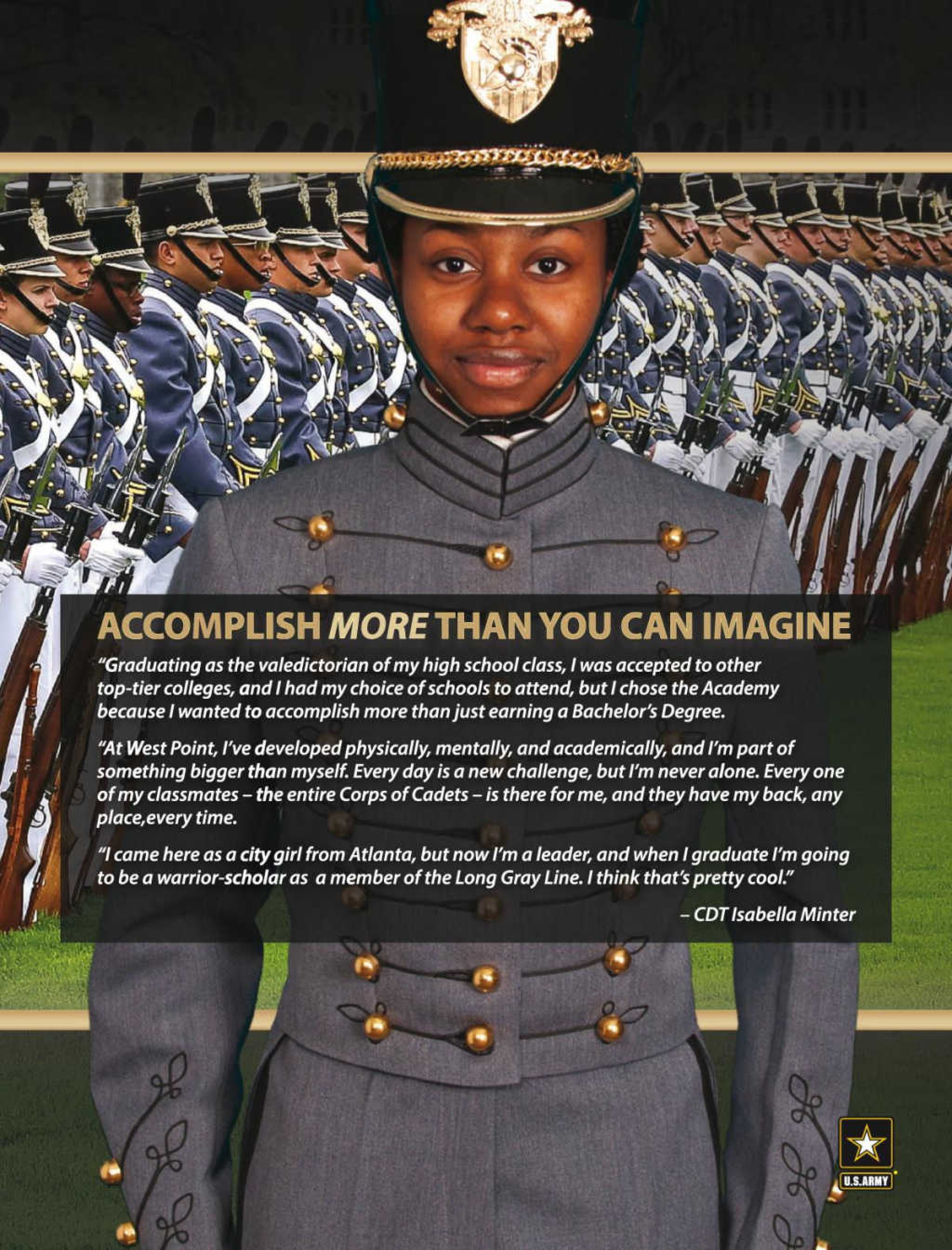

AMERICA'S BEST COLLEGES • POKÉMON GO: THE INSIDE STORY
AUGUST 23, 2016
Forbes
EXCLUSIVE NEW RANKING!
100 TOP WEALTH ADVISORS
NEW BILLIONAIRE KEVIN SYSTROM
"WE'RE THE VISUAL PULSE OF THE WORLD."
INSTAGRAM CAPTURED
THE $50 BILLION GRAND SLAM THAT'S DRIVING FACEBOOK'S FUTURE.


ACCOMPLISH MORE THAN YOU CAN IMAGINE
"Graduating as the valedictorian of my high school class, I was accepted to other top-tier colleges, and I had my choice of schools to attend, but I chose the Academy because I wanted to accomplish more than just earning a Bachelor's Degree.
"At West Point, I've developed physically, mentally, and academically, and I'm part of something bigger than myself. Every day is a new challenge, but I'm never alone. Every one of my classmates – the entire Corps of Cadets – is there for me, and they have my back, any place,every time.
"I came here as a city girl from Atlanta, but now I'm a leader, and when I graduate I'm going to be a warrior-scholar as a member of the Long Gray Line. I think that's pretty cool."
– CDT Isabella Minter
U.S.ARMY

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VOLUME 198 NUMBER 2

COVER PHOTOGRAPH BY ETHAN PINES FOR FORBES.

KEVIN SYSTROM WEARS A WOOL SPORT JACKET BY BOGLIOLI, SILK POCKET SQUARE BY BRUNELLO CUCINELLI AND COTTON SHIRT BY CANALI.

STYLE DIRECTOR: JOSEPH DEACETIS; STYLE ASSOCIATE: JUAN BENSON.

Forbes

ON THE COVER


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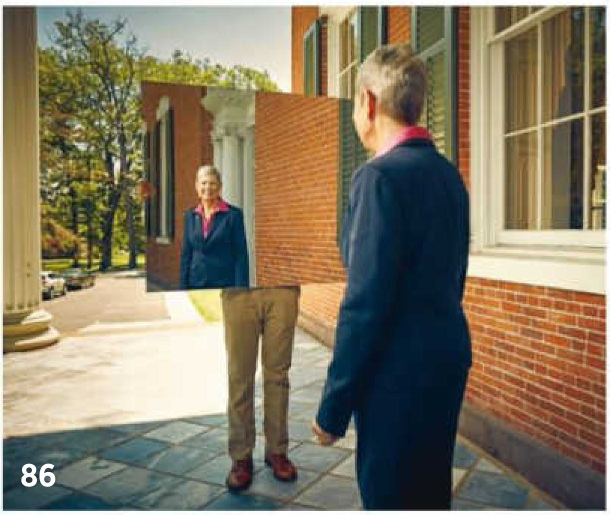

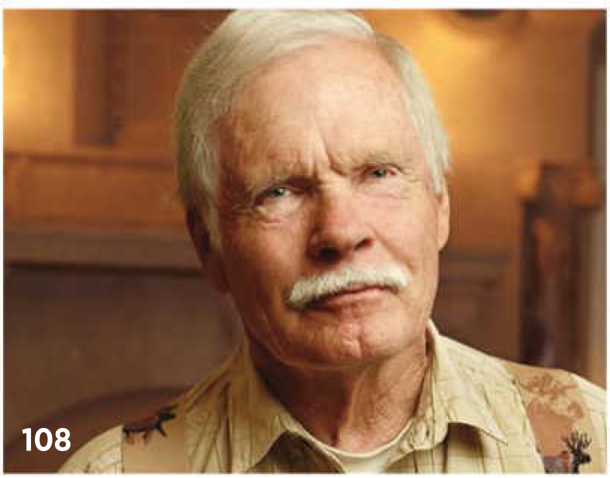

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INSIDE SCOOP

The Perception And Our Reality

BY LEWIS D'VORKIN

SOME NEWLY RELEASED FORBES magazine statistics landed in my e-mail box last week. The numbers transported me to a media galaxy far, far away—one that many in our business today never knew or would recognize. The year was 1985, when *Rolling Stone* launched its highly acclaimed perception/reality advertising campaign. A print ad featured a Volkswagen van with flower-power decals and the headline "Perception." Next to it was a sports car and the headline "Reality." More than 60 ad executions like it were to come over the next five years. The goal: to show that the music magazine was as influential with yuppies as it was with hippies. The result: *Rolling Stone* flourished, with ad pages rising 58%.

Well, today is not then. Digital media have made sure the magazine business will never be what it was. Still, the numbers I saw tell a powerful story about how FORBES is perceived by today's new readers. In a world of social media, websites and apps, our 98-year-old belief in entrepreneurial capitalism is very much alive and well in print with a new generation of doers.

Last issue, I published a chart we're quite proud of. According to MRI, an industry research firm, our magazine readership has been on the rise while all our competitors have seen declines. In fact, six of our ten most-read issues—topped by the issue with Ashton Kutcher on the cover, which garnered 8.8 million readers—came in the most recent calendar year.

MRI's new stats help explain why. From spring 2009 to spring 2016, the magazine's Millennial readers (18–34) rose 50%, the largest gain for any of the 144 MRI-measured magazines, which as a group fell 13%. All competitors in our category were down double digits as well.

Bentley or Tesla readers—we're thrilled to have both.


BECAUSE SOMEDAY
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FACT & COMMENT

"With all thy getting, get understanding"

THE SOURCES OF OUR DISCONTENT

BY STEVE FORBES, EDITOR-IN-CHIEF

THE WORLD is unraveling, and only the U.S. has the power and moral stature to stop a slide that could have catastrophic consequences. Hardly a day goes by without a hideous, unnerving event—another barbarous Islamic terrorist attack, an aborted coup in Turkey that has become a pretext for its Islamist leader to make himself a dictator in all but name, China's increased aggression to illegitimately seize control of the South China Sea, Putin putting the squeeze on former pieces of the old Soviet empire. The global economy continues to sputter; the IMF has once again lowered projected growth rates for the remainder of this year and for 2017. The long economic stagnation is fueling fiercer political resentments as radical, authoritarian parties gain strength in Europe.

There are two principal sources of this global malaise.

• **The economy.** Forget the nonsense chatter about "secular stagnation" and other seemingly portentous forces that supposedly doom us to sluggish or nonexistent growth. We aren't doing well because of government policy errors—excessive taxation, regulation and spending. In political and economic circles the biggest cause, monetary policy, gets no mention at all because policymakers and observers think it's a tool for growth. The central bank policies of quantitative easing and zero interest rates have perversely skewed credit markets in a way that is deflating economies, not stimulating them. Governments and corporations have access to cheap money, while the most dynamic, creative parts of the economy—small and new enterprises—suffer short rations.

Pro-growth structural changes in fiscal and monetary policy would lead to rapid revivals of dead-in-the-water economies.

Such reforms do *not* include blowing up the global trading system with new tariffs and other barriers to commerce. There are plenty of remedies on hand today to deal with actual trade abuses.

• **Isolationism.** Barack Obama deeply believes the leftist canard that the U.S.—and before us, the European imperialist states—is the source of all the world's woes. Pull back from the world and the rest of the planet will sort itself out. It might be a messy process, but someday it will end well and people will be happier.

