph over fascism and destructive nationalism. Americans voted on Nov. 8 for Donald J. Trump, who used much of the xenophobic, fear-mongering language of 1930s Europe to assemble an angry mob large enough that he triumphed over a compromised Hillary Clinton. Neither victory was large, but democracies can usher in radical change by the narrowest of margins. To give the Republican president-elect his due, he intuited an immense disquiet and spoke to it in unambiguous language.

A quarter-century after the post-Cold War zenith of liberal democracies and neoliberal economics, illiberalism and authoritarianism are on the march. It's open season for anyone's inner bigot. Violence is in the air, awaiting a spark. The winning political card today, as Mr. Trump has shown and Marine Le Pen may demonstrate in the French presidential election next year, is to lead "the people" against a "rigged system," Muslim migration and the tyrannical consensus of overpaid experts.

The postwar order — its military alliances, trade pacts, political integration and legal framework — feels flimsy, and the nature of the American power undergirding it all is suddenly unclear. Nobody excites Mr. Trump as much as Russia's Vladimir V. Putin, who is to democracy what a sledgehammer is to a Ming vase. Strongmen and autocrats everywhere —

COHEN, PAGE S7

A cataclysmic year

Letter from the editors: advancing by fits and starts

This special report contains the fruits of our annual search for "turning points," the events, trends, inventions and ideas that will move the compass needles of our lives. We found many, and they all matter, but in the end, 2016 will enter history as a pivot that revealed the depth of the fears, alienation and frustration of our times, abruptly upending many of our assumptions about the future.

Perhaps we should have seen it coming. Populism and nationalism have been spreading through many corners of the world, fed by people's frustration with globalization, loss of identity and moral certainties, and fears of terrorism and floods of refugees. Liberal democracies have gone on the defensive before the growing popularity of authoritarian rulers. The British vote to part ways with Europe signaled the power of these changes, and then came the American election.

Like the fall of the Berlin Wall 27 years earlier to the day, Donald J. Trump's election as president of the United States was a cataclysm that brought together many vaguely perceived movements, trends and signs, abruptly signaling that our lives have been irrevocably redirected. In 1989 we were certain it was for the better, but this time we have no idea.

That is frightening, and what happens next might not be pretty at times. But then the world has always advanced by fits and starts, and as you read through the turning points in this section, it becomes evident that there is too much changing on each front — the environment, robotics, culture, Hollywood, exploration, politics — for any one leader, or any one nation, or any populist movement, to reverse or even halt these shifts for long.

We can bemoan or welcome the digital revolution, the coming of self-driving cars, social change or the mass movement of peoples, but we can't stop any of it. What we can do is try to make these changes work for the betterment of our lives and our planet.

That goes for democracy, too. It is not a fixed formula for governance, but a way of life that is forever adapting and changing, reflecting our highest hopes and lowest fears. Those fears have risen to the surface for now, but hope has always prevailed in time.

So even with this shocker of all turning points, we need not despair.

—SERGE SCHMEMANN

Serge Schmemann is a member of the editorial board of The New York Times.

MAURICIO LIMA FOR THE NEW YORK TIMES

2016

The year in photos

STEPHEN CROWLEY/THE NEW YORK TIMES

Zika spreads Top left: After Brazil declared a national public health emergency in November 2015, the mosquito-borne Zika virus continued to spread, with thousands of new cases throughout Central and South America and the Caribbean. Worldwide fear of the virus grew as athletes, journalists and spectators gathered in Rio de Janeiro in August for the 2016 Olympics. **Opening Cuba** Left: As part of the United States' effort to normalize relations with Cuba, it lifted some travel, banking and trade restrictions that had been in place for more than a half-century. The easing coincided with President Obama's visit to Cuba in March, the first such trip for an American leader in 88 years. **Hong Kong independence** Below: After close to two decades of showing relative tolerance for Hong Kong's autonomy, China's central government injected itself into the city's local courts, stopping two separatist politicians from taking seats in the Hong Kong legislature. Thousands of people protested the intervention, which threatened Hong Kong's reputation for having a fair and independent judiciary.

ADAM FERGUSON FOR THE NEW YORK TIMES

KIN CHEUNG/AGENCE FRANCE-PRESSE — GETTY IMAGES

Brexit Above: In June, voters in Britain chose to cut their country's ties with the European Union. The decision to end the more than 40-year-old relationship, which critics said would derail Britain's economy and currency, was part of a global wave of nationalism. **Trump elected president** Right: On Nov. 8, Donald J. Trump was elected the 45th president of the United States. His victory was a stunning upset and rejection of the American establishment.

DAMON WINTER/THE NEW YORK TIMES

DMITRY KOSTYUKOV FOR THE NEW YORK TIMES

Terrorist attacks continue Above: In July, an assailant killed 86 people and injured more than 400 when he drove a 19-ton truck through a Bastille Day crowd at the Promenade des Anglais in Nice, France. The Islamic State claimed responsibility. **Democracy in flux** Below: The Turkish government drifted further toward authoritarianism after a failed military coup attempt in July. It jailed tens of thousands of people, including journalists, teachers and judges, and shut down media outlets.

SERGEY PONOMAREV FOR THE NEW YORK TIMES

Dangerous journeys Above: The flood of migrants leaving the Middle East continued in 2016. Hundreds of thousands of people, many of them Syrians fleeing civil war, crossed the Mediterranean Sea to reach Europe. **Death in Syria** Right: The Syrian civil war dragged on in its fifth year. The United States and Russia pieced together multiple cease-fires, which quickly crumbled. By September more than 400,000 people had been killed and more than 11 million displaced.

THAER MOHAMMED/AGENCE FRANCE-PRESSE — GETTY IMAGES

ISMAIL FERDOUS FOR THE NEW YORK TIMES

The future of secrecy

TURNING POINT: Apple resists the F.B.I. in unlocking an iPhone in the San Bernardino terrorism case.

BY WILLIAM GIBSON

William Gibson is a novelist and essayist. His books include "The Peripheral," "Zero History" and "Neuromancer."

I've never been able to fit the concepts of privacy, history and encryption together in a satisfying way, though it continues to seem that I should. Each concept has to do with information; each can be considered to concern the public and the private; and each involves aspects of society, and perhaps particularly digital society. But experience has taught me that all I can hope to do with these three concepts is demonstrate the problems that considering them together causes.

Privacy confuses me, beyond my simplest understanding, which is that individuals prefer, to different degrees, that information about them not be freely available to others. I desire privacy myself, and I understand why other individuals want it. But when the entity desiring privacy is a state, a corporation or some other human institution, my understanding of privacy becomes confused.

While it's true that states and corporations often desire privacy, they just as often desire that I myself have less privacy. What does it mean, in an ostensible democracy, for the state to keep secrets from its citizens? The idea of the secret state seems antithetical to democracy, since its citizens, the voters, can't know what their government is doing. Thereby hang the countless conspiracy theories of our day, many of them supposing that we possess far less privacy than we actually do. Advocates of the secret state, wishing to comfort us, sometimes praise a rough and ready transparency: If you have nothing to hide and you trust your government, what can you possibly have to fear? Except that one can just as readily ask: If you have nothing to hide, what do you really have, aside from the panoptic attention of a state, which itself keeps secrets?

Even this simple consideration of privacy confuses me. Is individual privacy and state privacy the same thing? Are they conceptually antithetical? Is it to a state's advantage to permit its citizens to keep secrets? States desirous of citizens' secrets have been known to torture their own people in the course of encouraging them to reveal what they know. We know this historically, and we know it still to be true, though whether we've personally been affected by it largely depends on where we happen to live.

I have ideas about history, more than I have about privacy, and it is here that my confusion deepens exponentially. I believe that our ability to create history, to transcend generations via our extraordinary prosthetic equivalents of memory, is the most remarkable thing about us. Unless we've forgotten something, lost it to history, we've yet to encounter another species capable of the same thing. Should the F.B.I. or other agencies be able to unlock the iPhones of terrorists? To be able to do so makes them able to unlock yours or mine. Should I be able to encrypt documents in such a way that the F.B.I. can't decrypt them? If I can, terrorists can as well. (Not that I necessarily accept terrorism as the ultimate fulcrum in such arguments, but it's become the one most often employed.)

The world's best-kept secrets — those of both private citizens and state institutions — will one day sit in plain sight.

In the short term, the span of a lifetime, many of us would argue for privacy, and therefore against transparency. But history, the long term, is transparency; it is the absence of secrets. So we are quite merciless, as historians, when it comes to the secrets of the past, the secrets of the dead. We come to know them with an intimacy impossible in their day. It would be unthinkable for us to turn away from their secrets, to allow the Iceman his privacy or to not scan beneath the bitumen to recover an Egyptian priestess's tattoos.

And here, to complete my tangle of confusion, is encryption, no doubt aggravated by my inability to understand the concept mathematically. I assume (perhaps incorrectly) that the future is all too liable to have its way with today's most sophisticated encryption technology. I imagine that the world's best-kept secrets — those of both private citizens and state institutions — will one day sit in plain sight on whatever it is that our descendants display data on.

Privy to that information while looking back at us, our ancestors will know us differently than we currently know ourselves, just as we now know the Victorians quite differently from how they knew themselves. The past, our own past, which our descendants will see us as having emerged from, will not be the past from which we now see ourselves emerging, but a reinterpretation of it, based on subsequently available information, greater transparency and fewer secrets.

If our continually lengthening, ever more transparent history is the sum total of who we are as a species, then our species is the poorer for every secret faithfully kept. Any permanently unbreakable encryption seems counter to that.

And yet I would prefer to keep certain secrets of my own, as I assume most of us would. So perhaps that desire is as much a part of us, as a species, as our need to build these memory palaces.

ALESSANDRO GOTTARDO

The Big Question:
Is artificial intelligence improving or taking over our lives?

Are driverless cars, smart robots, drones and computer chess champions making our lives more interesting, convenient and safer? Or is technology evolving faster than we can absorb?

NNEDI OKORAFOR

Nnedi Okorafor is a science fiction and fantasy writer. Her young adult novel, "Akata Witch 2: Akata Warrior," comes out in autumn 2017.

When I contemplate the future impact of artificial intelligence on humanity, African roads come to mind. Giant locally made humanoid robots are already policing the streets of Kinshasa, the capital of the Democratic Republic of Congo. The solar-powered, eight-foot-tall robots are stationed at the center of a handful of intersections where they keep traffic down and drivers and pedestrians safe.

Created by Thérèse Izay Kirongozi, a Kinshasa engineer, the robots have rotating chests that enable them to do the job of four traffic lights. They're also equipped with cameras that record and monitor drivers. These robot traffic cops work around the clock and are beloved by locals (and they don't accept bribes).

