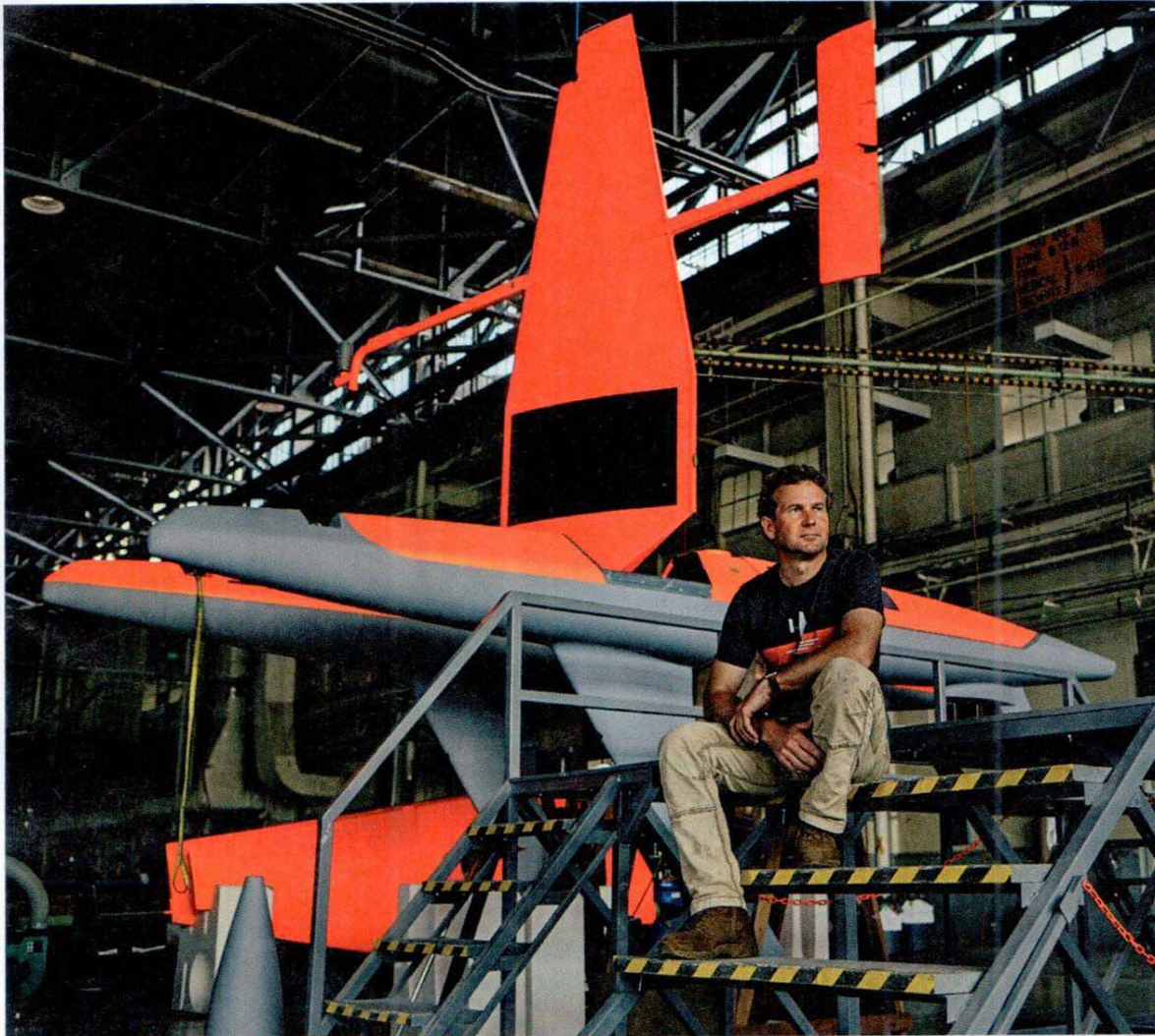


A.I. Painted This

It's also driving cars, making money, exploring oceans...and freaking people out



◀ Jenkins's saildrones proffer insights into weather, fishing, shipping, and oil and gas