But the 1930s showed us what happens when aggression is not forcefully countered. That's why the U.S. has been the free world's leader since WWII. No other democracy has the strength and global reach to do this job. Expensive? What we spend on defense today is a fraction of what fighting a major war would cost, not to mention the horrific loss in lives. Not letting a hostile or potentially hostile power dominate a region or the world has been the foundation of the extraordinary expansion in global prosperity since 1945, fueled by international trade. If we continue Obama's isolationist policies, the world will turn into a more dangerous and less prosperous place.

Which brings us to Donald Trump's musings on NATO, one of history's and freedom's most amazing success stories. It is the essence of simplicity: An attack on one member is an attack on all. NATO stayed the hand of the Soviet Union, and it is the reason that Putin hasn't been even more aggressive against the former Soviet states of Lithuania, Latvia and Estonia, not to mention such onetime Soviet satellites and now NATO members as Poland. Under NATO's security umbrella Europe became a prosperous, inward-looking continent instead of a cockpit of big-power politics. War between Germany and France today is inconceivable.

Yes, our allies should spend more on defense. But the profound, fundamental point is this: Their safety is *our* safety. The U.S. is not some for-hire global protection agency.

As the U.S. under Ronald Reagan did in the 1980s, we must take the lead on pro-growth reforms, such as a massive tax cut and stopping the central bank's perversions of our credit markets. Other nations will follow suit, just as they did more than three decades ago.

And we must also actively engage with the world—not trying to remake it in our image but ensuring that the bad actors are kept at bay.

Price-Fixing by the Fed

The focus on whether the Federal Reserve will raise interest rates raises a question no one thinks to ask: *Should the Fed—or any other central bank, for that matter—be in the business of manipulating interest rates in the first place?*

The answer is no.

History shows that since Roman times—and even before—price controls don't work. They deform markets, doing far more harm than good. President Richard Nixon imposed them in the early 1970s, and the result was disastrous, especially in the energy field. When Ronald Reagan, soon after taking office, removed oil-and-gas caps, the price of oil plummeted and the gas lines disappeared. Time and time again we've seen the baleful impact that rent controls have on the creation of new, affordable housing.

Setting interest rates is no different. They are the price that lenders pay borrowers for money. The question is, how much damage will the central bank's machinations wreak on the economy?

That question has become especially acute since the economic crisis of 2008–09, when the Fed went from suppressing short-term rates to suppressing long-term rates as well. The Bank of Japan (BOJ) has been playing this game since the 1990s. Today the BOJ and the European Central Bank (ECB) have gone to negative interest rates on bonds. The impact of all this has been horrible. The manipulation of interest rates, combined with the excessive regulation of banks, has caused bank lending to small and new businesses to wither. Startups, essential to job creation and innovation, are a fraction of what they should be. Working capital to finance inventories has become less available and, contrary to the Fed's motives, more expensive. Ditto the money for expansions. Remember, bonds are instruments for large, established businesses, not for the everyday enterprises and startups that are crucial to a well-functioning and expanding economy.

Whether it fully appreciates it or not, the Federal Reserve has gone into the business of credit allocation. Uncle Sam and large corporations find credit all too easy and cheap to obtain, while the rest of the economy suffers. Apple has cash and financial instruments totaling more than $230 billion, yet it has been issuing tens of billions of dollars in bonds to engage in financial engineering, namely buying its own stock and raising its dividend. Earlier this year Exxon Mobil sold $12 billion in bonds for buybacks, and other companies have done the same for the purpose of purchasing their own equity. And why not, when money is at virtually giveaway prices?

Noted economist David Malpass, a fierce and longtime critic of what the Fed and other central banks have been doing, has pointed out that the proportion of bonds to the U.S. economy's total credit has surged from 39% a decade ago to 53% today. Manifestly, this isn't healthy, as the global economic situation testifies. The reliance on central banks to gin up growth has allowed governments to avoid making badly needed structural changes, such as cutting tax rates, reducing bloated public sectors, liberalizing antigrowth labor laws and easing suffocating regulations.

Economists will cry that interest rates are different, that manipulating the price of lending money is essential to guiding the economy. Nonsense. Since when has such central planning ever worked? Economies aren't like an automobile whose speed can be regulated by an accelerator. By such logic the Fed should have the power to decree price reductions for everything: Cut all prices by 50%, and watch the economy boom as people are thereby stimulated to buy more stuff!

But isn't cutting the cost of money a crucial tool for fighting recessions? No. Economies, if not hobbled by structural barriers, will recover quickly enough on their own.

But what about the Great Depression? That catastrophe wasn't caused by some inexplicable failure of free markets but by disastrous government policies, namely the collapse of global trade, which was triggered by the U.S.' enactment of the sweeping Smoot-Hawley Tariff Act and the retaliatory trade restrictions of other nations that followed. The debacle was worsened by countries responding to the downturn with massive tax increases (the U.S. hiked its top income tax levy from 25% to 63% and boosted excise taxes on an array of items such as movie tickets).

Before the Depression central banks raised or lowered the rates charged to banks that borrowed from them only to keep their currencies fixed to gold.

The most constructive act the Fed could put in place would be to declare that at a date certain—say, a few weeks from now—it would cease interest rate manipulation. Borrowers and lenders alone would determine the price of money. The only rate the Fed would set would be its discount rate—that is, the price it charges financial institutions that wish to borrow from it.

None of this, of course, would take away from the Federal Reserve's role as lender of last resort.

Freeing interest rates from these current shackles would beneficially impact today's warped, ill-functioning credit markets.


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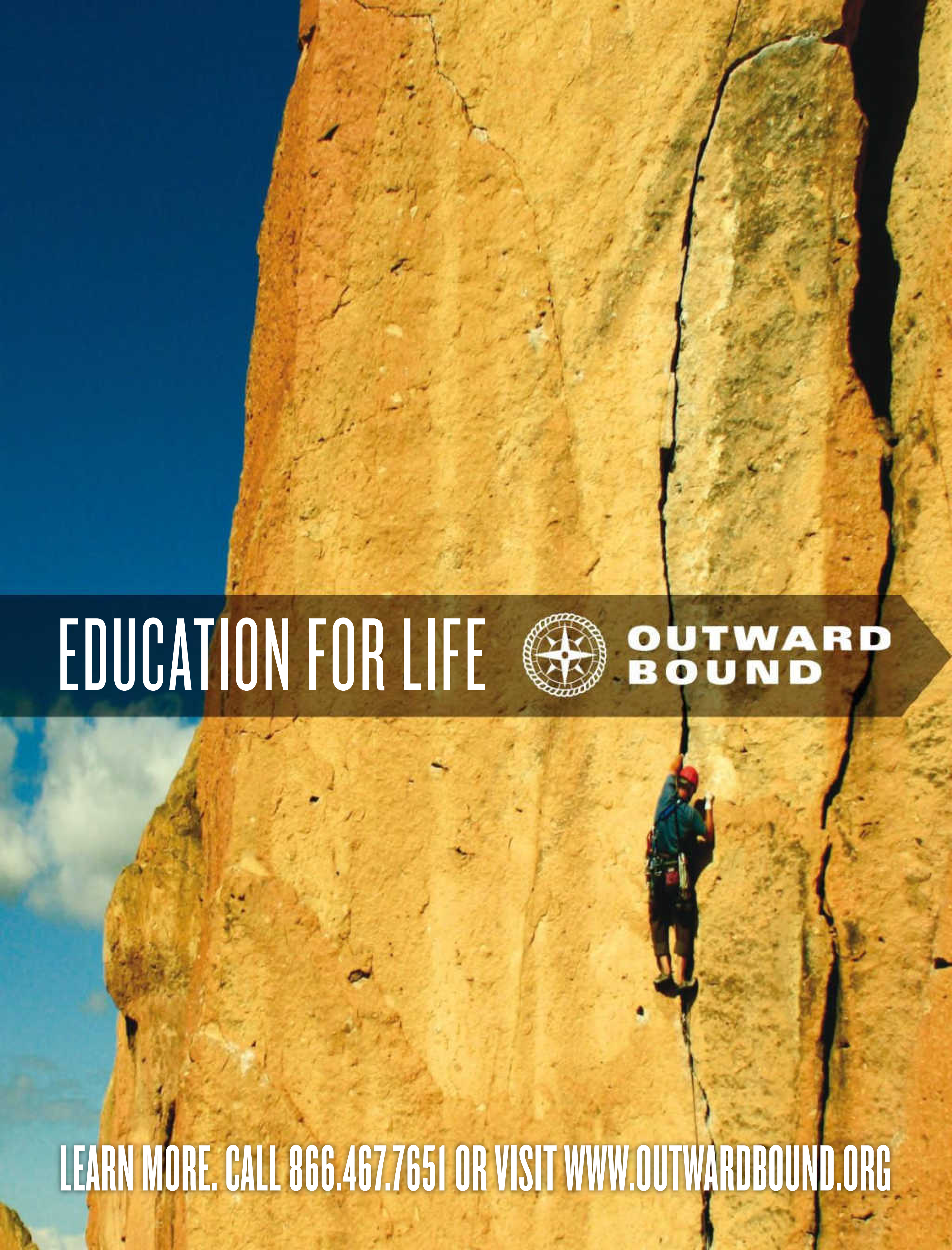
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LeaderBoard

AUGUST 23, 2016

This is pay dirt—a chunk of West Texas oilfield bored out of the earth two miles down. At Parsley Energy, Bryan Sheffield's geoscientists test these core samples to help figure out where to drill next in the Permian Basin—America's most profitable oilfield, which has made the 38-year-old Sheffield into a billionaire.

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PHOTOGRAPH BY DARREN CARROLL FOR FORBES

MEET THE NEIGHBORS

Parkside Paradise

ACROSS THE STREET from the Central Park Zoo sits 834 Fifth Avenue, a limestone sanctuary of Manhattan's elite for nearly a century. Almost from the moment its doors opened in 1931, the Art Deco-style masterpiece has been one of the city's most prestigious addresses. Gaining access to 834 Fifth—home today to billionaires and Wall Street executives—is tough; the moneyed bastion has just 24 units. One is newly available following the death of Salomon Brothers legend John Gutfreund this past March. Even by New York standards, the property has an eye-watering asking price: $120 million.

Charles Schwab

PURCHASE PRICE: $27.7 MILLION (2007)

Miriam Haas

PURCHASE PRICE: $12.5 MILLION (2010)

The billionaire investing guru scooped up the ninth-floor pad even though he already owned a smaller penthouse six floors above. Three years later he sold the place to Miriam Haas, matriarch of the Haas family and a board member at Levi-Strauss, the jeansmaker founded by her late husband's great-grand-uncle.