There is already talk of bringing robot cops to other African intersections. Once they're installed in traffic-crippled cities like Lagos and Cairo, the next logical step would be to upgrade them with artificial intelligence so they can perform their complex tasks better. The roads of Africa's greatest cities will unclog, paving a way for efficiency to take over on a broader scale.

This is a collaboration with Room for Debate. The online version of this article can be found at nytimes.com/roomfordebate.

NEIL HARBISSON

Neil Harbisson is a British cyborg artist.

I don't think machines will be interested in murdering and destroying us; that wouldn't be intelligent enough — humans already know how to do that. Evading death by robot, however, isn't our only concern as artificial intelligence begins to rise. If we don't want technology to become more intelligent than humans, then humans need to become technology. If we become cyborgs we can evolve at the same speed as our technological counterparts. By adding artificial senses to our bodies, we will be able to extend our perception of reality, acquire more knowledge and become more intelligent.

We are the first generation that can truly decide who we want to be as a species. We can add new senses and additional organs to extend our bodies' capacity to experience the world. We can, in effect, redesign ourselves. Our current evolutionary step is to merge with technology and take an active part in the birth of our future selves.

SUSAN BENNETT

Susan Bennett is a voice actress and in 2011 became the original voice of Apple iPhone's Siri.

It seems we no longer have to use our brains as much as we once did. Any one of our digital devices can instantly give us information. As machines get smarter, is the opposite happening to us?

We'll have new intelligent creatures that won't hate each other because of race, creed or religion — something that humans have seemed incapable of doing in the 6,000 years civilized man has been on the planet. But will they be able to create art, music, literature . . . comedy?

We're about to find out. Perhaps A.I. will replace humans, and Siri will lead us quietly into the sea. Fortunately for me, since Apple changed the Siri voices worldwide beginning with the i0S7, she'll no longer have my voice.

GARRY KASPAROV

Garry Kasparov is the chairman of the Human Rights Foundation and a former world chess champion. His book "Deep Thinking" on the human-machine relationship will be published by PublicAffairs in spring 2017.

Machines have been replacing humans since the first one was invented many thousands of years ago — and on the very next day it probably created new jobs when three people were needed to fix it. Humans are adaptable. We're creative. We use machines to make new things, solve new problems and create whole industries that we can't yet imagine. Doomsaying is easy and natural. We can see what's being lost, but we don't see the new things until they arrive.

As I learned in my chess matches against the IBM computer Deep Blue 20 years ago, humans will always find a way to build machines that replicate human performance. And while humans still play chess, entire professions will continue to go the way of the elevator operator as machines become more capable. The good news is that intelligent machines also liberate us from tedious labor, letting us be more imaginative and more ambitious — although of course one person's "liberated" is another person's "unemployed," at least in the short term.

Human ambition is the key to staying ahead of automation, and that's what worries me far more than killer robots. The huge increases in productivity that machines provide must be invested aggressively, not squandered. We're very good at teaching machines how to do our old jobs — so the solution is to keep inventing new ones. The only job security for the human race is to press into the new and the unknown.

FAITH POPCORN

Faith Popcorn is a futurist, author and chief executive of BrainReserve, a strategic consultancy.

Yes, it's possible that thousands of us will be robo-replaced: Oxford University reports that 47 percent of workers in the United States will be automated into unemployment within two decades. Pepper, a humanoid robot, is snagging receptionist jobs. The artificial intelligence service Brain.fm is composing the music that our Olympians listen to as they train. And the program Quill is writing financial news. A guaranteed minimum income will come to America soon enough when salaries are a thing of the past.

At the same time, however, voice recognition and transcription software will allow us to speak, not write, our Great American Novels. Translation apps are on the verge of making real-time conversations flow around the globe. Watson, the IBM supercomputer, may have saved a Tokyo woman's life, diagnosing her rare leukemia when doctors couldn't. Robots like Robear (a bearlike nursing-care assistant) will alleviate loneliness when our life span stretches to age 150. With our minds freed from the drudgery of work, perhaps we'll elevate our society and revel in a new Golden Age. Count me in.

SHAUNA MEI

Shauna Mei is the chief executive and founder of AHALife, an online marketplace for curated products.

When shopping for clothing, we consider size, price and color. But other factors are equally important: a garment's style, how it feels and drapes on the body, and how its manufacturing affects the environment or the local economy. These elements must be judged by a human.

Artificial intelligence augments that judgment. A.I. can learn your "style," your propensity toward "conscious consumption" and your spending habits, then choose specific items from a catalog more efficiently than you ever could. This collaborative filtering is better at predicting purchases than an expert stylist's recommendations are.

At AHAlife.com, we've started using algorithms to help us with two predictive behaviors: showing the right products to our customers before they even know they want them and providing the right marketing copy to encourage them to buy. In the new world of online "discovery shopping," even when your preferences guide your browsing, the choices are so vast. Human-augmented A.I. helps you to save time and make more discerning purchases.

JOI ITO

Joi Ito is the director of the MIT Media Lab, a research laboratory devoted to the integration of technology, art and design.

The bulk of today's artificial intelligence research focuses on machine learning, where engineers "train" machines to augment the collective intelligence of our governments, markets and society. This "extended intelligence," or E.I., will likely become the dominant form of A.I. Here's the rub: The algorithms that create E.I. are trained by humans and can propagate the same biases that plague society, perpetuating them under the guise of "smart machines." Take, for instance, predictive policing algorithms used to determine which neighborhoods should be more heavily patrolled for criminal activity, or who should be classified as a terrorist. Unless we embed ethical and moral grounding, technology meant to advance our well-being could, in fact, end up amplifying the worst aspects of our society.

Well-intentioned uses of developing technologies can go wrong. In 2003 I co-authored a paper that predicted that an open internet would play a significant role in democratizing society and fostering peace. Later, in the early days of the Arab Spring, it felt as though the internet had indeed helped spark the uprising. But as the internet has increasingly become a place for bigotry and malicious trolling as well as a platform for organizations like ISIS to advance a wave of hatred, I wonder, "What hath the internet wrought?" I have similar concerns about the development and deployment of E.I.

It's absolutely essential for us to develop a framework for how our ethics, government, educational system and media evolve in the age of machine intelligence. We must initiate a broader, in-depth discussion about how society will co-evolve with this technology, and we must build a new kind of computer science that creates technologies that are not only "smart," but are also socially responsible. If we allow E.I. to develop without thoughtfully managing how it integrates with, and affects, society, it could be used to amplify dangerous biases and entities. And we may not notice until it's too late.

Turning Points

A political system under pressure

TURNING POINT: The United Nations reports that a record 65 million people have been displaced by global conflicts.

BY KOFI ANNAN

Whatever their level of faith in the process, voters go to the polls next year in Chile, France, Germany, Hong Kong, Iran, Kenya, the Netherlands, Rwanda, South Korea and Thailand, among other countries. The hope is that democracy will fare better than in 2016. The very essence of this ancient system of governance is being tested. Freedom has declined worldwide for the 11th straight year, according to Freedom House, a nongovernmental organization.

Many countries that seemed to be transitioning to democracy, like Egypt, Turkey, Thailand and the Democratic Republic of Congo, are backsliding; among the encouraging exceptions are Myanmar, Nigeria and Tunisia. Many authoritarian regimes are also cracking down further on dissent. And in the established democracies, trust in politicians, party membership and electoral participation — all key indicators of a democracy's legitimacy — have steadily diminished for years.

Why have these challenges emerged now, and with such a vengeance? One common thread is globalization, an unelected, supranational force. Once hailed as a boon, it's increasingly regarded as a threat — to security, to cultural identity, to the economy.

Globalization has helped hundreds of millions to escape poverty, lowered the costs of manufactured goods for consumers around the world and afforded unprecedented mobility. But it has also increased inequalities within countries and reduced the power of governments to control their borders and their economies.

Globalization makes the world more interdependent, while political systems remain national. Candidates for high office usually campaign on domestic issues, but after they win, they find themselves grappling with complex international issues over which they exercise limited control, making their election promises difficult to fulfill.

These failures to deliver have created the impression of loss of sovereignty. Take the case of Europe. The European Union, the world's most ambitious attempt to adapt democracy to the growing global interconnectedness, is fraying. Many Europeans, faced with the flood of migrants and shaken by terror attacks, want to close their borders. But a fortress mentality is likely to limit their capacity to influence what's outside the walls. A country in the European Union that's acting alone isn't as powerful as one that's part of the group.

The union was never about ceding sovereignty, as Brexiters in Britain argued, but about pooling it. However, many observers question the union's future, given its perceived failures in the face of the Great Recession of 2008, the European debt crisis and the desperate migrants at its borders.

Globalization also tends to divide societies into winners and losers. While a few individuals and organizations — including organized crime — have amassed unprecedented wealth (and managed to minimize taxes thanks to global markets and capital mobility), countless more people in the West have seen their incomes stagnate. Globalization doesn't seem to be raising all boats. Populists like Donald J. Trump in America, Marine Le Pen in France and Nigel Farage in the United Kingdom have exploited this situation for partisan purposes.

Though authoritarian leaders, democracy's eternal critics, also use the language of muscular nationalism as they grapple with globalization, they too are dependent on the global economy, which limits their room to maneuver. Such leaders may be less vulnerable to the vagaries of public opinion, but they are usually beholden to powerful and opaque groups, such as army generals, party apparatchiks and oligarchs.

In periods of upheaval, authoritarian systems may look attractive because of the quick decision-making they allow. However, the ability of such systems to make snap decisions on the whims of just one man has historically led to catastrophes that wouldn't be possible in democracies, which are burdened but also protected by checks and balances.

Tens of millions of people are in flight, and globalization has brought rapid, difficult changes to many economies around the world. Is democracy strong enough?

Our appreciation of democracies can be warped by uneven information. Authoritarian regimes tend to look better than they are because information is controlled, criticism is suppressed and a steady stream of propaganda creates a false sense of popularity; democracies tend to look worse because their media, civil societies and politicians all magnify their problems. In reality, authoritarian systems are brittle in the face of change, and democracies more resilient thanks to their fundamental legitimacy, accountable governance and the safety valves afforded by freedom of expression.

The World Values Survey has repeatedly shown that the desire for free choice and autonomy is a universal preference, tempered only by an overriding concern about security. Politicians with authoritarian tendencies exploit that concern by playing the politics of fear. Adversaries, real or imagined, are their best defense against their people's natural aspiration for greater freedom.

To harness this aspiration, just about every country around the world stages elections, but even where the result is predetermined, leaders claim to be ruling on their people's behalf. Elections aren't truly democratic if they're not inclusive, transparent and accountable. They don't confer genuine legitimacy, as was seen last year in Burundi, where the violence-marred re-election of President Pierre Nkurunziza hasn't resolved the country's political crisis.