**THE SOONER
THAN YOU
THINK ISSUE**

- 40 **The Hidden Brain Behind Computer Brains**
Jürgen Schmidhuber thinks he can make them think, and deserves more credit
- 46 **Machine Nonlearning**
A master coder tries to get AI to write his article—and gives up
- 50 **Teaching Algorithms Right From Wrong**
Data scientist Kristian Lum battles bias in AI and machine learning
- 52 **Driver's Ed for Driverless Cars**
Mobileye is putting millions of autonom-ish vehicles on the road
- 56 **A Cryptocurrency's Best Friend**
Bitmain says AI is enough like Bitcoin that its chips should run both
- 58 **The Little Saildrone That Could**
Richard Jenkins's self-propelled boats bring back a bounty of research
- 64 **How We Got Here**
The history of AI is longer, more complex, and more Canadian than you knew
- 68 **Later Than You Thought**
A few years in, these revolutions are still a few years out

■ IN BRIEF	5	The high court blesses betting; biggest weed deal ever
■ AGENDA	6	Russia ponders countersanctions; more <i>Star Wars</i>
■ THE BLOOMBERG VIEW	6	Malaysians voted for change. Can leaders deliver?
■ REMARKS	8	Turkey's economy is ailing again, and so is its democracy
1 BUSINESS	13	With a dubious business plan, MoviePass is cratering
	15	Air France is flying without a safety net
	17	Japan's carmakers finally welcome female engineers



2 TECHNOLOGY	20	Intel's ex-hacking honcho uncovers a new threat
	21	Australia works to attract more tech IPOs
	23	Piazza, the social network for techies—and their hirers
3 FINANCE	25	As a financial novelist, Tom Wolfe leaves a void
	26	Brokers' offices can be breeding grounds for harassment
	27	An ETF based on MAGA is big on energy, small on tech
	29	DBS maneuvers to rule Asia's crowded fintech sector
4 ECONOMICS	30	About that Chinese-American alliance: It's falling apart
5 POLITICS	34	Palestinians feel abandoned. U.S. moves aren't helping
	36	Wyoming aims to be the Cryptocurrency State
	37	The fallout from teachers' strikes in GOP strongholds

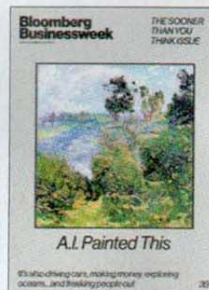
How to Contact
Bloomberg
Businessweek

Editorial
212 617-8120
Ad Sales
212 617-2900
731 Lexington Ave.,
New York, NY 10022
Email
bwreader
@bloomberg.net
Fax
212 617-9065
Subscription Customer
Service URL
businessweekmag
.com/service
Reprints/Permissions
800 290-5460 x100
or email
businessweekreprints
@theygsgroup.com

Letters to the Editor
can be sent by email,
fax, or regular mail.
They should include
the sender's address,
phone number(s),
and email address if
available. Connections
with the subject of
the letter should be
disclosed. We reserve
the right to edit for
sense, style, and space.

Follow us on
social media

Facebook
facebook.com/
bloomberg
businessweek/
Twitter
@BW
Instagram
@bloomberg
businessweek



Cover: AI-generated painting by Robbie Barrat

● **The U.S. Supreme Court struck down a 1992 law that precluded states from legalizing betting on sports.**

New Jersey has long pushed for such a measure to buttress Atlantic City casinos. Bookmakers in Las Vegas, where sports betting was grandfathered, handle \$150 billion a year in wagers.

● **Japan's economy shrank during the first three months of the year, the first contraction since the final quarter of 2015, snapping the country's longest growth streak in 28 years. Analysts expect the retreat to be temporary.**

● **Michigan State University settled a lawsuit with hundreds of women who say they were**



abused by Larry Nassar, a former sports physician at the school and for USA Gymnastics, for \$500 million. The settlement didn't include a confidentiality agreement.

● **Aurora Cannabis, based in British Columbia, bought Ontario's MedReleaf in a**

\$2.3b

merger, the biggest marijuana deal on record.



● **Dutch art dealer Jan Six asserted that *Portrait of a Young Gentleman* was painted by Rembrandt. A leading expert on the artist has endorsed the claim. Six is descended from the subject of another Rembrandt, *Portrait of Jan Six*, which has remained in his family.**

● **Tesla said it would once again pause production of its Model 3 sedan. The company is hoping to build 6,000 vehicles a week to meet a backlog of orders.**



● **A Dutch court authorized ConocoPhillips to seize a refinery and other assets held on Curaçao by Venezuela's state oil company valued at**

\$636m
The move will enable ConocoPhillips to recoup some of the \$2 billion it was awarded after Venezuela nationalized its assets there.