Philippe Laffont

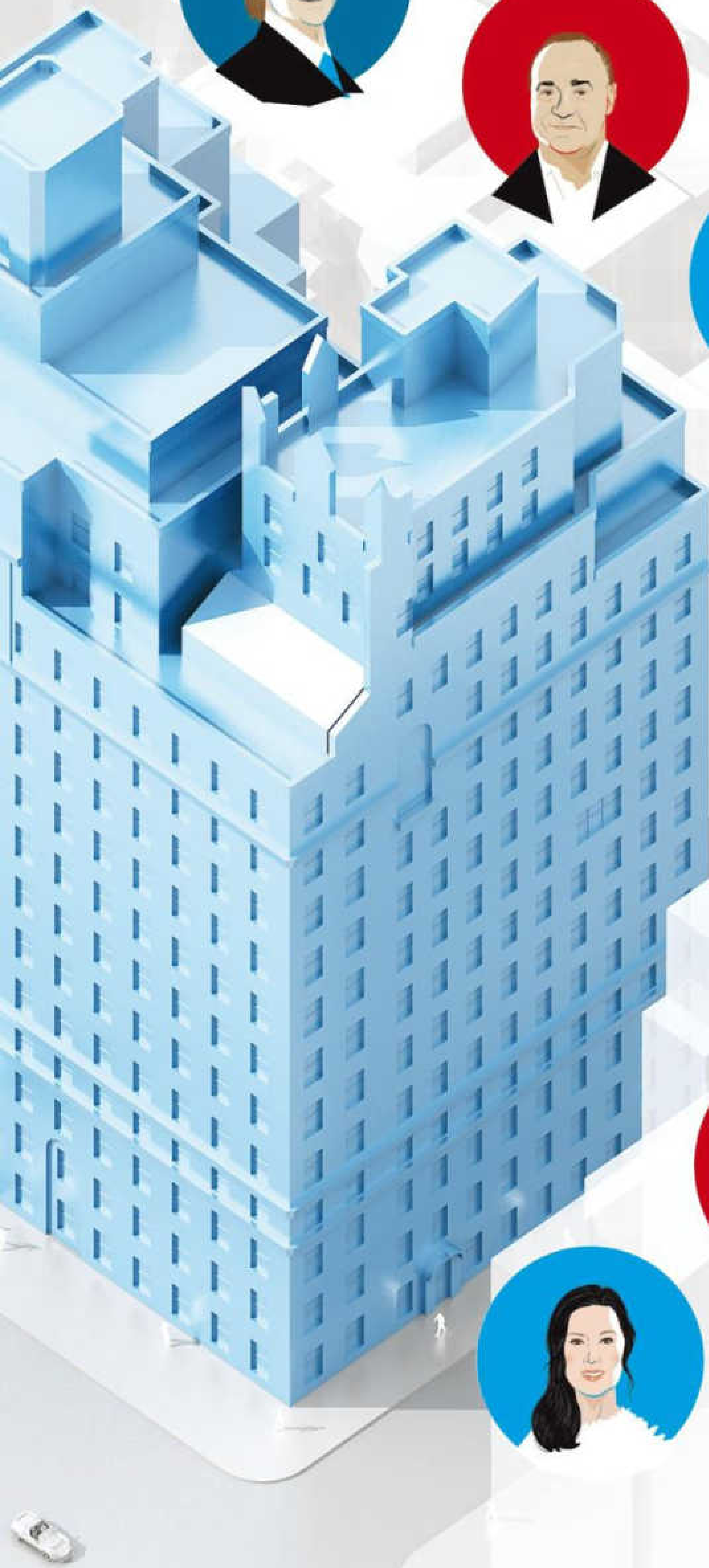
PURCHASE PRICE: $27 MILLION (2012)

He's one of billionaire Julian Robertson's tiger cubs, and when the closing bell sounds, Laffont, who now runs Coatue Management, can return to either his two-story duplex or his apartments on the fifth and tenth floors—all three of which he bought in 2012.

John Gutfreund

LISTED PRICE: $120 MILLION (2016)

As a bond trader, Gutfreund knew no limits, and he lived that way, too—a marble-ensconced existence within a two-story, 12,000-square-foot apartment. Among its extravagances: 12.5-foot-high ceilings, a walk-in steel safe, a butler's pantry and walls adorned by meticulously preserved 17th-century leather. Beyond the 7 bedrooms and 10 bathrooms lies a 50-foot-long living room made homey (a little) by two fireplaces. "I've been doing this for 30 years, and it's the most special Fifth Avenue offering I've ever encountered," gushes John Burger, the apartment's listing agent. It's currently the most expensive residential property on the market in New York City.



Mark Rachesky

PURCHASE PRICE: $33.5 MILLION (2007)

The former Carl Icahn lieutenant and current Lionsgate chairman picked up his duplex near the height of the market.

Len Blavatnik

PURCHASE PRICE: $77.5 MILLION (2015)

Billionaire Blavatnik's purchase of his 14-room duplex (from New York Jets owner Robert Wood Johnson IV) set a Manhattan co-op record. What the Ukrainian-born billionaire got was 6,700 square feet, 5 bedrooms, 5.5 bathrooms and 3 maid's rooms.

Hamilton "Tony" James

PURCHASE PRICE: $24.9 MILLION (2011)

The billionaire chief operating officer of the Blackstone Group owns a two-story duplex near the apex of 834 Fifth.

J. Tomilson Hill

PURCHASE PRICE: $30.5 MILLION (2015)

A few floors below Tony James lives Hill, Blackstone's billionaire vice chairman. His 2-bedroom apartment (reportedly with 11.5-foot-high ceilings) boasts a terrace, wood-burning fireplaces and a wine vault.

Anne and Robert Bass

PURCHASE PRICE: $42 MILLION (2012)

The billionaire couple (his Oak Hill Capital Partners manages more than $40 billion) snagged the 12th-floor unit in 2012.

Laurie Tisch

PURCHASE PRICE: $29 MILLION (2009)

Tisch, whose father, Preston Robert Tisch, helped build Loews hotels, occupies a 13th-floor co-op that has featured an Alexander Calder mobile in the living room.

Wendi Murdoch

PURCHASE PRICE: $44 MILLION (2005)

After splitting with her media-mogul husband, Rupert, in 2014, Wendi retreated to the 20-room, 8,000-square-foot penthouse he lost in the divorce. The place once belonged to Laurance Rockefeller, grandson of Standard Oil's founder.

BY CHLOE SORVINO
BRYAN CHRISTIE DESIGN; PORTRAITS BY BRIAN TAYLOR

NEW BILLIONAIRE

Right Place, Right Time

Oil has tanked. Lucky for Bryan Sheffield that his wells are in one of the best places left to drill.

BEFORE THE BIG PLUNGE in oil prices, Bryan Sheffield had already decided to move the headquarters of his Parsley Energy from dusty Midland, Tex. to a brand-new office tower in hipper Austin. Now he's a little sheepish about his bird's-eye view of kayakers on the Colorado River. "This is a $100-a-barrel-of-oil office," he says. Oil sells at half that today, so how exactly has he gotten so comfortable in his new seat of power?

Parsley controls 120,000 acres in the Permian Basin, which stretches from West Texas into New Mexico. You can still turn a profit there with $50-a-barrel oil thanks to existing pipeline-and-drilling infrastructure. Plus, much of the basin's reserves had remained out of reach until recent technological advances made it possible for Parsley and others to drill horizontally. That lucrative combo has enabled shares in the company to double over the past few months, pushing Sheffield's 20% stake north of $1 billion.

Sheffield, 38, founded Parsley during oil's record run in 2008 after taking over 109 old Texas oil wells that his grandfather had drilled around Midland back in the 1960s and '70s. There was still plenty of oil underneath those wells, and Parsley picked up more leases for a song during the brief price crash in 2009. Five years later, Sheffield took the company public.

With Grandpa Joe's wells smack-dab in the middle of one of America's last prosperous oil patches, Parsley has sold more than $1 billion of new stock in the past year to finance its ambitious production goal: a 50% increase from a year prior, to 34,000 barrels per day. "We are fortunate—lucky," Sheffield says. "It comes down to having the best rock inside the best play in the United States."

BY CHRISTOPHER HELMAN
DARREN CARROLL FOR FORBES

LeaderBoard

SCORECARD

$809 BILLION
Aggregate net worth of the 134 billionaires who attended the schools that produced the most members of the 2015 Forbes 400.

1. UNIVERSITY OF PENNSYLVANIA
21
alumni among The Forbes 400

2. HARVARD
14

2. YALE
14

4. STANFORD
13

5. UNIVERSITY OF SOUTHERN CALIFORNIA
11

6. CORNELL
9

7. PRINCETON
7

8. COLUMBIA
6

8. DARTMOUTH
6

8. UNIVERSITY OF MICHIGAN
6

11. DUKE
5

11. MASSACHUSETTS INSTITUTE OF TECHNOLOGY
5

11. UNIVERSITY OF CALIFORNIA, LOS ANGELES
5

14. MICHIGAN STATE
4

14. NEW YORK UNIVERSITY
4

14. UNIVERSITY OF CALIFORNIA, BERKELEY
4

30 UNDER 30

Quick Studies

A-plus innovations from members of the FORBES 30 Under 30, in 30 words or less.

CONNOR DIEMAND-YAUMAN

PHILANTHROPY UNIVERSITY | 28

After a stint at online-education pioneer Coursera, Diemand-Yauman struck out on his own to cofound Philanthropy U., which offers virtual training for NGO leaders in developing economies.

LIBBY FISCHER

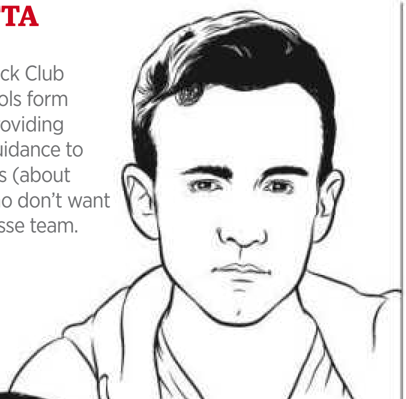
WHETSTONE EDUCATION | 28

Teacher-performance data are often measured nonuniformly, then stored haphazardly, rendering the info useless to school administrators. Whetstone's platform, now in use at 300 schools, organizes it and provides analysis.

ZACH LATTA

HACK CLUB | 18

Nerds, unite! Hack Club helps high schools form coding clubs, providing software and guidance to budding hackers (about 1,500 so far) who don't want to join the lacrosse team.



HEEJAE LIM

TALKINGPOINTS | 29

Lim's tech helps teachers communicate via translated text messages with parents who don't speak English. To date, TalkingPoints has enabled more than 100,000 conversations.