When political rivals and their supporters don't believe that the electoral process is free and fair, they seek less peaceful methods to change political direction and leadership. If the street isn't to take the place of the ballot box, credible elections are essential.

We should promote legitimate elections around the world — not only because we think that democracy is ethically superior to other forms of government, but also because it delivers better results. It holds the best promise for peace, development and respect for human rights and the rule of law.

So how do we help democracies to flourish as globalization progresses? The best way is not to "export democracy," as George W. Bush's administration, for example, directed American troops to do in Iraq and elsewhere, but rather to inspire people to import it by demonstrating that democracy works.

Democracy-building begins at home. Democratic leaders must be honest with their electorates about a globalized world's rewards and constraints. They must also make sure that those rewards are widely shared, which requires that the wealthy be effectively taxed so that everybody benefits from those rewards. Finally, democratic leaders should be responsive to the priorities of the many, not just the few who contribute to campaigns or hire lobbyists.

But those citizens fortunate enough to live in democracies also have responsibilities: They must channel their political aspirations and grievances in constructive ways rather than merely indulge in destructive protest or electoral apathy. Democracy is only as strong as its citizens make it. We can't have healthy, responsive democracies where large swaths of the population don't vote. Tweeting isn't enough.

With the collapse of the Soviet Union 25 years ago, it seemed inevitable that democracy would prevail — the market democracies that had triumphed over communism were also the world's most prosperous and free societies. Democracy can seem less appealing in a time of stagnating incomes, social inequality and terror, especially in situations where money is having a disproportionate influence on politics. And yet citizens' movements in societies as disparate as Burkina Faso, Hong Kong and Venezuela show that democratic aspirations around the world remain vital.

I sometimes hear that democracies have lost their sense of purpose. This isn't so. Democracy's purpose is to create conditions in which free citizens can lead the most fulfilling lives possible that they themselves choose. Human beings need not only livelihoods and security but also freedom, dignity and justice.

Democracy, whatever its flaws, is the political system that can best respond to those needs. May next year's elections bring positive news for democracy, with all the gifts it can provide.

LINCOLN AGNEW

Kofi Annan, who served as secretary-general of the United Nations from 1997 to 2006, was awarded the Nobel Peace Prize with the United Nations in 2001. He is the founder and chairman of the Kofi Annan Foundation.

The allure of the illiberal

TURNING POINT: Britain votes to exit the European Union, sending shock waves throughout the world.

BY FRANCIS FUKUYAMA

In Silicon Valley, where I live, the word "disruption" has an overwhelmingly positive valence: Thousands of smart, young people arrive here every year hoping to disrupt established ways of doing business — and become very rich in the process.

For almost everyone else, however, disruption is a bad thing. By nature, human beings prize stability and order. We learn to be adults by accumulating predictable habits, and we bond by memorializing our ancestors and traditions. So it should not be surprising that in today's globalized world, many people are upset that vast technological and social forces constantly disrupt established social practices, even if they are better off materially.

Of course, globalization has produced enormous benefits. From 1970 to the 2008 financial crisis, global output quadrupled, and the benefits did not flow exclusively to the rich. According to the economist Steven Radelet, the number of people living in extreme poverty in developing countries fell from 42 percent in 1993 to 17 percent in 2011, while the percentage of children born in developing countries who died before their fifth birthday declined from 22 percent in 1960 to less than 5 percent by 2016.

Yet statistics like these do not reflect the lived experience of many people. The shift of manufacturing from the West to low labor-cost regions has meant that Asia's rising middle classes have grown at the expense of rich countries' working-class communities. And from a cultural standpoint, the huge movement of ideas, people and goods across national borders has disrupted traditional communities and ways of doing business. For some this has presented tremendous opportunity, but for others it is a threat.

This disruption has been closely associated with the growth of American power and the liberal world order that the United States has shaped since the end of World War II. Understandably, there has been blowback, both against the United States and within the nation.

Modern political systems are labeled liberal democracies because they unite two disparate principles. Liberalism is based on a rule of law that maintains a level playing field for all citizens, particularly the right to private property, which is critical for economic growth and prosperity. The democratic part, political choice, is the enforcer of communal choices and accountable to the citizenry as a whole.

Over the past few years, we've witnessed revolts around the world of the democratic part of this equation against the liberal one, underlined most strikingly two years ago by Hungary's Prime Minister Viktor Orbán when he asserted that his country sought to be an "illiberal state." In 2014, his Fidesz party won most of the popular vote and a supermajority in Parliament and began modifying the Constitution to centralize power in Mr. Orbán's hands. Mr. Orbán subsequently cracked down on critical media outlets and nongovernmental organizations that he did not control.

In doing so, Mr. Orbán was imitating Vladimir Putin, perhaps the world's chief practitioner of illiberal democracy. Mr. Putin has become very popular in Russia, particularly since his annexation of Crimea in 2014. He does not feel bound by law: Mr. Putin and his cronies use political power to enrich themselves and business wealth to guarantee their hold on power.

In nearby Turkey, Recep Tayyip Erdogan, the country's president and long-dominant political leader, also received a strong democratic mandate from voters in 2014. An attempted coup two years later became an excuse for him to target thousands of civil servants, military officers, journalists and academics whom he suspected of disloyalty.

Mr. Orbán, Mr. Putin and Mr. Erdogan all came to power in countries with an electorate polarized between a more liberal, cosmopolitan urban elite — whether in Budapest, Moscow or Istanbul — and a less-educated rural voter base. This social division is similar to the one that drove the Brexit vote in Britain and Donald J. Trump's rise in the United States.

Mr. Trump's ascent poses a unique challenge to the American system because he fits comfortably into the trend toward illiberal democracy. He validated himself through popular support, but his entire career has been spent trying to bypass inconvenient rules — like the requirement to pay his own subcontractors. Much of his popularity rested heavily on his willingness to break existing customs about political correctness. This seemed politically bracing at first, but quickly became worrisome when Mr. Trump suggested that as president, he would "open up our libel laws" to initiate civil suits against his media critics. His pitch to the American voter was "I alone" can fix the country's problems through sheer force of personality, and not through a reform of the country's institutions.

That Mr. Trump expressed admiration for Mr. Putin, and that Mr. Putin returned the favor, should come as no surprise. Like Mr. Putin, Mr. Trump seems to want to use a democratic mandate to undermine the checks and balances that characterize a genuine liberal democracy. He will be an oligarch in the Russian mold: a rich man who used his wealth to gain political power and who would use political power to enrich himself once in office. And like Mr. Putin, Mr. Trump was able to create alternative narratives that often went unchallenged by his supporters.

But the balance between liberalism and democracy has been shifting in other nations as well. The citizens of India and Japan have elected nationalist leaders who many say they believe champion a more closed form of identity than their predecessors. While these leaders have observed the principles of liberalism more scrupulously than the Orbáns or Erdogans of the world, their critics suspect that they are quietly fostering intolerance among their supporters.

How far will this trend toward illiberal democracy go? Are we headed for a period like that of the early 20th century, in which global politics sank into conflict over closed and aggressive nationalism? The outcome will depend on several critical factors, particularly the way global elites respond to the backlash they have engendered. In America and Europe, elites made huge policy blunders in recent years that hurt ordinary people more than themselves. Deregulation of financial markets laid the groundwork for the subprime crisis in the United States, while a badly designed euro contributed to the debt crisis in Greece, and the Schengen system of open borders made it difficult to control the flood of refugees in Europe. Elites must acknowledge their roles in creating these situations.

What is surprising is not that there is populism today, but that the populist upsurge took as long as it did to materialize. Now it's up to the elites to fix damaged institutions and to better buffer those segments of their own societies that have not benefited from globalization to the same extent.

Are we headed for a period like that of the early 20th century, in which global politics sank into conflict over closed and aggressive nationalism?

Above all, it is important to keep in mind that reversing the existing liberal world order would likely make things worse for everyone, including those left behind by globalization. The fundamental driver of job loss in the developed world, after all, is not immigration or trade, but technological change. The American manufacturing sector has seen something of a rebirth over the past decade, even as it has shed jobs in its highly automated factories.

We need better systems for buffering people against disruption, even as we recognize that disruption is inevitable. The alternative is to end up with the worst of both worlds, in which a closed and collapsing system of global trade breeds even more inequality.

Francis Fukuyama is a senior fellow at Stanford University and Mosbacher director of its Center on Democracy, Development and the Rule of Law.

MIKE MCQUADE

Globalization is in dire need of a reset

TURNING POINT: World leaders confront a rise in anti-globalization attitudes.

BY LAWRENCE H. SUMMERS

In statistical terms, 2016 was a year of continuity for the world economy, as performance was quite similar to that of recent years. The big changes were political, as a widespread anti-globalization movement signaled a breakdown in a consensus among most political leaders that had held since the end of the World War II. It used to be generally accepted that reducing trade barriers increases prosperity and promotes peace, benefiting investing and recipient countries and promoting international cooperation in solving problems around the world. Almost all of this was called into question in 2016.

Both major party presidential candidates in the United States professed to be staunchly opposed to the Trans-Pacific Partnership trade agreement, and Donald J. Trump called for ripping up existing trade treaties like Nafta. Across the Atlantic, British voters opted to leave the European Union, while the ruling Conservative Party challenged the rights of foreign workers and the head of the Labour Party embraced socialism and expressed skepticism of Britain's NATO membership. A trade deal between the European Union and hardly threatening Canada was almost scuppered by a recalcitrant Belgian province concerned about the effects of globalization on local workers. Movements hostile to the longstanding vision of an ever more united Europe gained strength in every major country.

Resistance to globalization was not confined to the West, nor to the industrialized world. Leaders including Recep Tayyip Erdogan in Turkey, Vladimir Putin in Russia, Xi Jinping in China and Narendra Modi in India all appealed to national pride, core values and strength, each placing uncomfortable emphasis on some variant of ethnic purity. In all four cases, any interest in universal values of openness or human rights is very much secondary to the reassertion of national strength.

This renaissance of nationalism and resistance to globalization appears to be universal, and not the exclusive preserve of either the left or right. It seems to stem from a profound sense on the part of many groups that their lives are buffeted by forces beyond their control. As people's distance increases in a geographic sense, in a cultural sense, and in the sense of a lack of shared identity, they lose confidence in their leaders' abilities to protect them. Insecurity is begetting atavism.

These trends pose dangers. For all the problems and challenges, the past 70 years have been a period of unprecedented progress in increasing human emancipation, prosperity, life expectancy and in reducing violence. All of this would be at risk.