● **In a concession to activist investor Carl Icahn, Xerox scrapped a \$6.1 billion bid to merge with Fujifilm Holdings. Icahn had launched a proxy fight against the deal, arguing that it undervalued Xerox.**

● **“We're only one ruling away from a catastrophic case.”**

Apple CEO Tim Cook told Bloomberg TV's David Rubenstein that he emphasized the urgency of resolving the “Dreamers” issue in an Oval Office meeting with President Trump.

- North Korean leader Kim Jong Un said he'd cancel the summit with the U.S. rather than abandon his nuclear ambitions.
- China tested its first domestically built aircraft carrier, a step toward enlarging its navy.
- Lachlan Murdoch will be chairman and CEO of a new Fox company following 21st Century Fox's sale of assets to Disney.
- Animal drug giant Zoetis agreed to buy Abaxis, a veterinary diagnostic service, for \$1.9 billion.



► From Russia With Resentment

Russia's parliament plans to vote on countersanctions for the U.S. and the EU. The bill makes it a crime to refuse to do business with a Russian citizen under sanction by the U.S. Import restrictions in an early draft were cut to avoid escalating tensions.

► Plaintiffs in a \$13 billion fraud suit against Goldman Sachs over asset-backed securities sold in the runup to the financial crisis argue for class status on May 22.

► Disney's *Star Wars* spinoff *Solo* hits theaters on May 25, six months after *The Last Jedi* had the second-highest domestic opening of all time.

► French President Emmanuel Macron meets with global technology leaders at the Tech for Good summit in Paris on May 23.

► Royal Dutch Shell is expected to face shareholder anger at its May 22 annual meeting over a fatal fuel spill last summer in Pakistan.

► The Federal Reserve will release minutes of its May 1-2 meeting, where it chose unanimously not to raise rates.

► Euro area finance ministers gather in Brussels on May 24 to discuss a tax on financial transactions that could raise as much as \$23.5 billion annually.

■ THE BLOOMBERG VIEW

Malaysia's Moment

● Don't waste it. Now is the time to rebuild the country's courts, free press, and other independent institutions

Quite unexpectedly, Malaysians just voted out their ruling party for the first time since independence in 1957. They voted for change, and that's what their new leaders need to deliver.

You'd think so stunning an upset would make a bold departure inevitable. Not so. Malaysia's fractious opposition won only after joining forces with 92-year-old former Prime Minister Mahathir Mohamad—a stalwart of the long-ruling United Malays National Organization and hardly a change agent.

In his first stint in power, Mahathir laid the foundations of Malaysia's most illiberal policies. He defanged the courts and the press and jailed rivals, including Anwar Ibrahim, his former deputy. (Mahathir says he plans to pardon Anwar.) Mahathir expanded the Malay-first affirmative-action programs that fueled cronyism and drove bright, young Chinese and Indians to flee the country. Even now he vows new populist measures—such as scrapping a recently introduced goods-and-services tax—within his first 100 days.

Yet if voters had wanted pure populism, they could have reelected UMNO and its leader, Najib Razak. If urban Malays had cared more about their pocketbooks than a free press or civil liberties, the opposition wouldn't have won in such numbers.

The ruling coalition was ejected despite massive gerrymandering, nativist appeals, a muzzled press, and concerted efforts to depress the vote—a sign that the system is no longer working for most Malaysians. Voters know they need better access to education when automation threatens more than half the country's jobs. They ask why government-linked companies invest in high-end health care and housing rather than working to lower the cost of basic services.

Malaysians can also see how far their country has drifted from its proud self-image as a modern, tolerant, multiethnic nation. Although voters in some parts of the country did succumb to the appeal of more extreme Islamic parties, others rejected the government's efforts to drive a wedge between Malays and the country's minorities. Increasingly, Malays acknowledge that affirmative-action policies need to be reformed to focus less on race.

Whatever their differences, the various parties making up the new government can agree on the need to rebuild the country's battered institutions. Mahathir has talked about restoring the independence of the judiciary and other institutions while reducing the powers of the prime minister. The new government should prioritize those tasks. It should also withdraw draconian security regulations and challenge the Muslim chauvinists with whom the previous government flirted. And if anyone can sell rural Malays on the need to reform affirmative-action policies, it's Mahathir—their long-standing champion.