JERELYN RODRIGUEZ

THE KNOWLEDGE HOUSE | 27

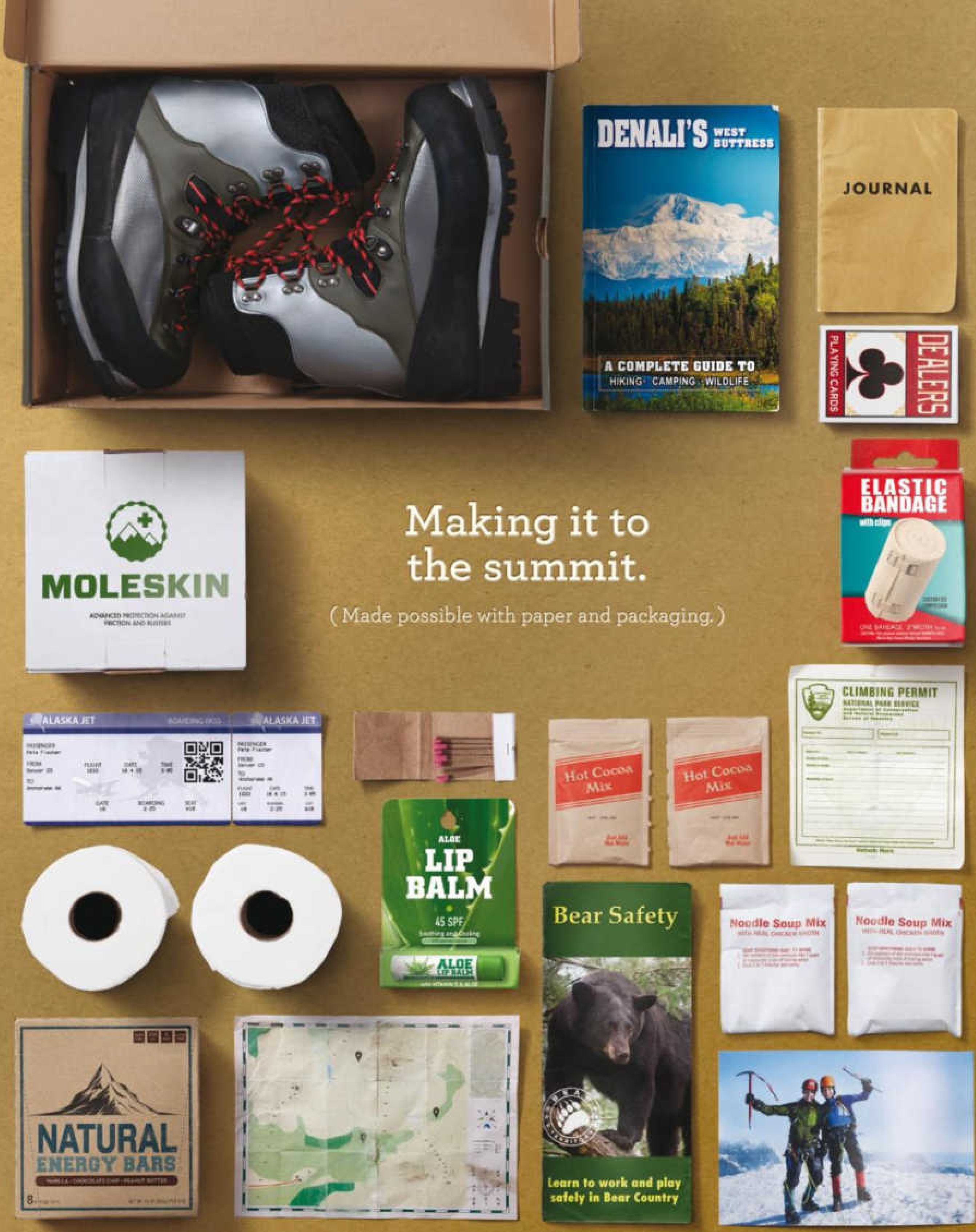
Rodriguez's South Bronx organization preps teens for STEM jobs, providing classes in Web development and the basics of entrepreneurship to New York's young adults. It hopes to expand nationwide.

ESTHER TRICOCHE

NEWSCHOOLS VENTURE FUND | 29

At NewSchools Venture Fund, Tricoche invests in entrepreneurs who make better tech tools for public schools, including for teaching English as a second language.

30 UNDER 30 BY KATHRYN DILL
ILLUSTRATIONS BY PATRICK WELSH



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BUSINESS LIBRARY

The Highest-Paid Authors

1. JAMES PATTERSON
Publishing's richest penman (and his co-writers) cranked out more than a dozen books in our scoring period (June 2015 to June 2016). His latest endeavor: BookShots, bite-size bargain novellas aimed at boosting readership among the screen-obsessed masses.

- **1. JAMES PATTERSON $95 MIL**
- **2. JEFF KINNEY $19.5 MIL**
- **3. J.K. ROWLING $19 MIL**
- **4. JOHN GRISHAM $18 MIL**
- **5. STEPHEN KING $15 MIL**
- **5. DANIELLE STEEL $15 MIL**
- **5. NORA ROBERTS $15 MIL**
- **8. E.L. JAMES $14 MIL**
- **9. VERONICA ROTH $10 MIL**
- **9. JOHN GREEN $10 MIL**
- **9. PAULA HAWKINS $10 MIL**
- **12. GEORGE R.R. MARTIN $9.5 MIL**
- **12. DAN BROWN $9.5 MIL**
- **12. RICK RIORDAN $9.5 MIL**

4. JOHN GRISHAM
The king of the airport bookstore is one of the few seasoned scribes who can still sell more than a million copies of a doorstop hardback like his recent ***Rogue Lawyer.***

8. E.L. JAMES
Reportedly tied up a tidy share of the profits from 2015's ***Fifty Shades of Grey*** movie. She also sold 168% more units than a year ago, thanks to the release last year of ***Grey,*** a retelling of the erotic novel from the male protagonist's perspective.

9. PAULA HAWKINS
Her novel ***The Girl on the Train*** is the latest literary phenomenon with a calculating female character to hit the bestseller list. It sold 11 million copies worldwide; a movie version hits theaters in October.

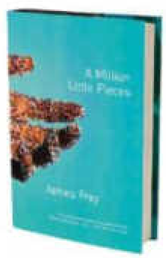
THESE WELL-HEELED wordsmiths earned a combined $269 million over the last 12 months, proving that the written word isn't dead—although television and movie adaptations often help drive sales. To wit: *Game of Thrones* creator George R.R. Martin benefited from clamorous interest in the hit HBO series based on his fantasy novels, while *Zoo,* a thriller from the inescapable James Patterson, scored a second season on CBS.

Patterson topped our list for the third straight year, earning $95 million, while children's author Jeff Kinney (*Diary of a Wimpy Kid*) placed a distant second, earning $19.5 million.

Near-misses include kids' favorite Rachel Renée Russell (*Dork Diaries*) and *The Martian* scribe Andy Weir; newly off the list are *Gone Girl*'s Gillian Flynn, *The Hunger Games'* Suzanne Collins and mystery novelist Janet Evanovich, who all saw sales of their catalogs take a dive.

FALSE NARRATIVES

When a book's ostensible facts are shown to be false, the revelation can damage an author's reputation—and his sales. Gay Talese has surely hoped he'll slip the noose ever since reports surfaced in late June that his new work, *The Voyeur's Motel* (which was published just two weeks later), is marred by substantial inconsistencies. Bad news for publisher Grove Atlantic and for DreamWorks, which reportedly spent $1 million on film rights. This isn't the Talese family's first brush with scandal: Gay's wife, Nan, was the publisher of *A Million Little Pieces,* James Frey's 2003 "memoir" of drug abuse.

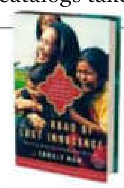


JAMES FREY
A Million Little Pieces (2003)
Drug "memoir" exposed as largely fiction in 2006.

710,000 SALES, MONTH BEFORE SCANDAL
310,000 SALES, MONTH AFTER SCANDAL
2.04 MIL TOTAL SALES BEFORE SCANDAL
863,000 TOTAL SALES AFTER SCANDAL
–58% TOTAL SALES CHANGE

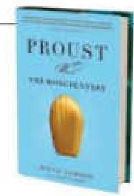
GREG MORTENSON
Three Cups of Tea: One Man's Mission to Promote Peace ... One School at a Time (2006)
Reports in 2011 alleged philanthropy tale contained inaccuracies and Mortenson's charity misused funds.

15,600 SALES, MONTH BEFORE SCANDAL
5,100 SALES, MONTH AFTER SCANDAL
3.05 MIL TOTAL SALES BEFORE SCANDAL
74,000 TOTAL SALES AFTER SCANDAL
–98% TOTAL SALES CHANGE



SOMALY MAM
The Road of Lost Innocence: The Story of a Cambodian Heroine (2008)
Human-trafficking victim's memoir not quite from memory, per 2014 accusations that she denied.

100 SALES, MONTH BEFORE SCANDAL
100 SALES, MONTH AFTER SCANDAL
40,000 TOTAL SALES BEFORE SCANDAL
400 TOTAL SALES AFTER SCANDAL
–99% TOTAL SALES CHANGE



JONAH LEHRER
Proust Was a Neuroscientist (2007), *Imagine: How Creativity Works* (2012), *How We Decide* (2009), *The Decisive Moment* (2009)
"Self-plagiarism" discovered in 2012.

25,000 TOTAL SALES, MONTH BEFORE SCANDAL
15,000 TOTAL SALES, MONTH AFTER SCANDAL
314,000 TOTAL SALES BEFORE SCANDAL
37,000 TOTAL SALES AFTER SCANDAL
–88% TOTAL SALES CHANGE

BY NATALIE ROBEHMED
THEO WARGO/GETTY IMAGES; OLIVER BERG/DPA/NEWSCOM; MARTINA SALVI/REX/NEWSCOM; GENE LESTER/GETTY IMAGES; SCHICCHI/ROPI VIA ZUMA PRESS/NEWSCOM

All earnings are for fiscal year June 1, 2015 through May 31, 2016, before taxes and other fees. All book-sales data are sourced from Nielsen BookScan, which tracks 85% of the domestic print market.

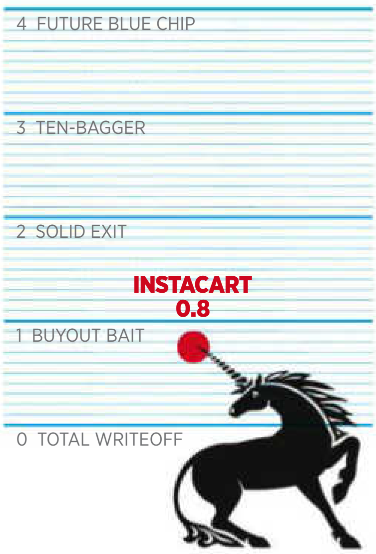

#haveKINDLEwillTRAVEL
HOEDSPRUIT, SOUTH AFRICA RICHARD BRANSON, *SCREW IT, LETS DO IT* @ AMAZONKINDLE
amazon

LeaderBoard

UNICORN METER

Stale Start

GROCERIES-IN-A-BOX startups are food-fighting—and Instacart already looks like a combatant past its sell-by date. So says a FORBES poll of our Midas List, a group of the world's greatest venture capitalists.