We need to promote 'responsible nationalism' rather than international integration for its own sake.

We need to redirect the global economic dialogue to the promotion of "responsible nationalism" rather than on international integration for its own sake. A classic example of a misguided initiative is the effort to promote a bilateral investment treaty between the United States and China. Even in the unlikely event that such a treaty could be negotiated, its effect would be to trade a reduction in America's ability to control the behavior of Chinese companies in the United States for increased security for American global companies when they locate production facilities or otherwise invest in China. From the point of view of a typical middle-class American voter, the deal is lose-lose.

To enable the international community to engage in this dialogue, global cooperation is key, with the focus of economic diplomacy on measures that increase the range of policies that governments can pursue to support middle-class workers domestically.

When the Allied nations met in 1944 at Bretton Woods to negotiate the rules and procedures of a new international monetary system, the economist John Maynard Keynes recognized that a global economy will have a systematic bias toward contraction if countries that have borrowed heavily are forced to cut back spending while no pressure is applied to countries that are running large surpluses.

While economic growth continued in 2016 for the United States, the European Union and Japan, it did so at rates that would have seemed unacceptably low a decade ago. In these three economies, inflation remained below the 2 percent target that central banks aim for, and market indicators suggest that it might well remain so for the next decade. And most interest rates continued their downward trend, reflecting the diminished inflation expectations and a high level of saving relative to investment.

These and other statistics indicate that the United States and Europe are just one recessionary shock away from being caught in a deflationary trap. Japan has been stuck in one for more than a decade, with expectations of decreasing prices prompting consumers to delay spending and save money. Assuring adequate pressure for stimulus needs to become a priority for the Group of 20, to precaution against deflation.

Given figures on the hundreds of billions of dollars lost annually because of tax sheltering, the gains from a global effort to prevent capital income from escaping taxation are at least comparable to those from highly controversial trade agreements. And such measures would make possible more support for the middle class.

In recent years we have also commenced a race to the bottom in areas like labor standards, environmental protections and capital requirements for banks. Businesses evade stiffer rules by moving elsewhere, hindering national aspirations to improve in these areas. The remedy is international dialogue directed at establishing global minimum standards, harmonizing approaches.

Finally, fences, walls and barriers are not an effective approach to resisting undesired flows of people. The only enduring solution to the unprecedented flood of refugees will come from creating conditions that enable people to do what they most prefer — stay at home. The global gain from supporting source countries is much greater than the gain to any one nation from limiting support solely to the refugees within its borders.

The events of 2016 will be remembered either as a point at which we began to turn away from globalization or the one at which the strategies of globalization began to be reoriented away from elite and toward mass interests. As we make our choices over the next few years, the stakes are very high.

Lawrence H. Summers is the Charles W. Eliot University Professor and president emeritus at Harvard University. He served as chief economist for the World Bank from 1991 to 1993, secretary of the Treasury Department from 1999 to 2001 and director of the National Economic Council from 2009 to 2010.

FEDERICO JORDAN

Central banks alone won't save us

TURNING POINT: Canada and the European Union sign a trade agreement, committing them to opening their markets to greater competition.

BY MOHAMED A. EL-ERIAN

I have been coping with tennis elbow in one arm for most of this year and have had to rely much more on the other — excessively, it turns out. Entering the new year, there are now limits on what I can lift, pull and twist with either arm. Should I fail to do something about this, I could spend 2017 struggling with simple tasks, such as carrying a briefcase.

In a way, this is an apt analogy for the global economy's disappointing performance in 2016, pointing to what's needed if we are to fight financial instability and worsening economic and political malaise in 2017.

It was a tepid, strange year for the global economy. An already prolonged and frustrating period of insufficient and scattered growth simply continued as the world remained over-reliant on central banks.

Since 2010, the use of fiscal policy, where the government adjusts its spending and taxation to manage the economy, has been hindered by the perception, especially in the United States and Europe, that such policies represent overreach. This has resulted in concerns about debt and unnecessary interference in the private sector, ushering in a period of excessive austerity, in terms of decreased government spending, in several advanced countries, such as Greece, Portugal and Spain. This has also sidelined any sustained fiscal stimulus in countries with strong balance sheets, such as Germany.

The resulting fiscal paralysis, combined with insufficient progress on progrowth structural reforms — including revamping corporate taxes, building better infrastructure and training workers — hit those countries' middle and lower classes particularly hard and aggravated the impact of joblessness, especially among the young. As the pressure on household incomes increased, the prospects for consumer spending became more uncertain, and companies became less enthusiastic about investing in new plants and equipment, feeding into the cycle. Economic conditions remained difficult, and the politics of anger gained momentum.

The need for greater fiscal policy flexibility attracted much more support among economists in 2016. But the effort to translate that support into action was frustrated by social and political polarization that essentially precluded any major economic policy initiative.

As growth remained stuck in low gear, falling short of people's aspirations and dimming the hope of re-creating the economy of earlier years, the benefits of this limited growth were perceived to have collected disproportionately in the pockets of those who were better off already. Alarming pockets of under- and unemployment, particularly in Europe, became more deeply embedded in the economy's structure, adding to the headwinds. Popular anger continued to rise, and mistrust of the "establishment" — both of government and the business sector — deepened. Economics, finance and politics became increasingly interlocked in a menacing, self-perpetuating cycle of disruption.

Citizens of the United Kingdom voted in June to dismantle the country's deep trading and financial links with Europe, which have served it well for four decades. Anti-trade rhetoric dominated the United States presidential election, from Donald J. Trump's threat of tariffs on China and Mexico to Hillary Clinton's distancing herself from trade agreements with Asia, South America and the European Union that the Obama administration had painstakingly negotiated. Mr. Trump's victory on Nov. 8 illustrated the growing influence of anti-establishment movements.

With fiscal and structural policies impaired — with both arms incapacitated — central banks were the only game in town, in an economy that needed high, sustainable and inclusive growth. Since they enjoy a considerable degree of political autonomy, they felt morally obliged to do whatever they could, even though they lacked the proper tools for the task. For the most part, theirs are limited to monetary measures, where central banks influence the economy by adjusting interest rates and the money supply to change financial conditions and asset preferences.

Despite their willingness to take on others' policy responsibilities, central bankers were unable to deliver on their objectives, and for good reasons: The supply impact of their tools, such as changing interest rates or buying and selling market securities, could not lift structural impediments to growth, such as a lack of infrastructure, fragmented tax regimes and excessive regulation; and the demand influences, like decreasing interest rates to spur consumption and investment, were too weak to power the economy forward in its current state. Yet, since they were the only institution with the flexibility to address the problems, the central banks refused to walk away, continuing to administer their imperfect — even experimental — prescriptions.

The result included policy outcomes that, not so long ago, were virtually unthinkable. The Bank of Japan and the European Central Bank took their interest rates negative — that is, below 0 percent — leaving some investors in the highly unusual position of having to pay, rather than receive, interest income if they held government bonds. With that, around 30 percent of the total stock of global government debt traded with negative yield.

During most of 2016, stock markets were unusually immune to the uncertainty that has dominated the economic, financial, institutional and political landscapes. For that, investors had liquidity to thank — that is, the continuous injection of money into the markets, whether from central banks' unconventional measures or the recycling of corporate cash through mergers, acquisitions and share buybacks. But there is a limit to how long this counter-intuitive combination of unstable fundamentals and market calm can persist.

The longer we rely on monetary policy to keep the global economy afloat, the more precarious our future becomes — recession and more political unrest loom.

While the exact timing of economic and financial turning points is inherently hard to predict, we could experience an important one in 2017. But that need not be a scary proposition if politicians resume their economic governance responsibilities.

A comprehensive policy response would focus on pro-growth structural reforms (including tax reform), greater fiscal activism (particularly in building infrastructure), lifting pockets of over-indebtedness (for example, in Greece and, pre-emptively, for parts of student loans in the United States), and improving cross-border policy coordination (both at the global level and in strengthening the eurozone's regional economic architecture). This would unleash some of the considerable cash idling on corporate balance sheets, in that way turbocharging two critical transitions: from low growth to high and more inclusive growth, and from artificial financial stability to genuine financial instability.

But if politicians continue to fail voters, low growth will risk turning into recession, artificial financial stability will give way to unsettling instability, and the politics of anger could get a lot messier. The alternatives we face are stark, and time is pressing.

The treatment for tennis elbow is rest. Central bankers have been hitting the ball long enough — let's avoid a painful and more difficult 2017.

Mohamed A. El-Erian is chief economic adviser at Allianz, chairman of President Obama's Global Development Council and the former chief executive and co-chief information officer of Pimco. His books include "The Only Game in Town: Central Banks, Instability and Avoiding the Next Collapse."

19 things that happened for the first time in 2016

Surprising, serious and sometimes silly events. By Tricia Tisak

1. A royal trial

Accused of tax fraud in connection with her husband's business activities, Princess Cristina, who is sixth in succession to the Spanish throne, became the first member of Spanish royalty to stand trial in modern memory. Her husband, the former Olympic handball player Iñaki Urdangarin, is accused of embezzling 6 million euros in public funds, or about $6.7 million. Princess Cristina, who first appeared in court in January, has denied any wrongdoing. The couple were barred from official duties when news of the scandal first broke in 2011, and stripped of their dukedom in 2015.

2. A legendary buy

The Dalian Wanda Group acquired the American film studio Legendary Entertainment for $3.5 billion in January, making Wanda Group the first Chinese firm to own a United States studio. Legendary has been behind such international blockbusters as "Jurassic World" and "Inception." Though some have viewed the acquisition as a vanity purchase, many in the industry see it as part of an inevitable trend of increasing ties between Hollywood and the world's most populous nation.

3. The pope and the patriarch

Pope Francis and Patriarch Kirill I, the leader of the Russian Orthodox Church, met in Cuba on Feb. 12, marking the first time a bishop of Rome and a Russian patriarch had met in nearly 1,000 years. The meeting was a diplomatic coup for Francis, who has sought to ease tensions that can be traced back to the deep-seated rift between the Eastern and Western branches of Christianity. Francis had already met with other Orthodox leaders, including Ecumenical Patriarch Bartholomew I of Constantinople, who is considered the spiritual leader of the world's Orthodox Christians.

4. Hugging hedgehogs in Tokyo

Housed in the same building where people can pay to cuddle rabbits, a hedgehog cafe, Japan's first, has opened in Tokyo. People are lining up outside Harry — a play on the Japanese word for hedgehog — for 30-minute petting sessions that cost 1,000 yen, or a little less than $10. Places like Harry, which opened in February, fulfill a need for "iyasareru," which means emotional or psychological recharging, in crowded urban dwellings where pet ownership may not be feasible for some people.