Malaysians just did something bold. It's an unforeseen opportunity, and their new leaders mustn't waste it. **B**

For more commentary, go to bloomberg.com/opinion

REMARKS

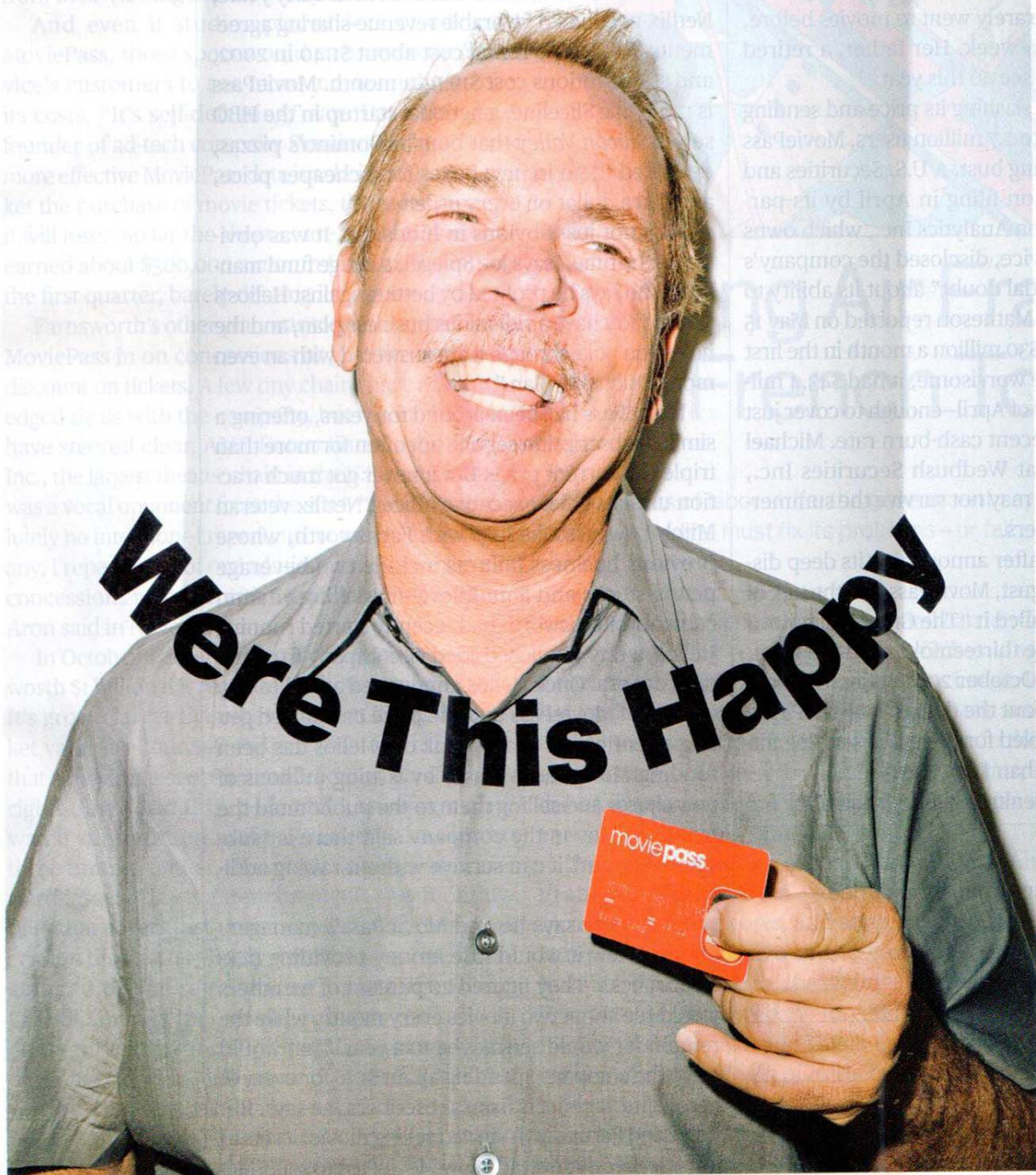


● Could labor turbulence ground Air France-KLM?

● Japan searches for new automakers—women



If Only MoviePass's Investors



Were This Happy

Mitch Lowe's subscription service for film junkies is losing money on many of its members. Roll the end credits?