SCORECARD

WARREN BUFFETT
–$2.9 BILLION

NET WORTH: $65.7 BILLION

The Oracle doles out billions to charity in Berkshire Hathaway shares, boosting his lifetime giving to an estimated $28.5 billion. Amazon's Jeff Bezos briefly overtakes Buffett as world's third-richest, a title they will likely trade back and forth in the coming weeks.

ENTERTAINMENT

Titans of Twang

AS NASHVILLE'S sound becomes ever more mainstream, our annual Cash Kings ranking finds country music's top earners filling arenas once reserved for more traditional acts, collectively earning a half-billion dollars over the past year.

1. GARTH BROOKS $70 MIL
His comeback tour, now in its second year, might well extend into 2017.

2. KENNY CHESNEY $56 MIL
Next album: *Cosmic Hallelujah,* an appropriate reaction to selling out summer stadium shows the way Taylor Swift or the Rolling Stones might.

3. LUKE BRYAN $53 MIL
Ball-cap-clad Georgia native regularly grosses seven figures per city on tour.

4. TOBY KEITH $47.5 MIL
His red Solo cup runneth over: Keith has earned more than $450 million pretax since 2007.

5. JASON ALDEAN $36.5 MIL
The only country star who has a stake in Jay Z's Tidal music-streaming service.

6. ZAC BROWN BAND $30 MIL
After completing its fourth major-label studio album last year, the Grammy-winning act hit the road and played 65 concerts in 12 months.

7. SHANIA TWAIN $27.5 MIL
Las Vegas headliner can fill up the Colosseum at Caesars Palace, a rare feat for a country artist.

8. CARRIE UNDERWOOD $26 MIL
Onetime *American Idol* champ played 66 shows over the past year while tending to other interests: Calia clothing line and appearing in Olay skin care ads.

9. BLAKE SHELTON $24 MIL
Earned millions more from touring and his slot on *The Voice* than he did from his music.

10. KEITH URBAN $22 MIL
His latest album, *Ripcord,* debuted at No. 1 on the country charts in May. Still makes most of his money from touring and *American Idol.*

11. FLORIDA GEORGIA LINE $20 MIL
Duo's 69 shows as part of their Anything Goes tour grossed $29.5 million across North America.

12. RASCAL FLATTS $19.5 MIL
Even after decades together, the trio still has what it takes, pulling in upwards of $500,000 a night.

13. DOLLY PARTON $19 MIL
Timeless star sings, plays guitar and owns a theme park, Dollywood, in Tennessee's Smoky Mountains.

14. BRAD PAISLEY $18.5 MIL
With 71 shows over our scoring period, the guitar-slinging singer plucked his way onto the list again; his newest single is a collaboration with pop star Demi Lovato.

15. MIRANDA LAMBERT $18 MIL
Often opens for Kenny Chesney; tours on her own, too. Her endorsement deals include Red55 Wine, and she also has a clothing line, Pink Pistol.

Earnings estimates are from the 12 months ending June 2016, a measure based on touring data from Pollstar, music sales data from Nielsen and interviews with industry insiders.

COUNTRY CASH KINGS REPORTED BY ZACK O'MALLEY GREENBURG WITH CHERIE HU
ETHAN MILLER/GETTY IMAGES; KEVIN MAZUR/GETTY IMAGES; PAUL MORIGI/GETTY IMAGES

COLLEGES

True to Their School

DETERMINING WHICH colleges provide the best return on investment shouldn't be as complicated as theoretical physics. It requires just two variables: the median amount of a school's donations per student over a decade and the percentage of graduates who give back to their school every year.

These figures form our annual Grateful Grads Index of private nonprofit colleges: The top ROI schools are those with alumni who have both the means and the desire to give back. The first metric uncovers the highest-profile institutions; the second sheds light on smaller liberal-arts schools that attract a lot of giving but fewer blockbuster gifts. For the full list of 200 universities, visit forbes.com/gratefulgrads2016.

	COLLEGE	10-YEAR MEDIAN DONATION PER STUDENT	3-YEAR AVG. ALUMNI PARTICIPATION RATE
1	PRINCETON UNIVERSITY	$29,330	47%
2	DARTMOUTH COLLEGE	28,695	43
3	WILLIAMS COLLEGE	22,891	51
4	BOWDOIN COLLEGE	22,502	45
5	CLAREMONT MCKENNA COLLEGE	23,276	38
6	AMHERST COLLEGE	21,320	46
7	DAVIDSON COLLEGE	19,708	45
8	YALE UNIVERSITY	31,936	32
9	DUKE UNIVERSITY	30,725	29
10	WELLESLEY COLLEGE	17,451	53
11	STANFORD UNIVERSITY	30,826	28
12	UNIVERSITY OF NOTRE DAME	18,576	35
13	WASHINGTON AND LEE UNIVERSITY	17,155	38
14	BROWN UNIVERSITY	22,542	26
15	HAVERFORD COLLEGE	15,182	42
16	MIT	45,501	24
17	CARLETON COLLEGE	14,876	44
18	SWARTHMORE COLLEGE	14,743	39
19	MIDDLEBURY COLLEGE	15,314	35
20	POMONA COLLEGE	14,843	37
21	BRYN MAWR COLLEGE	15,789	29
22	UNIVERSITY OF CHICAGO	24,511	21
23	CALTECH	53,845	20
24	UNIVERSITY OF PENNSYLVANIA	19,070	22
25	HARVARD UNIVERSITY	25,122	19

COLLEGES BY MATT SCHIFRIN; RICHEST BY STATE BY CHRISTOPHER HELMAN AND CHASE PETERSON-WITHORN
JAMEL TOPPIN FOR FORBES; JASON MERRITT/GETTY IMAGES

RICHEST BY STATE

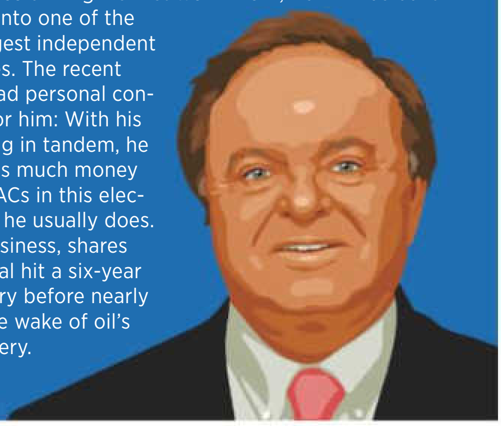
Oklahoma

POPULATION: **3.9 MILLION**
2015 GROSS STATE PRODUCT:
$180 BILLION (1.3% GROWTH)
GSP PER CAPITA: **$46,129**
(RANKS NO. 38 NATIONWIDE)
RICHEST: **HAROLD HAMM, $13 BILLION**

WHEN DONALD TRUMP needs a briefing on the state of American oil and gas, he calls Harold Hamm. "He absolutely gets it," says Hamm, the 70-year-old CEO of Continental Resources. "He believes in American energy for America's future."

U.S. frackers and drillers, Hamm contends, could double domestic oil output to 20 million barrels per day within a decade: "Every time we can't drill a well in America, terrorism is being funded." Trump liked Hamm's message enough to give him a prime speaking slot at July's GOP convention. "It felt like being the ringmaster at a circus," Hamm says the day after his speech. "It's not the Rotary." So what about reports that Hamm is the leading candidate to become The Donald's secretary of energy? "I've never talked to Trump about that. I have a full-time job. I haven't given it a minute's thought."

The 13th child of Oklahoma sharecroppers, Hamm recalls picking cotton barefoot as a child. He started working at a gas station at 16, then cleaned oil refinery tanks and hauled water in trucks. Since drilling his first well in 1971, Hamm has built Continental into one of the nation's biggest independent oil companies. The recent price drop had personal consequences for him: With his fortune falling in tandem, he didn't stuff as much money into super PACs in this election cycle as he usually does. As for his business, shares of Continental hit a six-year low in January before nearly tripling in the wake of oil's partial recovery.



SCORECARD

LORENZO AND FRANK FERTITTA III

+$820 MILLION EACH

NET WORTH: $2.3 BILLION EACH

Fifteen years after paying just $2 million for a nearly bankrupt Ultimate Fighting Championship, the brothers announce they are selling the league to a group of investors (billionaire Michael Dell among them) for roughly $4 billion—the largest transaction in sports history.

LeaderBoard

9. NEW YORK GIANTS
Tim Mara paid $500 to found the football team in 1925; his heirs sold a 50% stake to the Tisch clan in 1991 for $75 million. The two families split ownership to this day.

SPORTSMONEY

The World's Most Valuable Teams

THIS IS A TERRIFIC TIME to own a professional sports team: Blockbuster television deals inked over the last several years have turbocharged franchise values across the major sports. The 50 most valuable teams are now worth an average of $2.2 billion, up 26% over just a year ago.

With 27 teams among the top 50, the NFL reigns supreme. Although they haven't reached the Super Bowl in two decades, Jerry Jones' Dallas Cowboys top the list at $4 billion, thanks in part to revenue from premium seating ($125 million) and sponsorships ($120 million) that are football's highest.

This is the first time since 2010 that a soccer franchise didn't come out on top. (Manchester United wore the crown from 2010 through 2012; Real Madrid did so the last three years.) For much more, including the full roster of 50, visit forbes.com/most-valuable-teams.

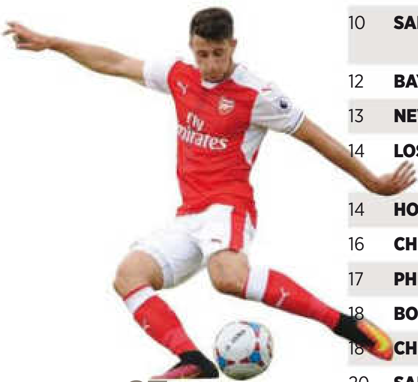
14. LOS ANGELES DODGERS
The 2015 squad was the first in Major League history with a $300 million payroll; the team has led baseball in attendance three years running.

18. BOSTON RED SOX
After last-place finishes in 2014 and 2015, the Bosox opened their coffers to sign ace David Price (above) to a seven-year, $217 million deal, the richest contract ever for a pitcher.

25. GREEN BAY PACKERS
The Pack are the only publicly owned franchise in U.S. pro sports, with 360,760 shareholders. The franchise's 13 championships (4 in the Super Bowl era) are the most in NFL history.