WOLFGANG KUMM/DPA VIA AGENCE FRANCE-PRESSE — GETTY IMAGES

At Japan's first hedgehog cafe, customers pay 1,000 yen, or about $10, for a half-hour of cuddling the creatures for emotional or psychological recharging.

5. Government-backed happiness

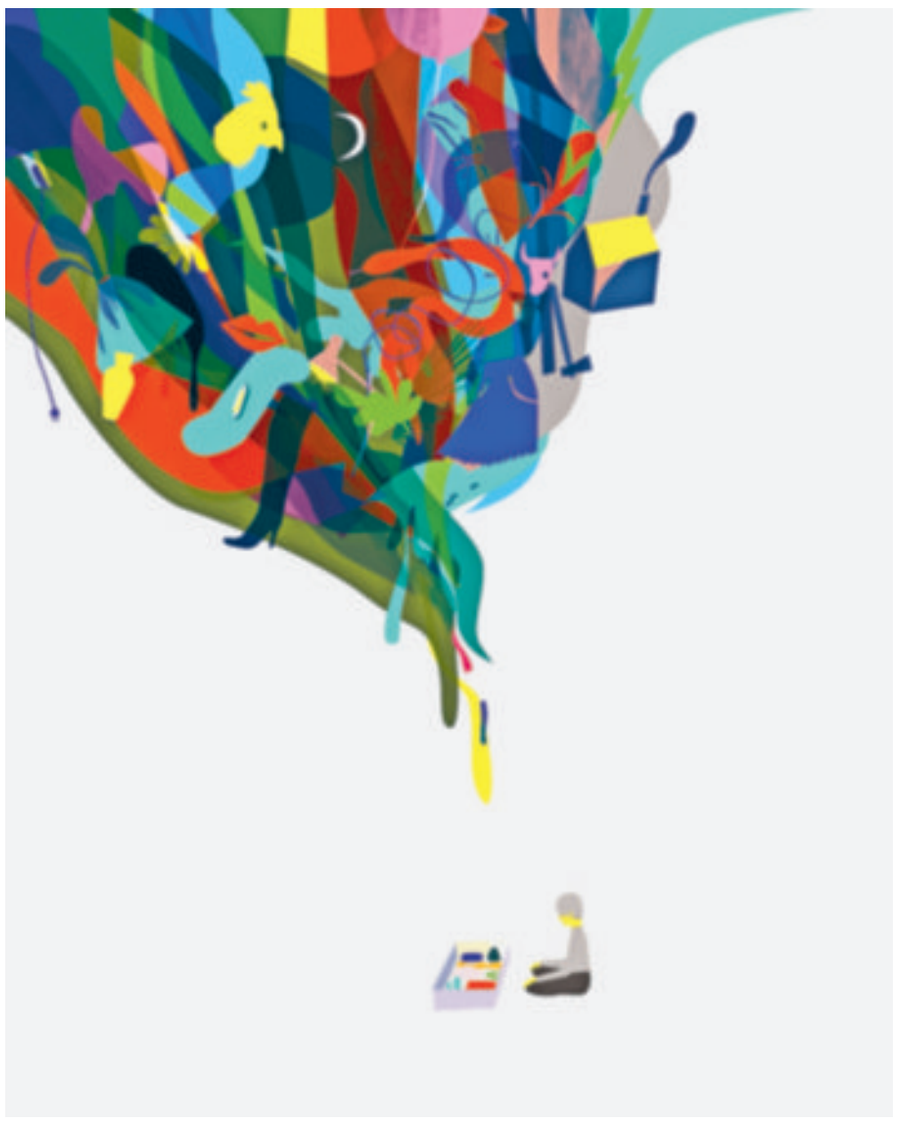
In the United Arab Emirates, a cheerful citizenry is a top priority. Prime Minister Sheikh Mohammed bin Rashid Al Maktoum in February named Ohood Al Roumi the nation's first minister of happiness, giving her a mandate to "create social good and satisfaction." In September, Al Roumi sent 60 "chief happiness and positivity officers" to the United States and the United Kingdom for a five-month training program on the science of spreading happiness.

6. First solar-powered airport in Africa

An airport in South Africa is harnessing the power of the sun with a solar facility that satisfies about 40 percent of the airport's energy demand. The facility is the first of its kind in Africa and the second in the world, following India's Cochin International Airport. The 3,000 solar panels at George Airport, between Cape Town and Port Elizabeth, cost more than $1 million to install. The first phase of construction began in March and took six months to complete. Two more South African airports also have begun to incorporate solar power.

ILLUSTRATIONS BY MIGUEL PORLAN

Turning Points



MONIKA AICHELE

How to choose happiness

TURNING POINT: An executive at Ikea declares that the West had reached "peak stuff," with people owning too many things.

BY MARIE KONDO

The Japanese word "tokimeku" means "to spark joy." Someone who is adopting my method of tidying must take a possession of hers and ask: "Does this spark joy for me?" This question is the sole basis for choosing what things to keep in one's home and what to discard.

But can we apply this notion of sparking joy on a larger scale?

We live in a disorganized and chaotic world, much of it outside our control. I read recently that more than 80 billion articles of clothing are produced each year, but only a negligible few are recycled. As people's buying habits shift and technology moves most everything to the cloud, people have been valuing experiences over material things. Some have even pointed out that we may have reached a critical point in terms of mass consumption — we've reached peak stuff.

Though it sometimes seems like our things are threatening to take over our world, we can focus our energy and determination on choosing what makes us happy, and ultimately change our lives. Asking ourselves whether something sparks joy seems so simple that many people wonder whether it can really be effective. The strength of the "spark joy" standard, however, lies in its ambiguity.

Let's consider, for argument's sake, more precise standards for what to keep or discard, even for something as basic as clothing. Should the number of jackets you own be fewer than 10? Should you discard clothes that you haven't worn in more than three years?

Rules that adopt concise numerical values may appear to be more practical, which is why society often imposes specific standards on us, such as the amount of money we should earn or the ideal body weight we should maintain. But what makes one person happy, comfortable and healthy varies for the next, so your individual gold standard can be determined only through your own perspective. This is where the magic question — Does it spark joy? — comes into play.

Continually assessing whether your belongings spark joy allows you to hone your judgment. Over time, your ability to identify what is worth keeping will extend from your home to your career to your relationships. You will be able to discern what makes you happiest and most contented in other aspects of your life.

I don't mean to suggest that tidy homes full of people who act in accordance with what sparks joy will cure our planet's ills. Yet I believe that people who are pleased with the course and direction of their lives and who have seen what their own determination can achieve can help create a kinder, better world.

I'd like to share some ideas on how you can spark joy in your own life.

Before you start, you must first get a true sense of your problems. For example, when organizing clothes, I ask that you take out all your clothes and gather them in one spot, so that you can visually comprehend how much you have.

What we don't often realize is that the furniture and closets in which we store our clothing have a remarkable way of concealing truths we would rather not see (a pilled sweater, for instance, that does not bring any joy). It's fine to take advantage of this masking effect on a small scale, but when the amount of things that you don't need increases — along with the time and space that you devote to accumulating those things — you will find that it becomes harder to lie to yourself.

We also work in much the same way. We often hide our problems inside the closet of our hearts as if they never existed. Whenever my mind clouds over and I feel overwhelmed, I immediately take out a sketchbook. I write down all the emotions that I feel and the possible reasons behind them across a blank page.

Once you've pinpointed problems, identify specific solutions. For each problem, assign a task as concrete and specific as possible. Indeed, the ultimate goal of organizing is to remedy the state of untidiness and prevent its recurrence.

When choosing these actions, you must never forget to ask yourself whether each action sparks joy and makes sense for you. Once you've compiled a list, all you have to do is serenely execute these tasks.

I also keep a to-do list in my sketchbook. Each time I complete a task, I put a check mark next to it. As I complete the tasks one by one, I get a joyful feeling of lightness, as though I have finished tidying up my home. It sounds simple, but this is exactly the moment that sparks joy for me.

The "spark joy" standard for tidiness depends on the individual. You cannot force people to tidy, nor should you try. But there can be communal applications for this idea. More and more, I feel that the question of whether something sparks joy becomes all the more effective when people can exchange views and share a common vision for the future.

Understanding and appreciating tokimeku in the midst of a confusing and disorderly world will allow us to clarify our ideals, and help us gain confidence in our ability to lead productive lives and develop a sense of responsibility to those around us. From there, we can act with focus and certainty while improving our lives and our beautiful — if still very messy — world.

Marie Kondo is the founder of the KonMari Method and the author of best-selling books "The Life-Changing Magic of Tidying Up: The Japanese Art of Decluttering and Organizing" and "Spark Joy: An Illustrated Master Class on the Art of Organizing and Tidying Up."

The year's game changers in space

TURNING POINT: Astronomers announce the discovery of a potentially habitable planet in the star system closest to Earth.

BY YURI MILNER

There were many forces dividing us in 2016, nation from nation, faction from faction, person from person. But there is a countervailing force that can draw us together: the quest to answer fundamental questions that have captivated humans since ancient times.

At the forefront of this quest are scientists — the true explorers of our era. Every year, they map a little more of the unknown, claim a little more of what seemed impenetrable. In 2016, they made three significant breakthroughs in understanding the universe and our place in it.

In the last few years, NASA's Kepler space observatory and other missions have sparked a revolution in astronomy, arguably as fundamental as the Copernican revolution that spun us from our imagined perch at the center of everything. So far they have identified nearly 5,000 potential planets beyond the solar system, 21 of which are rocky planets that might be habitable. These numbers imply that there could be billions of such planets in our galaxy alone. "Home" no longer necessarily means Earth alone.

In August, the European Southern Observatory announced that astronomers taking part in the Pale Red Dot campaign had confirmed the existence of an Earth-like planet in the nearest star system to us. Its orbit lies within its star's "habitable zone," neither too hot nor too cold, where water may be found in liquid form.

Finding this planet, Proxima b, was a game-changer. It's our next-door neighbor, in cosmic terms. Astronomers plan to study its composition and features to determine whether it has water or an atmosphere. While we know that Proxima b is in the habitable zone, we don't yet know if it's truly habitable — or even inhabited.

This discovery came at a serendipitous moment for me, just four months after the physicist Stephen Hawking and I, with the support of Facebook's Mark Zuckerberg, began a new space initiative called Breakthrough Starshot. It's a research and engineering program attempting to design, build and launch multiple "nanocraft" — tiny, laser-powered probes — that could reach Proxima b within a generation. Rather than building one huge vessel, which would take tens of thousands of years to get there, we're hoping to launch many tiny probes, each no bigger than a computer chip, and with a sail attached. Powerful lasers acting on those sails will, in principle, push the nanocraft to speeds reaching 20 percent of the speed of light — more than 100 million miles an hour.