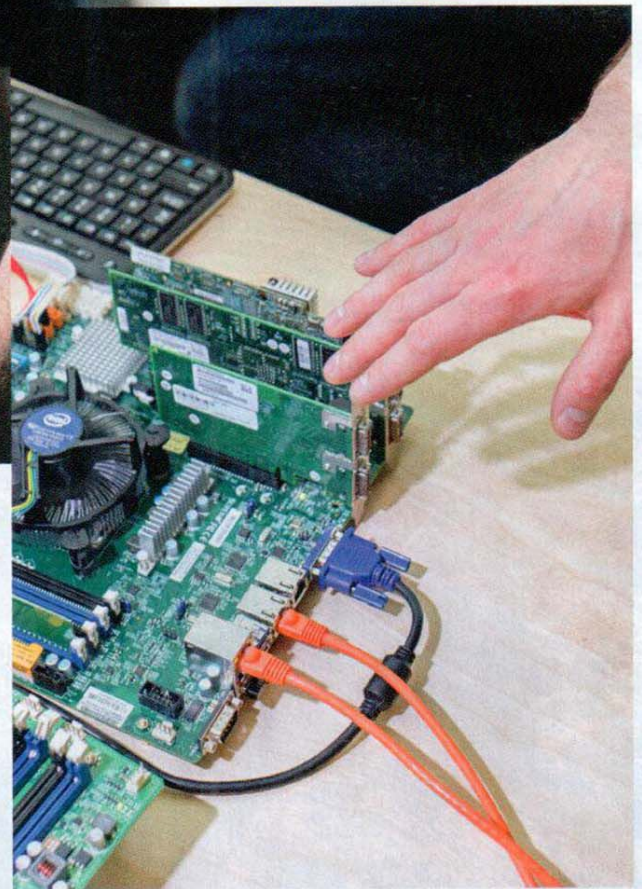
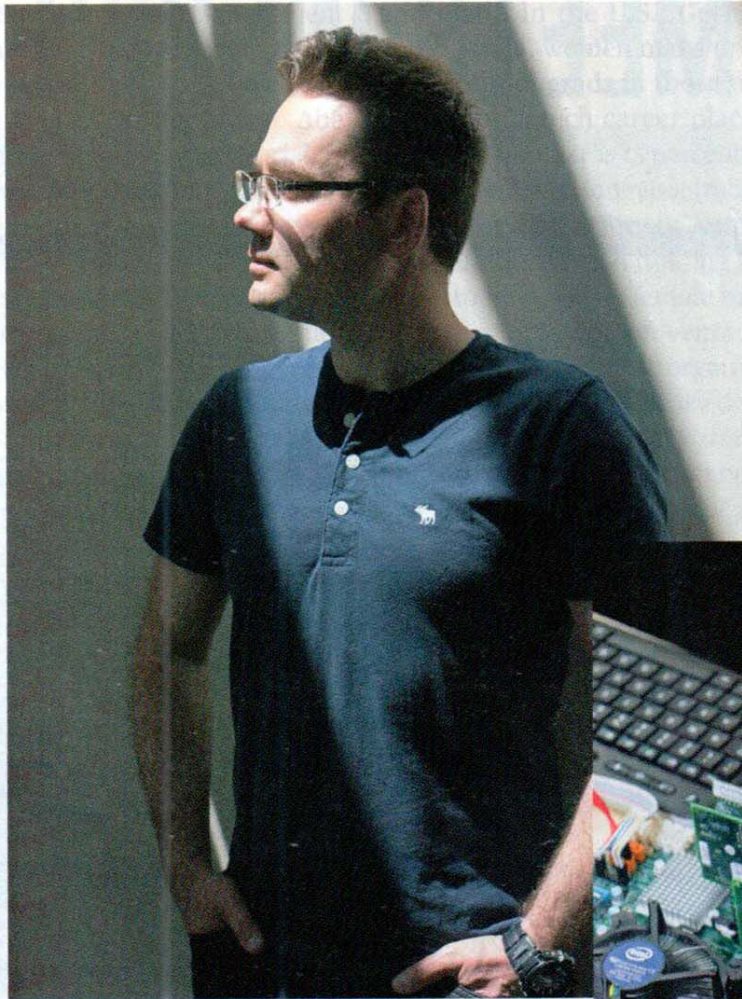
May 21, 2018