2016 RANK	TEAM	OWNER(S)	VALUE ($MIL)	1-YEAR VALUE CHANGE	
1	**DALLAS COWBOYS**	Jerry Jones	$4,000	25%	NFL
2	**REAL MADRID**	Club members	3,645	12	soccer
3	**BARCELONA**	Club members	3,549	12	soccer
4	**NEW YORK YANKEES**	Steinbrenner family	3,400	6	MLB
5	**MANCHESTER UNITED**	Glazer family	3,317	7	soccer
6	**NEW ENGLAND PATRIOTS**	Robert Kraft	3,200	23	NFL
7	**NEW YORK KNICKS**	Madison Square Garden	3,000	20	NBA
8	**WASHINGTON REDSKINS**	Dan Snyder	2,850	19	NFL
9	**NEW YORK GIANTS**	Mara family	2,800	33	NFL
10	**LOS ANGELES LAKERS**	Buss family	2,700	4	NBA
10	**SAN FRANCISCO 49ERS**	Denise DeBartolo York, John York	2,700	69	NFL
12	**BAYERN MUNICH**	Club members	2,678	14	soccer
13	**NEW YORK JETS**	Woody Johnson	2,600	44	NFL
14	**LOS ANGELES DODGERS**	Guggenheim Baseball Management	2,500	4	MLB
14	**HOUSTON TEXANS**	Robert McNair	2,500	35	NFL
16	**CHICAGO BEARS**	McCaskey family	2,450	44	NFL
17	**PHILADELPHIA EAGLES**	Jeffrey Lurie	2,400	37	NFL
18	**BOSTON RED SOX**	John Henry, Thomas Werner	2,300	10	MLB
18	**CHICAGO BULLS**	Jerry Reinsdorf	2,300	15	NBA
20	**SAN FRANCISCO GIANTS**	Charles Johnson	2,250	12	MLB
21	**CHICAGO CUBS**	Ricketts Family	2,200	22	MLB
22	**BOSTON CELTICS**	Wyc and Irving Grousbeck, Robert Epstein, Stephen Pagliuca	2,100	24	NBA
23	**ARSENAL**	Stanley Kroenke	2,017	54	soccer
24	**LOS ANGELES CLIPPERS**	Steve Ballmer	2,000	25	NBA
25	**GREEN BAY PACKERS**	Shareholders	1,950	42	NFL

7. NEW YORK KNICKS
Kicked off a 20-year local TV deal with the MSG network this past season; the first year was worth $100 million.



23. ARSENAL
The Gunners were the biggest movers on the list, jumping 13 places from a year ago. The club received the biggest cut of Premier League TV money this year: $148 million.

2. REAL MADRID
The 11-time Champions League champs had revenue of $694 million in the 2014–15 season, the most of any sports franchise.

BY KURT BADENHAUSEN, MIKE OZANIAN AND CHRISTINA SETTIMI

GIANTS: AL BELLO/GETTY IMAGES; MADRID: MATTHIAS HANGST/GETTY IMAGES; ARSENAL: STUART MACFARLANE/ARSENAL FC/GETTY IMAGES; KNICKS: NATHANIEL S. BUTLER/NBAE/GETTY IMAGES; PACKERS: WESLEY HITT/GETTY IMAGES; DODGERS: JIM MCISAAC/GETTY IMAGES; RED SOX: BILLIE WEISS/BOSTON RED SOX/GETTY IMAGES

LeaderBoard

LUXURY LINEAGE

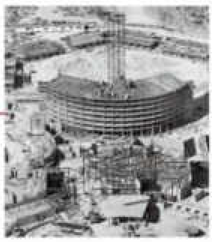
Caesars Palace

A brief history of the legendary Las Vegas hotel, which turns 50 this month.

JAY SARNO CHANGED LAS VEGAS forever in August 1966 when he opened its first themed resort: Caesars Palace. Borrowing elements from the Roman Empire, Sarno followed the principle that no amount of excess was enough. In its first 50 years Caesars Palace has expanded from an opulent 14-story hotel with 700 rooms to a small city with six towers, 4,000 rooms, a 636,000-square-foot shopping mall, a 4,300-seat theater and nearly a dozen celebrity-chef restaurants. You can also still do a little gambling there.

2016

Over its five-decade existence Caesars has changed hands several times; owners have included Hilton, ITT and Harrah's, which paid $9.4 billion in 2005. Today the hotel is owned by Caesars Entertainment Corp., with minority stakes held by Apollo Global Management and Paulson & Co. Although the casino group filed for Chapter 11 bankruptcy in 2015, Sarno's grand vision still reigns. Last year the hotel opened a Mr. Chow restaurant, and the Colosseum theater is now headlined by Celine Dion, Elton John and Mariah Carey. Fifty years on, the bacchanal continues.



1964

Using a $10.6 million loan from the Teamsters Central States Pension Fund, Atlanta hotelier Jay Sarno leased land on the Las Vegas Strip owned by Kirk Kerkorian to build his new hotel, originally called the Desert Cabana. Four years later, with Caesars Palace a success, he purchased the plot from Kerkorian for $5 million.

2009

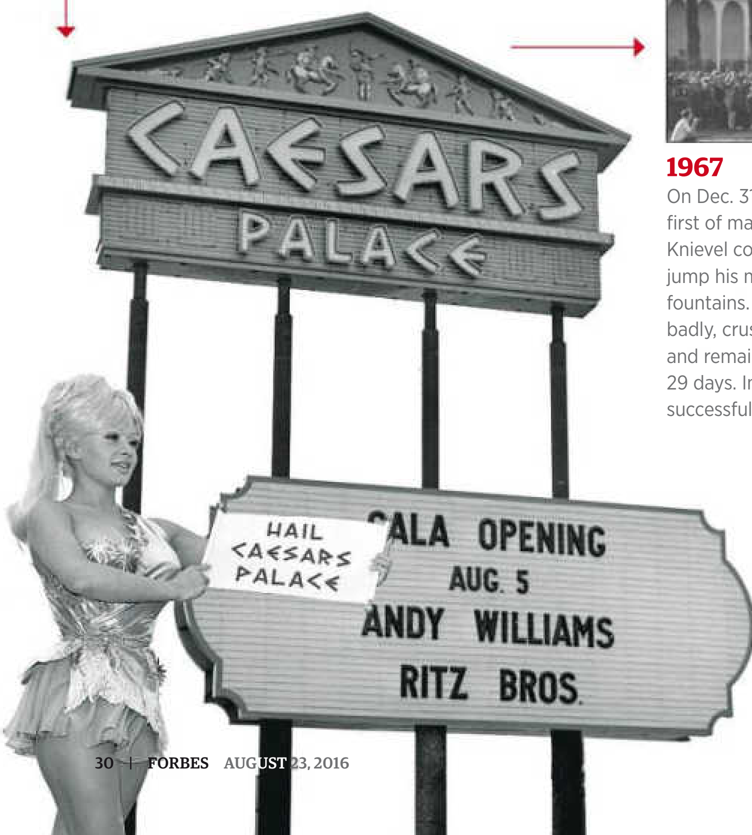
As part of their bachelor weekend in *The Hangover,* Bradley Cooper and crew checked in to Caesars Palace, where Zach Galifianakis' Alan asked the immortal question: "Did Caesar live here?" He did not.

1966

Even though rooms were still being built, Caesars Palace opened its doors on Aug. 5 with a lavish $1 million party attended by guests such as Johnny Carson and Jimmy Hoffa. The Teamsters boss didn't stay long. The next day Hoffa's suite, the new resort's best, was given to a 24-year-old up-and-comer who would later become an emperor of Las Vegas: Steve Wynn.

1992

Caesars opened a 280,000-square-foot luxury shopping mall and featured the first celebrity-chef restaurant in Las Vegas, Wolfgang Puck's Spago. The Forum Shops was later expanded to 636,000 square feet and now includes more than 150 boutiques, including Cartier, Tiffany & Co. and Van Cleef & Arpels.



1967

On Dec. 31 Caesars Palace hosted the first of many spectacles when Evel Knievel convinced Sarno he could jump his motorcycle over the hotel's fountains. Knievel, shown above, landed badly, crushing his pelvis and femur, and remained in a coma for a reported 29 days. In 1989 his son Robbie Knievel successfully completed the jump.

1970

Frank Sinatra moved his act from the Sands to Caesars Palace in 1968. The next year Jay Sarno sold Caesars for $60 million to Stuart and Clifford Perlman. On Sept. 6, 1970 Sinatra, who was earning $100,000 a week, got into an argument with casino manager Sanford Waterman, who pulled a gun. Sinatra wouldn't perform at the venue again until 1974.

BY MICHAEL SOLOMON
WARNER BROS./EVERETT COLLECTION; UPI/NEWSROOM; LAS VEGAS NEWS BUREAU (2)

LeaderBoard

FORBES @ 100

As FORBES' September 2017 centennial approaches, we're unearthing our favorite covers.

Wall Street's Wild Ride: Nov. 19, 1984

THE FAST-MONEY ERA of the 1980s quickly came to resemble, well, a carousel. Seated on it were corporate raiders such as Victor Posner, Carl Lindner Jr. and the Belzberg brothers (Samuel and William). At its controls: Drexel Burnham Lambert's 38-year-old superstar, Michael Milken.

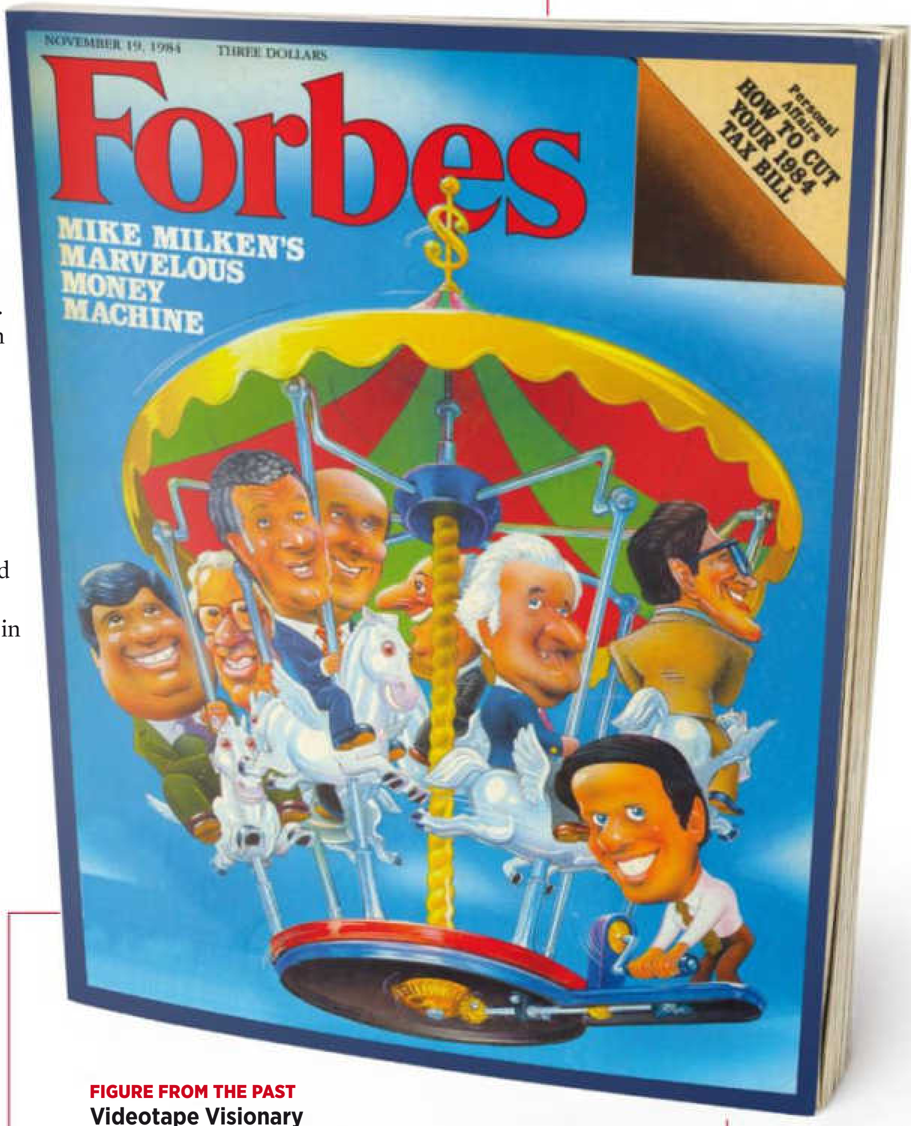
Milken's marvelous money machine ran on junk bonds—a $41.7 billion market ($96.7 billion in 2016 dollars) that had grown 340% in five years. He helped executives put together deals, and often those clients became investors in future Milken-led offerings. "Incestuous? That is one way of putting it," concluded the story's authors, Allan Sloan and Howard Rudnitsky. "There is nothing illegal about this. It is simply a case of one hand washing the other—to [everyone's] mutual profit."