Now, with the discovery of Proxima b, Starshot has its first target. What might we find there?

This year's second breakthrough may give us a hint. In July a team of evolutionary biologists led by Bill Martin at Heinrich Heine University in Düsseldorf, Germany, reconstructed the genetic makeup of "Luca" — the Last Universal Common Ancestor. This was the single-celled organism that became the mother of all life on Earth today.

During the reconstruction, the biologists pored over millions of genes from thousands of species of microbes, isolating the 355 most ancient ones — those that were probably present in Luca. But these genes did more than pinpoint ancestry; they sketched a portrait of the organism itself, showing us a creature that lived an extreme life. It metabolized hydrogen, not oxygen, and clung to the walls of deep-sea volcanic vents.

We live in an age of scientific revolution that may become known as the New Age of Enlightenment.

Microbes sharing a high proportion of those 355 genes are still found in such vents today. And that's exactly the environment where some theorists have placed the origin of life itself. The discovery hints that life may have begun in nonliving "cells" that were naturally formed in the volcanic rock; and that the basic processes of energy conversion, which continue today in every one of our cells, were underway there before the first organic cell ever evolved.

We do not yet know the conditions on Proxima b. It may have a relatively gentle climate, like Earth's today. Or it may be "tidally locked," with one hemisphere permanently roasting in the glare of its sun, the other frozen, facing empty space. But if life can emerge in the conditions of hydrothermal vents, it cannot be ruled out even on a world of such extremes. Starshot's nanocraft could have instruments that measure potential signatures of life and beam them back to Earth.

Beyond Proxima b, our broader goal with Starshot is to foster a unifying, planetary quest for exploration and knowledge: to take our first steps — as a species and a planet — into the galaxy.

Meanwhile, scientists here at home continue to probe the universal questions. What *are* those miles of blackness the nanocraft will cruise through? What *are* those years we will wait through? This year's third breakthrough shed light on the fundamental nature of space and time.

A few months before the announcement of Breakthrough Starshot, physicists from the Laser Interferometer Gravitational-Wave Observatory in the United States told the world that after years of waiting, they had heard a "chirp" — a brief signal indicating the detection of gravitational waves in space. The waves were churned up by the collision of two black holes over a billion years ago.

That chirp confirmed the predictions of Albert Einstein's general theory of relativity, which tells us that space and time are not separate dimensions, but are bound together as a four-dimensional "space-time." This space-time is not a static background, but dynamic: It is warped by the presence of massive bodies. And Einstein's theory predicted that it can also flow.

This means that the gravitational waves the observatory detected were not waves of fluid, energy or any known substance. They were waves in space-time. If everything we see in the universe were the brush strokes of a painting, a gravitational wave would be a quiver in the canvas itself.

That chirp also inaugurated the field of gravitational wave astronomy: the use of these waves as an observational tool, advancing our power to explore further. It has been said that the discovery opens a new window on the universe, but a new window would reveal only a different view. This is more like the evolution of an entirely new sense organ. It will enable astronomers to discern immensely violent events that were previously invisible to us, such as collisions between the supermassive black holes that lurk at the center of most galaxies. And it may offer a glimpse of the universe as it was just after the big bang.

Our curiosity about all that we've discovered this year will fuel more breakthroughs, and that curiosity is felt not only by the scientists at the vanguard of exploration, but by all of humanity. Confronting the fundamental questions is the greatest adventure there is, and all of us — no matter where we live or what we do — can be invested in it.

JEFFREY DECOSTER

7. A possible new way to break down plastic

Japanese scientists discovered bacteria outside a bottle-recycling facility that can eat a common type of plastic, raising the possibility for new methods to dispose of it. According to a study published in Science in March, the microbe Ideonella sakaiensis can convert polyethylene terephthalate — most commonly used in plastic water bottles because it is lightweight but durable — into an energy source. Critics caution that more research must be done before it can be determined whether the bacteria can be used as a viable way to degrade polyethylene terephthalate.

8. First SpaceX rocket landing at sea

SpaceX, founded by the tech entrepreneur Elon Musk, successfully landed its Falcon 9 rocket on a drone ship for the first time on April 8. Mastering the maneuver means that SpaceX can cut costs by reusing rockets and remain an important part of the United States' space program. SpaceX has landed a rocket on the ship in the Atlantic Ocean several more times since then. However, the company suffered a setback in September when a rocket exploded while being fueled at a Cape Canaveral, Fla., launchpad.

SPACEX

SpaceX, founded by the tech entrepreneur Elon Musk, successfully landed its Falcon 9 rocket on a drone ship for the first time in April.

9. Wild tiger population on the rise

The World Wildlife Fund reported in April that the number of tigers living in the wild is rising for the first time in a century. The global tiger population increased to about 3,890 in 2016, from 3,200 in 2010, with growth seen in at least four countries: Bhutan, India, Nepal and Russia. Despite the uptick, conservationists warn that tiger habitats continue to shrink and that tigers remain a favorite target for poachers, particularly in Southeast Asia. At the turn of the 20th century, there were an estimated 100,000 tigers living in the wild.

10. Paralyzed man regains control of hand

An American who was paralyzed from the chest down has regained control of his right hand, thanks to a chip implanted in his brain. According to a study published in May in the journal Nature, this is the first example of limb reanimation in a person with quadriplegia. The chip allows the patient to bypass his spinal injury by using his thoughts to control the muscles in his right hand and fingers. However, this technology is not a viable cure for paralysis because he must be connected to computers in a lab for it to work.

11. A sober state visit to Hiroshima

President Obama became the first sitting president to pay an official visit to Hiroshima, Japan, where the United States dropped an atomic bomb in 1945, hoping to end World War II. On May 27, the president laid a wreath at Hiroshima Peace Memorial Park and exchanged emotional handshakes and embraces with survivors of the bombing. The occasion required a balance between honoring the victims of the attack and considering the atrocities that the Japanese military inflicted upon neighboring countries leading up to and during the war.

DOUG MILLS/THE NEW YORK TIMES

President Barack Obama and Prime Minister Shinzo Abe of Japan took part in a wreath-laying ceremony at the Hiroshima Peace Memorial in Japan in May.

The long, hard road to peace

TURNING POINT: Colombians reject a peace deal with the Revolutionary Armed Forces of Colombia.

BY INGRID BETANCOURT

EDEL RODRIGUEZ

For most Colombians, the civil war that has been waging in our nation for the past 50 years is an abstract concept. It is fought in remote areas of the countryside, while around 75 percent of Colombians live in urban areas. The perception is that as long as you stay within city limits, you won't be subject to violence from guerrilla forces. The danger and insecurity most Colombians experience come from urban organized crime, not uniformed, armed combatants.

From 1999 to 2008, Venezuela, Chile, Brazil, Argentina, Uruguay, Bolivia, Ecuador and Paraguay all elected leftist and center-left presidents, a chain of events known as the "pink tide." During this period, in 2002, I ran for the Colombian presidency under a center-left banner to fight corruption and social injustice. While I was campaigning in a zone declared to be secured by the Colombian army, I was kidnapped by the nation's Marxist guerrillas, the Revolutionary Armed Forces of Colombia, or FARC.

Abduction was an industry for the rebels, and I represented everything they hated: I was a politician, and they believed that all politicians were corrupt. My name was linked to the oligarchy, I was educated, and I could speak foreign languages: I was therefore someone to be feared and tamed. I was a dual French-Colombian citizen running for president, thus suspected of serving foreign interests, and I was a woman, therefore manipulative and difficult. They held me for six and a half years.

Beyond tearing us away from our normal lives and holding us in the jungle, the guerrillas used a regime of deprivation on me and my fellow hostages, hoping to break our will. They subjected us to myriad forms of abuse, including brutal violence, extreme pain, humiliation and other forms of psychological torture, using their ideology to justify their behavior.

My battle during those six and a half years was to survive. I didn't develop Stockholm syndrome: The way they treated me was so extreme that I could not forget that I was the enemy. I attempted to escape many times, and if I were still trapped in that jungle today, I would continue plotting to break free.

During my years in captivity, Colombia's political landscape changed dramatically from the one I had known. The nation took a political turn at odds with the leftist surge shaping the region and elected a conservative leader determined to wage war and eradicate communist subversion.

By the time I was released in 2008, and despite the government's undeniable military achievements, the country was still moored by FARC's presence and its treacherous drug trade. I rejoined my family and began the long process of rebuilding my life.

Eight years later, as communist Cuba was normalizing diplomatic relations with the United States, the FARC — the oldest leftist guerrilla group remaining on the continent — appeared to finally begin laying down its weapons and severing its ties with the drug trade. In August 2016, the FARC reached a peace agreement with the Colombian government as a result of painstaking negotiations. Shockingly, however, the Colombian people rejected the referendum on the deal several weeks later, another sign of the shift to the right in Latin America.

How to explain this vote? Is it because human beings by their very nature tend to protect their identity through the hatred of other groups? I don't want to believe that. We have to be better. When President Juan Manuel Santos, who led the negotiations, was awarded this year's Nobel Peace Prize, the international community was signaling to all Colombians their responsibility to find peace.

It was also a message to the FARC rebels, who needed to show real contrition in order to demonstrate to Colombians the authenticity of their commitment to the agreement. The FARC is no Nelson Mandela, and in September, Colombians wanted to see its members in jail, not in office. The FARC had stated they would not accept even a day in jail, though they asked for forgiveness for some particular cases of kidnapping and murder, and mentioned this in general terms when their leader, Rodrigo Londoño, sat down with Mr. Santos to sign the peace agreement in Cartagena days before the referendum. Colombians felt that was too little, too late. After the referendum failed, the FARC leaders had to accept higher levels of accountability. A new and more severe deal was reached in November by Mr. Santos and the FARC leaders.

The Nobel Committee's message was also to the "No" movement, including former President Álvaro Uribe, who can no longer bluntly dismiss any peace agreement. Had the peace referendum succeeded, it would have done so by a very narrow margin, thus dividing the country in half — much like the recent so-called Brexit referendum in the United Kingdom — but with the added risk of rekindling violence.

PRESIDENCY OF COLOMBIA

Ingrid Betancourt was kidnapped by the FARC rebels in 2002 and was physically and psychologically tortured during her six years of captivity in the jungle.

Unlike Brexit, though, the Colombian referendum had no final outcome: By declining this particular agreement, Colombians opened the door for a new deal. Mr. Santos turned the rejection of the referendum into an opportunity to unite the country by forcing the agreement's strongest adversaries to sit at the negotiation table. No one dares to admit a preference for war anymore. But by opening the Pandora's box of new negotiations, the opposition had bought time. The new November deal was finally approved by the Colombian Congress, but presidential elections to be held in 2018 will most likely define the true outcome of any possible peace with the FARC.