Edited by James E. Ellis and David Rocks

Businessweek.com

PHOTOGRAPH BY BEN RAYNER FOR BLOOMBERG BUSINESSWEEK

Cracking a Computer's Inner Core



- Yuriy Bulygin delved into the threat that Spectre posed and found new dangers that hackers could exploit

Yuriy Bulygin knows all about computer vulnerabilities. He spent most of his career at Intel Corp. studying security flaws in chips, including several years as the company's chief threat researcher, until last summer. So you can believe him when he says he's found something new: His latest research, set to be published on May 17, shows hackers can exploit previously disclosed problems in microprocessors to access a computer's firmware—microcode that's stored permanently inside processors and other chips—to get to its most sensitive information. “The firmware has access to basically all the secrets that are on that physical machine,” he says.

The hacking technique Bulygin found exploits the Spectre vulnerabilities, initially unearthed by Google and other researchers and disclosed earlier this year. The tech giant discovered that millions of computers and smartphones could be compromised by Spectre, which takes advantage of glitches in how processors try to predict what data they believe users will need next, and fetch it in advance. Bulygin's technique goes a step further by enabling hackers to read data from a particular type of firmware called system management mode memory. The code is linked to access rights that control key functions of the machine, including shutting down the central processing

May 21, 2018

Edited by
Julie Alnwick and
Jeff Muskus

Businessweek.com

Remembering Tom Wolfe



● His novels captured the spirit of Wall Street's extraordinary new Gilded Age. The mystery is why so few have emulated him

There are many reasons to praise Tom Wolfe, both as a novelist and as a journalist. If Charles Dickens defined Victorian London, then the capital of the world, Wolfe, who died on May 14 at 88, held up a similar mirror to modern America—and New York in particular. One of Wolfe's less celebrated achievements was that he was a great novelist of finance—the only one that this frenzied era of moneymaking has produced.

The Bonfire of the Vanities was arguably the first great financial novel since Anthony Trollope's *The Way We Live Now*. Many eminent American writers have looked at the victims of Wall Street and broader capitalism, including Sinclair Lewis and John Steinbeck. But Wolfe was the first American

one to look at the victors—the “Masters of the Universe”—like Sherman McCoy, who sold bonds for a living. *Bonfire* drills into their lives, their hangups and petty ambitions, enumerating their virtues and vices often literally (saying how much their clothes, apartments, and lunches cost).

Looking back, especially through the harsh lens of the 2008 financial crisis, it's strange how sympathetic Wolfe was to Sherman McCoy. This is a relative judgment: We first meet Sherman kneeling on the floor pathetically trying to put a leash on a dachshund, and Wolfe skewers the bond trader's insecurities about “going broke on \$1 million a year”—just as he savages the “social X-rays” and freeloading English journalists. But as that implies, it's equal-opportunity skewering. McCoy is a much more nuanced character than, say, Augustus Melmotte, the villainous French antihero of *The Way We Live Now* (which Trollope partly based on the Crédit Mobilier scandal), let alone the cartoonish Gordon Gekko in Oliver Stone's *Wall Street*.

Wolfe spent time on trading floors, tried to ►

May 21, 2018

Edited by
Pat Regnier

Businessweek.com



Palestinians Won't Be Ignored

● Recent flare-ups draw attention back to Gaza as other regional concerns dominate

The Israeli-Palestinian conflict, long a stand-in for the challenges of the entire Middle East, has increasingly come to be viewed as a local problem. The brutal scenes along the Israel-Gaza border this past week were the culmination of six weeks of demonstrations leading up to the 70th anniversary of Israel's founding, in which scores have

been killed and thousands injured. They were also a deliberate reminder of an era when the fate of the Palestinians was seen as central to the region—a time when Palestinian suffering was among the first issues raised by officials from Jordan, Saudi Arabia, or Egypt visiting Washington.

The strategic shifts over the past several years have marginalized the Palestinians. The Arab uprisings that began in Tunisia in late 2010 pushed into the open long-suppressed anti-authoritarian yearnings. Since President Donald Trump took office, concerns over the ambitions of Iran, a majority Shia Muslim nation, drew the Sunni Muslim kingdoms, headed by Saudi Arabia, into a de facto alliance with Israel and the Trump administration. And corrosive splits within the Palestinian national movement left its leadership in chaos just as Israeli commando raids, spying, and cooperation from Palestinian security forces combined to

May 21, 2018

Edited by
Jillian Goodman
and Andre Tartar

Businessweek.com