The government disagreed. When a politically ambitious prosecutor named Rudy Giuliani needed a poster boy for the decade's excesses, he set his sights on Milken, who would plead guilty to fraud in 1990 and serve 22 months in prison. Since then he has devoted himself to philanthropy.

SIGN OF THE TIMES

Mao Who?

China's initial embrace of capitalism centered on four "special economic zones," and by late 1984 companies such as Coca-Cola and Eastman Kodak had signed contracts for projects worth $385 million ($893 million today) to enter those areas and gain access to an enormous untapped market: 1 billion Chinese.



FAST-FORWARD

All in the Family

1984: Saul Steinberg (below) ranks as one of America's most feared takeover artists. Even a failed Walt Disney Co. assault results in a multimillion-dollar score.

2016: There's still a Steinberg on Wall Street—no, not Saul, who died four years ago. His son Jonathan (above) runs WisdomTree, a low-cost ETF provider with an investment philosophy in total opposition to wheeler-dealer Saul's.

FIGURE FROM THE PAST

Videotape Visionary

A handsome Californian has a big idea that will change the world: It's the stuff of Oscar legend ... and is exactly what happened with Mel Harris. The Paramount exec pushed the studio to rethink the videocassette market. At the time, movies on tape had prohibitively high prices—starting around $50, some $116 today—as studios focused on the rental market. Harris recognized the potential in retail and traded profit for volume. By reducing the price of, say, *Star Trek II: The Wrath of Khan*, Paramount made less money per unit, but many fans were willing to watch Spock die (spoiler, sorry!) over and over again.

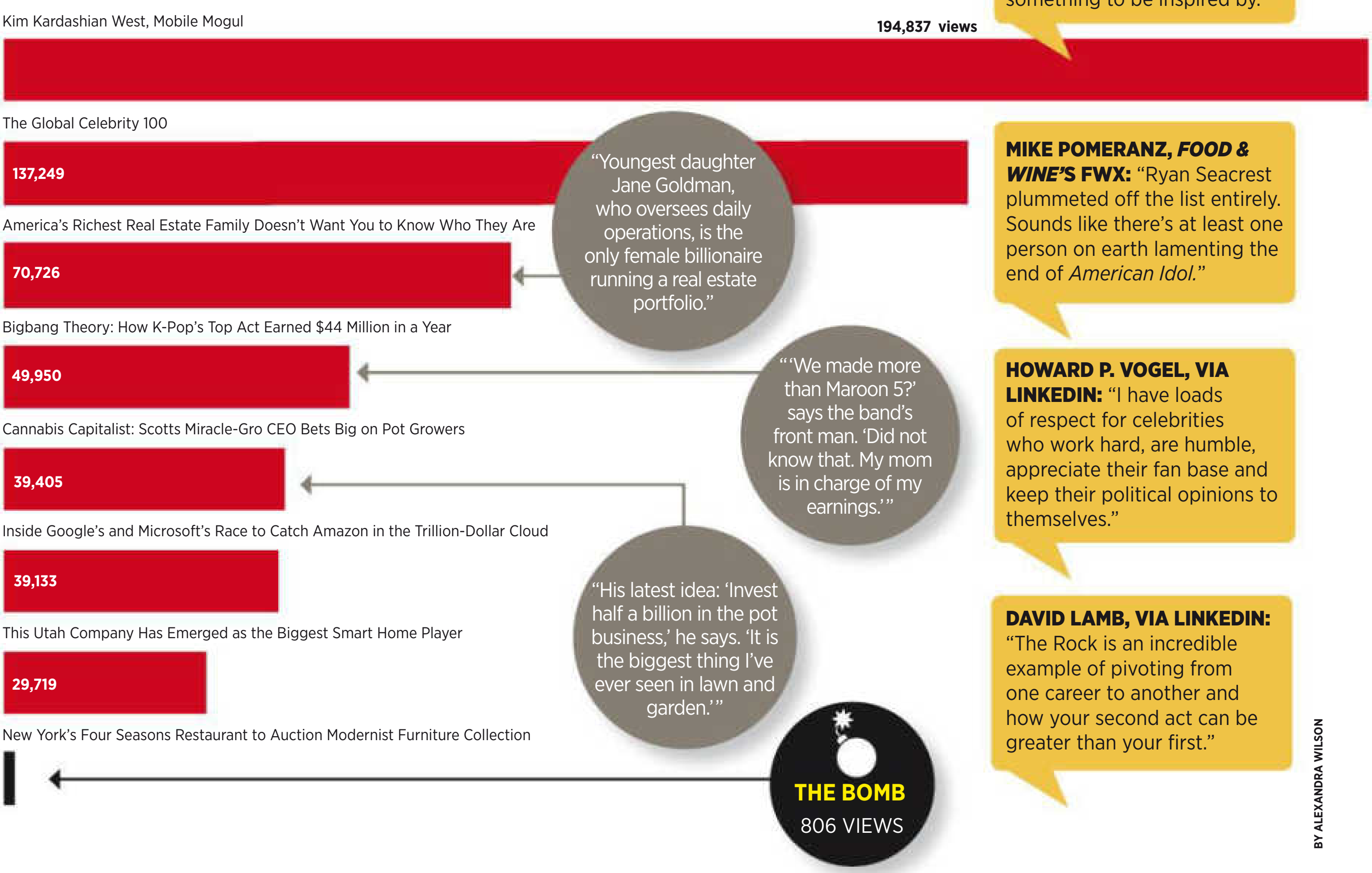
BY ABRAM BROWN
RON GALELLA/GETTY IMAGES; DENNIS MICHAELS/NEWSCOM; ANTON STARIKOV/ALAMY; PATRIZIA WYSS/ALAMY

CONVERSATION

NATALIE ROBEHMED'S July 26 cover profile of Kim Kardashian—highlighting her $45 million in earnings from her mobile game, a new frontier in monetizing one's celebrity—ruffled some readers' feathers. "Forbes covering anything Kardashian may just be an error in judgment," said Draggan, one of many such comments at Forbes.com. But others were quick to come to Kardashian's (and our) defense. "She's redefining what it means to be a reality star, as well as what it means to be a businesswoman," wrote Jamie Primeau at the women's news-and-culture site Bustle. Kardashian countered the charge that she's unworthy of serious attention. "Such a tremendous honor to be on the cover of @forbes," she tweeted. "#NotBadForAGirlWithNoTalent."

THE INTEREST GRAPH

Judging by clicks and eyeballs, readers of our July 26 issue were keeping up with the Kardashians—and every other famous name in a magazine full of them.



FAME AND FORTUNES

Readers greeted our annual ranking of the 100 top-earning celebrities not with envy or scorn but mostly with admiration—as well as huzzahs for the unheralded handlers who help make such extravagant incomes possible.

***HELLO!* MAGAZINE:** "If there was any doubt that Taylor Swift is an unstoppable force in entertainment, Forbes' list is proof that the singer is the real deal."

JOSEPH MURAWSKI, VIA LINKEDIN: "Is it weird that I'm in my mid-40s and I like Taylor Swift's music?"

GERARDO "G" ALAMO, VIA LINKEDIN: "Incredible career. [Dwayne Johnson, a.k.a. the Rock,] never stops working and branching out. That is something to be inspired by."

MIKE POMERANZ, *FOOD & WINE'S* FWX: "Ryan Seacrest plummeted off the list entirely. Sounds like there's at least one person on earth lamenting the end of *American Idol.*"

HOWARD P. VOGEL, VIA LINKEDIN: "I have loads of respect for celebrities who work hard, are humble, appreciate their fan base and keep their political opinions to themselves."

DAVID LAMB, VIA LINKEDIN: "The Rock is an incredible example of pivoting from one career to another and how your second act can be greater than your first."

BY ALEXANDRA WILSON

BREXIT ABBEY

AMERICANS DON'T HESITATE to express strong views when it comes to guns, wars or taxes. But they turn humble when the matter is international economics. If business leaders, Davos geeks, the Treasury secretary and the President condemn Brexit, U.S. citizens do, too. After all, Americans aren't sure why Britons voted to leave the EU or what they themselves make of the Brexit drama.

There is, however, a British show Americans do understand and, indeed, love. It is *Downton Abbey*, one of the cheesiest, most anachronistic and most popular historical drama series in television history. You could hear the sighs across the Lower 48 last March when the image of the rump of Lord Grantham's light yellow Labrador rolled for a final time in the final episode of the final—and sixth—season. This spring was also the time when the formal contest between "Leave" and "Remain" opened, but public television fans scarcely noticed, so busy were they snatching up Downtoniana.

Still, *Downton Abbey* and Brexit do have something in common. Indeed, to trace the principles that animate *Downton* is to understand more of what drives Britons who voted Leave.

Downton Principle I: Property comes first. Really first—before freedom, equality and love. As the show opens, every character, down to the last footman, knows that the Downton estate has stayed together only because Lord Grantham in his youth took the drastic step of marrying a Cincinnati dry-goods heiress.

So precious is the accumulation of capital that the characters all accept (not agree with) the rule of "entail," under which the entire estate must pass, part and parcel, to a male descendant, even if that means skipping the daughters of Lord Downton and handing over the mansion to a third cousin once removed. In the *Downton* narrative the resounding emphasis on property benefits all, leading (eventually) to justice, equality and romance: Lord Grantham long ago came to love his dry-goods lady, the beautiful Cora. And the next generation of Crawleys get to stay in their house because that third cousin in the end marries a Crawley daughter.

The EU respects no entail. Indeed, the Charter of Fundamental Rights relegates property to a status so low it would make Thomas Jefferson uncomfortable. "Dignity," "equality," "solidarity" ("What's that?" one can hear Lady Violet demanding) and "freedoms" get marquee status. Property rights are minor, buried in a mere article—and No. 17 at that.