Colombians therefore have to cling to their resolve to find peace. Our hope has to be placed not in a short-term political outcome, but in the success of the long-term process that has just begun. We must evolve into a people equipped to live in a peaceful society.

I was kidnapped by Colombia's Marxist guerrillas and held for six and a half years. Here is how the country can move forward.

Any signed agreement between Mr. Santos and the FARC will be the cornerstone upon which Colombians will be able to build. In this process, we cannot forget the lessons of our past. Colombians have a long history of secret maneuverings, with dark forces sabotaging peace agreements from within. In previous peace attempts, selective genocide against opposition leaders ruined our chances.

As we move forward, we need to recognize that we all come from different starting points. There is a generation gap, where young Colombians are determined to free themselves from the hatred of their forefathers. There is a regional gap too: People in the countryside voted for the referendum; people in the cities voted against.

Constructing peace means finding balance in our demands. Any deal needs to reflect the concerns of those who have been skeptical and voted No in the referendum, without surrendering to the veto of those who are benefiting from the war.

It also involves hard choices by the war's victims, who must give up on vengeance and embrace the gift of reconciliation as the token of a better future. I have experienced our war firsthand; I personally know how challenging this is. I too have been tempted to focus solely on my grief and fuel myself with acrimony against my captors for the anguish my children endured as they grew up without their mother, for the death of my father after a heart failure caused by my capture and for the painful memories seared in my brain that are still haunting me in my daily life. But I have to trust that we are bringing to the table something much bigger than our own pain: a guarantee that our children will not suffer what we did.

When we succeed, the end of this half-century-long battle will illuminate the path forward for other war-torn nations such as Iraq, Syria and Israel. But until we divest ourselves of our resentments and furies, we will remain in captivity.

Ingrid Betancourt is a Colombian politician and an anticorruption and human rights activist. She is the author of "Even Silence Has an End: My Six Years of Captivity in the Colombian Jungle." She has received multiple international awards, including the Légion d'Honneur and the 2008 Concord Prince of Asturias Award.

The rage of 2016

COHEN, FROM PAGE S1

not least in Egypt and the Gulf states — are exulting at Mr. Trump's victory.

It is too early to say what Mr. Trump will do and how many of his wild campaign promises he will keep, but it's safe to predict turbulence. Irascibility, impetuosity and inattention define him, however curtailed they may prove to be by his entourage and the responsibilities of power. He is, for now, in over his head.

NATO will grow weaker. Baltic States will feel more vulnerable. Syria's Bashar al-Assad, backed by a Putin-Trump entente, will grow stronger. Chinese-American trade tensions will sharpen, in approximate sync with military tensions in the East and South China seas. The Iran nuclear deal, painstakingly negotiated by the major powers, could unravel, making the Middle East exponentially more dangerous. Any jihadi attack or other assault on America will not be met with restraint; Mr. Trump seems to regard nukes as an underused asset.

Fossil fuels will make a comeback. The world's Paris-enshrined commitment to fight climate change will be undermined. The approximately 65 million migrants on the move, about one-third of them refugees, will find shelter and dignity scarce as xenophobic nationalism moves into the political mainstream across Central Europe and elsewhere. Technology's implacable advance, and the great strides being made by artificial intelligence, will test Mr. Trump's promise to bring manufacturing jobs back to America. Some forms of employment are gone forever, and not even a self-styled savior can conjure their return. The Trans-Pacific Partnership already looks dead; other trade deals, including the North American Free Trade Agreement, which symbolized the ever-more-open trading system of past decades, could be nixed or substantially diluted.

Will all this assuage the people's ire? Perhaps Mr. Trump really does have some fairy dust he can scatter for a while. But of course "the people" were only part of a divided population, millions and millions of whom did not want — and will resist — the global nationalist and authoritarian lurch. They will do so on the streets, in the courts, via the press and through the checks and balances the framers of the Constitution created precisely to rein in a demagogue. Still, Mr. Trump has enormous powers, a Republican-controlled Congress and a mission to make America great again, whatever that means or takes.

The struggle to preserve liberalism will be long. It may well be led now by the likes of Angela Merkel in Germany and Justin Trudeau in Canada. The mantle of custodian of the well-being of the free world sounds like a rip-off to Mr. Trump, who thinks deals and little else. It could well be that America has passed the torch.

Western democracies are in the midst of an upheaval they only dimly grasp. Virtual direct democracy through social media has outflanked representative democracy. The impact of the smartphone on the human psyche is as yet scarcely understood; its addictiveness is treacherous and it can be the enemy of thought. Mr. Trump hijacked the Republican Party like a man borrowing a dinner jacket for an evening. His campaign moved through Twitter to the aroused masses; it had no use or need for conventional channels. The major political parties in Britain and the United States will have to prove their relevance again.

Democracies, it is clear, have not been delivering to the less privileged, who were disenfranchised or discarded in the swirl of technology's advance. A lot of thought is now needed to find ways to restore faith in liberal, free-market societies; to show that they can be fairer and more equitable and offer more opportunities across the social spectrum. Germany, with its successful balance of capitalism and solidarity, its respect for the labor force and its commitments to both higher education and technical training, offers one model. The rage of 2016 will not abate by itself.

The liberal elites' arrogance and ignorance has been astounding. It is time to listen to the people who voted for change, be humble and think again. That, of course, does not mean succumbing to the hatemongers and racists among them: They must be fought every inch of the way. Nor does it mean succumbing to a post-truth society: Facts are the linchpins of progress. But so brutal a comeuppance cannot be met by more of the same. I fear for my children's world, more than I ever imagined possible.

ILVY NJIOKIKTJIEN FOR THE NEW YORK TIMES

As tensions have risen across Europe over the influx of migrants, nationalist and extreme right-wing groups have gained ground. Anti-immigration vigilantes on patrol in Tampere, Finland. Below, supporters cheer as Donald J. Trump, now president-elect, speaks at a campaign rally in Colorado.

DAMON WINTER/THE NEW YORK TIMES

12. Climate change milestone in Antarctica

For the first time in four million years, carbon dioxide levels in Antarctica have reached 400 parts per million, according to the National Oceanic and Atmospheric Administration. Levels of carbon dioxide, a byproduct of burning fossil fuels, have been on the rise in the atmosphere since the start of the Industrial Revolution. The Antarctic region was the last place in the world where levels had not reached this mark. It was first measured at the South Pole Observatory on May 23.

13. A celestial dance of sorts, caught on camera

The spacecraft Juno captured a heavenly sight in July as it approached Jupiter: video of the planet's largest four moons circling the massive orb. It's the first time that the world has seen the actual movement of these moons. The Italian scientist, Galileo Galilei, discovered the four moons — Callisto, Europa, Ganymede and Io — in 1610, finding scientific evidence that supported the then-controversial theory of heliocentrism.

14. Finding 'Dory' — in captivity

A conservation group announced in late July that researchers had successfully bred blue tang in captivity for the first time. In previous attempts, larvae had survived for only days after hatching. Marine biologists were worried that the fish could become endangered because of the popularity of the Disney character Dory, a blue tang who first appeared in the 2003 film "Finding Nemo" and who was the star of the sequel "Finding Dory," released in June 2016. After "Nemo," which was about a clown fish, was released, sales at pet stores of those fish increased by 40 percent.

NICOLE BENGIVENO/THE NEW YORK TIMES

A conservation group announced in July that for the first time researchers were able to breed blue tang in captivity. Marine biologists had worried that the popularity of the Disney character Dory, a blue tang, would endanger it.

15. A hard day's night tube

For the first time, the London Underground — the world's oldest subway system — is keeping some of its busiest lines running all night on weekends, joining just a handful of cities that offer late-night, weekend-only subway service. The new hours began on the Central and Victoria lines on Aug. 19. According to the city's transit agency, the additional service should shorten the average trip in the wee hours of the night by 20 minutes, and about 200,000 riders are expected to take advantage of it.

16. Some Olympic firsts at the Rio Games

■ For the first time in Olympic history, a team of refugees was allowed to compete — a decision made in light of refugee crises around the world. The International Olympic Committee chose 10 athletes to represent four countries torn by war and civil unrest: Syria, South Sudan, Ethiopia and the Democratic Republic of Congo.

■ The swimmer Joseph Schooling won Singapore's first gold medal, beating his idol Michael Phelps in the 100-meter butterfly. Phelps, however, did not walk away from the 2016 Games empty-handed. He won his 12th and 13th individual gold medals, breaking a record set by the ancient Grecian Leonidas in 152 B.C.

■ In addition to Singapore, eight other countries got their first taste of Olympic gold: Bahrain, Fiji, Ivory Coast, Jordan, Kosovo, Puerto Rico, Tajikistan and Vietnam.

■ Fehaid Al-Deehani was the first athlete to win gold as an independent athlete. The Kuwaiti national competed under the Olympic flag after his home country was banned from international competition by the International Olympics Committee in 2015. The I.O.C. maintains that Kuwaiti legislation undermines the independence of the Olympic movement in that country.

Turning Points

To heal a nation, lead from the middle

TURNING POINT: Donald J. Trump is elected the 45th president of the United States.

BY TREVOR NOAH

Born in South Africa to an interracial couple at a time when such relationships were illegal under apartheid, Trevor Noah weaves observations about race and ethnicity into his comedy. He has hosted various television shows in South Africa, including "Tonight with Trevor Noah," and is currently host of "The Daily Show," based in New York City.

When I took over "The Daily Show" from Jon Stewart in 2015, I was surprised to learn that my job as a late-night comedy host was not merely to entertain but to eviscerate — to attack, crush, demolish and destroy the opponents of liberal, progressive America. Very quickly, people from some quarters — mostly those same liberal progressives — criticized me for not maintaining the minimum acceptable levels of daily evisceration that were established by my predecessor.

The truth is that Jon never liked being labeled the Great Eviscerator. He didn't think it was healthy, and he always tried to think about the details of issues with a healthy dose of skepticism before going on air and putting his ideas out into the world. But through the lens of the internet, that's not what people saw. In the early days of the blogosphere and YouTube and social media, people took Jon's most strident commentary and made it go viral with clickbait headlines, blowing those segments way out of proportion, compared with the more thoughtful segments that made up most of the television show. And, unfortunately, when we look back today, the evisceration (and exasperation) is what most people remember.

The experience of stepping into Jon's shoes brought on enormous culture shock for me. In South Africa, where I come from, we also use comedy to critique and analyze, and while we don't let our politicians off the hook, we don't eviscerate one another. If anything, my stand-up shows back home are a place where we can push away the history of apartheid's color classifications — where black, white, colored and Indian people use laughter to deal with shared trauma and pain. In South Africa, comedy brings us together. In America, it pulls us apart.

I grew up under the harsh racial oppression of apartheid as a person of mixed ethnicity. The lines between black and white were clearly drawn and enforced with guns and tanks, but because I am neither black nor white, I was forced to live between those lines. I was forced to communicate across those lines. I was forced to learn how to approach people, and problems, with nuance. If I hadn't, I wouldn't have survived.

America, I've found, doesn't like nuance. Either black people are criminals, or cops are racist — pick one. It's us versus them. You're with us, or you're against us. This national mentality is fueled by the hysteria of a 24-hour news cycle, by the ideological silos of social media and by the structure of the country's politics. The two-party system seems to actively encourage division where none needs to exist.

A divisive candidacy has obscured the fact that the vast majority of Americans want many of the same things.

This has never been more apparent than during Donald J. Trump's campaign. With his flagrant misogyny and racist appeals to fearful voters, Mr. Trump succeeded in dividing an electorate already primed to turn against itself. His embittering candidacy obscured the fact that the vast majority of Americans, both Republican and Democrat, wanted many of the same things: good jobs, decent homes, access to opportunity and, above all, respect.

The past year has been so polarizing and noxious that even I find myself getting caught up in the extreme grandstanding and vitriol. But with extremes come deadlock and the death of progress. Instead of speaking in measured tones about what unites us, we are screaming at each other about what divides us — which is exactly what authoritarian figures like Mr. Trump want: Divided people are easier to rule. That was, after all, the whole point of apartheid.

To the extremists and true believers of any cause, there is an idea that moderation and compromise are a prelude to selling out and giving up, when in fact the opposite is true — moderation brings radical ideas to the center to make them possible. Nelson Mandela never wavered in his demand for "one man, one vote"; indeed, he endured 27 years in prison to make that notion a reality. But when our nation stood on the brink of civil war, Mr. Mandela spoke to white South Africans in a language that soothed their fears and reassured them that they would have a place in our new country. He spoke to militant black nationalists in a way that calmed their tempers but did not diminish their pride. If Mr. Mandela's efforts had failed, South Africa's peaceful transition to democracy would never have come to pass.

Sadly, given what we've seen in this election, Mr. Trump's victory has only amplified the voices of extremism. It has made their arguments more simplistic and more emotional at a time when they ought to be growing more subtle and more complex. We should give no quarter to intolerance and injustice in this world, but we can be steadfast on the subject of Mr. Trump's unfitness for office while still reaching out to reason with his supporters. We can be unwavering in our commitment to racial equality while still breaking bread with the same racist people who've oppressed us. I know it can be done because I had no choice but to do it, and it is the reason I am where I am today.

When you grow up in the middle, you see that life is more in the middle than it is on the sides. The majority of people are in the middle, the margin of victory is almost always in the middle, and very often the truth is there as well, waiting for us.

PHOTOGRAPHS COURTESY OF THE NOAH FAMILY

Trevor Noah, far left, with his cousins in Johannesburg in an undated photo. Top, Mr. Noah, at 3, with his mother Patricia Nombuyiselo Noah.

A review of what's ahead

The news that will definitely happen in 2017

PATRICK CHAPPATTE FOR THE NEW YORK TIMES

Scarlett Johansson on a changing Hollywood

Pushing boundaries and admitting vulnerability

TURNING POINT: The Academy of Motion Picture Arts and Sciences broadens the Oscar voting pool to include more women and minorities.

The movie business is changing. Women have become increasingly visible as directors (Kathryn Bigelow, Lisa Cholodenko, Ava DuVernay) and successful producers (Reese Witherspoon's production company Pacific Standard scored huge hits with "Gone Girl" and "Wild"; Sharmeen Obaid-Chinoy won an Oscar in 2016 for the documentary short "A Girl in the River: The Price of Forgiveness"). Yet many actresses are still paid less than their male peers, and the Academy Awards of 2016 were widely criticized for the lack of nonwhite nominees.

Only a few A-list actresses have been celebrated for their ability to throw punches or show menace on the screen, but that's beginning to change as well. Scarlett Johansson, 32, received critical acclaim for her role as an alien on the hunt in "Under the Skin" and will appear in 2017 as a crime-fighting policewoman in "Ghost in the Shell." Her superstar turn as the Black Widow in "The Avengers" series has helped to make her the highest-grossing actress of all time, pulling in over $3.3 billion for movie studios, according to Box Office Mojo. Still, as of this fall, she was the only woman in the top 20 on Mojo's list.

In an interview, Ms. Johansson discusses how women's roles in real life are changing their roles in film. The conversation has been edited and abridged.

—PATTI SONNTAG

The world has watched you grow up on screen. Over the course of that time, the roles available to women in real life have changed a lot. Is the process of filmmaking starting to reflect that?

We see more female directors, more women in various departments on set. If you looked around a film set even 10 years ago, it was basically a bunch of dudes; maybe in the wardrobe department or in the hair and makeup department there would be women. Now you see more female camera assistants, cinematographers, grips.

In the job that I'm on now, "Rock That Body," there are a number of women working as crew members, as opposed to many other productions that I've been on.

Is this changing the experience of acting for you?

It's nice to have a diverse group of people so that it doesn't become so one-note — to have a female energy on set, to have different types of people and different vibes, and a more balanced creative environment.

What draws you to a role?

I've always had the same principle for choosing roles, which is to try and make movies that I would pay to see. As I get older that's meant different things.

I've never been a superhero-comic fan exactly. I did "Iron Man 2" because I loved what [the director Jon] Favreau did with "Iron Man." It spoke to me as someone who was not a fan of that genre, and I saw a future in building a character with Marvel.

The idea of doing a franchise was exciting — being able to play a character over many installments, the challenge of playing a character who had a built-in fan base, and trying to put my stamp on that character.

Some roles that you choose are very different, like in "Under the Skin" — your predatory alien uses the men's sexuality against them, but she's not flirtatious. Is it important to try these things?

I look for projects with filmmakers who want to make things that give the audience a fresh experience.

It sounds like you like a challenge.

I've always been very competitive, and a part of that is pushing your boundaries — taking a risk, and being able to live with the loss that comes with taking a risk.

As the Black Widow in "The Avengers," we see your ability to convey vulnerability despite the character's strength.

Admitting that you're vulnerable is a very powerful thing. There's something to be said for a character having a quiet strength about them.

So many contradictory things make up a multidimensional personality. Breathing life into a character means celebrating and recognizing the fullness of them — that you can be a lot of things at one time, that it doesn't have to be black or white.

With more women on set, do you think you have more flexibility to explore all the dimensions of the character?

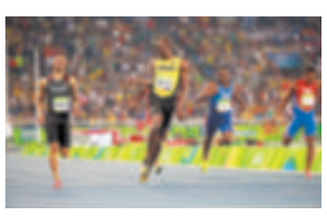
Maybe the audience is more open to these richer character storylines than they were before, so there's more of an opportunity to bring that to the screen. They want to see things that reflect the experiences that they're having. As a culture we may be becoming more accepting of differences and of the full spectrum that life gives us.

When you see films from 50 years ago, the characters reflected what people wanted to project to the world, which was very black and white and guarded, or idealistic or whatever. It's not that way anymore. The films that have a better audience reaction now are the ones where the characters are flawed. And I think that's why [the "Avengers" writer and director] Joss Whedon has been so successful in that realm, because he loves the flaws, he celebrates them. He likes to pick apart their weaknesses.

What experiences would you like to create for your daughter on screen?

My daughter is still young. Right now I think we both share the dream that I will someday be a Disney princess, but it's probably not going to happen. I've been asking for that job for the past 20 years, and nobody has booked me.

■ Simone Manuel's victory in the 100-meter freestyle secured her a place in history as the first African-American woman to win an individual Olympic gold in swimming.
■ Giulia Steingruber won a bronze medal in the vault final, making her the first Swiss woman to win a gymnastics medal.
■ The first Iranian woman to medal in the Olympics, Kimia Alizadeh Zenoorin, won bronze in taekwondo.
■ Usain Bolt of Jamaica became the first man to win three gold medals in three events — the 100-meter, 200-meter and 100-meter relay race — for the third consecutive Olympics.



DOUG MILLS/THE NEW YORK TIMES

Usain Bolt of Jamaica looked back at rival Andre De Grasse of Canada in the men's 200-meter semifinal at the Summer Olympics in Rio de Janeiro in August. Bolt ultimately went on to win that final, along with winning two other gold medals.

Coming Up

17. The first of many flights to Cuba
In yet another sign of thawing relations between the United States and Cuba, JetBlue Flight 387 departed from Fort Lauderdale, Fla., and touched down in Santa Clara, Cuba, on Aug. 31. It was the first direct commercial flight between the countries since the 1960s, and two Cuban-American pilots were at the helm. According to the Transportation Department, up to eight carriers are expected to offer direct flights to Havana by the end of 2016.

18. Zombies take over South Korea
For the first time, a zombie movie made in South Korea became a summer smash, beating box-office records in that country, including the highest single-day gross of $9.9 million. "Train to Busan" focuses on the plight of a businessman traveling with his young daughter aboard a high-speed bullet train hit with a terrifyingly fast zombie outbreak. South Korean film critics note that the movie resonates with a populace that is disenchanted with government officials, who are portrayed in the movie as trying to cover up the outbreak.

19. Chinese universities rank in top 100 list
In 2016, universities in mainland China ranked among the top 100 in the world. The Academic Ranking of World Universities, released in September, ranked Tsinghua University 58th, while Peking University trailed at 71st place. For the 14th year in a row, Harvard University retained the No. 1 spot. Western universities have tended to dominate the list, which has been put together by an independent higher-education consultancy since 2003.

A new face to grace the $20
Move over, Andrew Jackson. Treasury Department officials announced plans to replace the portrait of the seventh president with that of the abolitionist Harriet Tubman on the $20 bill. Tubman will be the first black woman to appear on United States paper currency. Martha Washington, wife of George Washington, and Pocahontas appeared on certificates in the 1800s. The $5 and $10 bills will also be reconfigured in the coming years, with women added to the backs of both bills.

Starbucks sets its sights on Italy
Starbucks has more than 24,000 stores in 70 countries, but one country has escaped the siren call of its famous green mermaid — that is, until early next year. The chain announced that it would open stores in Italy, where coffee is a way of life. The first Italian Starbucks are expected to open in Milan, where the chief executive, Howard Schultz, said that he was inspired more than three decades ago to revolutionize how Americans take their coffee.