Downton Principle II: Downton (Britain) takes care of its own. When Lord Grantham ignores his own instincts and calls in a specialist rather than the family doctor to attend the birth of a grandchild, he is punished with tragedy: The specialist makes the wrong call, and the baby's mother, Sybil, expires from complications of eclampsia.

At Downton Abbey faraway courts rate as unreliable as faraway doctors. Lord Grantham judges his valet Bates to be innocent of a charge of murder, but a British court convicts him. Later, information materializes that exonerates Bates and vindicates the patriarch.

Europe, by contrast, favors faraway law over local law, custom and regulation. A pre-Brexit-vote EU plan to ban some popular appliances, including a tea drinker's favorite, the high-powered electric kettle, set Britons aboil.

Downton Principle III: Suspect high taxes. The unexpected death of a Downton heir triggers a tax liability so great that it jeopardizes the estate anew. Today Britain's tax burden represents 33% of gross domestic product. Britons don't love the idea of going to, say, 45%, France's level.

Downton Principle IV: Look West. In this show Europe is where young men go to die or vacation; the U.S. is a source of ideas and those occasional and crucial capital infusions.

Downton Principle V: Britain improves Britain best. Lord Grantham tempers his obnoxious Toryism over the seasons, eventually noting, "If we don't respect the past, we'll find it harder to build our future." This shift so endears viewers that they forgive even the worst anachronisms (Edwardians said "pander," not "suck up"; light yellow Labradors weren't common until much later). Downton evolves from "Little England" toward meritocracy.

To be sure, other impulses, including unstaged, unexpected populist rage and great concern about immigration, motivated Brexit. Yet often pro-Brexit citizens articulate the connection. One of these is *Downton*'s creator and screenwriter, Julian Fellowes. "I believe we should be out. It's about philosophy," Fellowes has said.

In short, Americans have something to confess, if only to their TV sets. If they approve of *Downton Abbey*, they understand—and perhaps even approve of—Brexit. But no one said the globalists upstairs have to know about that.

THOMAS KUHLENBECK FOR FORBES

AMITY SHLAES, PRESIDENTIAL SCHOLAR AT THE KING'S COLLEGE AND CHAIR OF THE COOLIDGE FOUNDATION BOARD; PAUL JOHNSON, EMINENT BRITISH HISTORIAN AND AUTHOR; AND DAVID MALPASS, GLOBAL ECONOMIST, PRESIDENT OF ENCIMA GLOBAL LLC, ROTATE IN WRITING THIS COLUMN. TO SEE PAST CURRENT EVENTS COLUMNS, VISIT OUR WEBSITE AT WWW.FORBES.COM/CURRENTEVENTS.

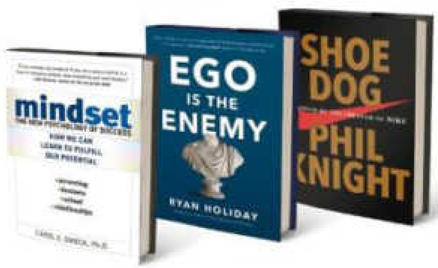

LAUREN CONRAD
WANTS TO SAVE THE SEA TURTLES
Fishing nets used to catch some of our favorite seafood catch, injure and kill thousands of sea turtles every year. For species like the Kemp's Ridley, extinction is too close for the government to ignore the problem. Stand with Lauren and Oceana. Help save sea turtles at www.oceana.org/saveseaturtles
OCEANA Protecting the World's Oceans
© Oceana/Melissa Forsyth

THREE VACATION BOOKS

UNDER NEW leadership (as of February 2014) Microsoft is on a roll. Its stock has crushed that of other tech giants and the market. Microsoft's late-start catch-up to Amazon in cloud services is remarkable.

Curious to know how CEO Satya Nadella has steered Microsoft from its recent near total reliance on Windows and Office to its new focus on mobility and the cloud, I and some FORBES colleagues sat down with him for nearly an hour in late June. The conversation was off the record, but Nadella did drop an intriguing nugget. He said that he subscribed to Stanford professor Carol Dweck's mind-set theories.

In 2006 Dweck wrote a book titled *Mindset: The New Psychology of Success* (Ballantine Books, $16). She laid out a simple yet powerful idea: People with a fixed mind-set stop improving, despite their talents; those with a growth mind-set keep evolving. With its relentless focus on Windows and Office, coupled with its strong bias for having the highest-IQ employees, Microsoft created a fixed mind-set about what kind of company it was and what its employees could achieve.



In her book Dweck offers former tennis pro John McEnroe as an example of a talented person with a fixed mind-set. McEnroe was highly gifted but hated to practice. He also hated the strength and flexibility training embraced by current stars like Roger Federer that might have extended his career. For McEnroe it was all about his talent. His identity was his talent. When someone of lesser talent beat him, McEnroe would explode in rage or find ways of blaming others, with officials often taking the brunt.

Growth, writes Dweck, is about curiosity, experimentation, hard work and learning. Repeat the cycle. Repeat again. Never stop repeating the cycle, or you'll stop growing. Now that you know Microsoft's Nadella is a big fan of *Mindset*, you might want to read it again.

Two recent books to also take along on your late-summer vacation: *Ego Is the Enemy* by Ryan Holiday (Portfolio, $25) and *Shoe Dog: A Memoir by the Creator of Nike* by Phil Knight (Scribner, $29).

Ego Is the Enemy packs a ton of personal performance tips, insight and wisdom into a small book. Even more remarkable is the author. Holiday, 29, is a college dropout who became a Hollywood rock music agent and, by his early 20s, director of marketing for American Apparel. After burning out—which every executive at American Apparel seems to do—Holiday became a writer, working at the corner of history, philosophy and human potential.

Holiday is a fan of Spartan stoicism, which is the spirit of *Ego Is the Enemy*. Like Dweck, Holiday offers a clear path to success and performance improvement: Make your life about your work, not about yourself. Don't let your ego overrate your capabilities or blind you to criticism. In the same way Dweck lays into John McEnroe, Holiday lays into Howard Hughes, whose ballooning self-regard became detached from the necessity of hard work and honest assessment. The damage was done well before Hughes went insane.

Knight's *Shoe Dog* is the best memoir I recall ever reading. As a business biography it ranks with such recent works as Neal Gabler's *Walt Disney* and Walter Isaacson's *Steve Jobs*. But as a personal memoir *Shoe Dog* reaches a depth of emotional honesty that even the best biographies haven't touched.

Knight ran track at the University of Oregon. At Stanford's Graduate School of Business he wrote a paper on how the Japanese might get into the U.S. sporting goods market. After a stint in the U.S. Army, Knight traveled to Japan and became a U.S. distributor for Onitsuka Tiger (or Asics, as the shoe is known today). That was in 1962, but it wasn't until 1971 that Knight started to make his own shoes under the Nike brand. Despite a growth rate that doubled annually, Nike was perpetually cash short, until its IPO in December 1980 (by coincidence, the same month that Apple IPOed). In *Shoe Dog* Knight takes readers on the roller coaster of Nike's big successes, gutting failures and near extinction.

These are my reading suggestions for your August vacation. But as a future vacation idea, try a Forbes Cruise for Investors. As Steve Forbes says, we'll give you investing tips that might well pay for the cruise. Go to moneyshow .com and click on Cruises. Scroll to the Forbes cruises in November 2016 and March 2017.

THOMAS KUHLENBECK FOR FORBES

RICH KARLGAARD IS THE PUBLISHER AT FORBES. HIS LATEST BOOK, *TEAM GENIUS: THE NEW SCIENCE OF HIGH-PERFORMING ORGANIZATIONS*, CAME OUT IN 2015. FOR HIS PAST COLUMNS AND BLOGS VISIT OUR WEBSITE AT WWW.FORBES.COM/KARLGAARD.


Human moments,
delivered 2,000 times
per minute.

Verticals

AUGUST 23, 2016

Gotta catch 'em all: There were 151 characters in the original set of Pokémon in 1996. Players in the United States can currently capture up to 142 of these pocket monsters in Pokémon Go, the suddenly everywhere mobile-gaming sensation.
PAGE 40

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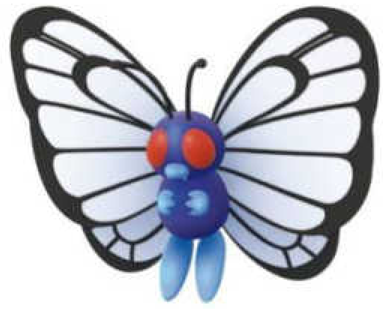

BUTTERFREE
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PIKACHU
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JIGGLYPUFF
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ODDISH
#43

MEOWTH
#52

SNORLAX
#143

Monster Game

The inside story of how Pokémon Go was created by a Google exec who got lost within the giant search company and how he persuaded his bosses to let him—and all those creatures—go free.

BY RYAN MAC

It's not hard to spot players of the most popular smartphone game of all time. They have a peculiar way of carrying their devices in front of them with one hand, says John Hanke, the technology whiz behind Pokémon Go, as we stroll along the waterfront of San Diego's Seaport Village the day before his appearance in front of 7,000 fans at Comic-Con.

"They're playing," says the 49-year-old, nodding at a couple holding hands while their eyes fixate on their phones. "That guy standing with the backpack. Those people sitting over there."

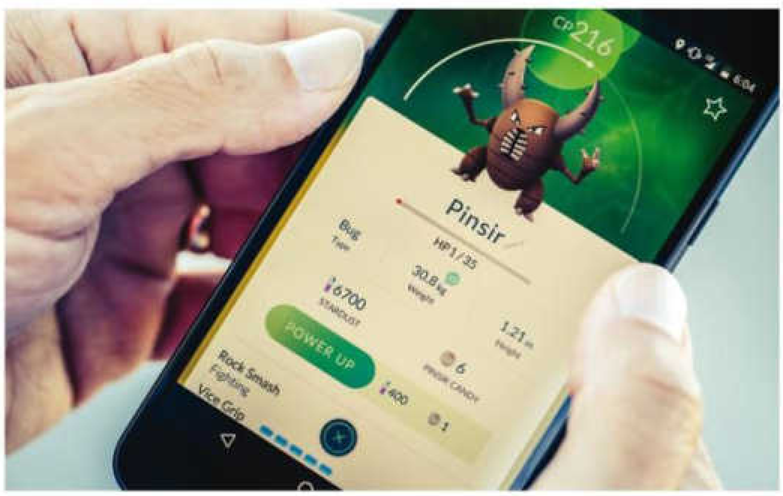
Since its July launch Pokémon Go, a free "augmented reality" game by Niantic Labs in which players capture virtual characters mapped to real-world locations, has piled up superlatives. Apple said the game had more downloads in its first week than any other app in history. One in ten Americans plays Pokémon Go daily, according to App Annie, and SurveyMonkey estimates that the game is hauling in as much as $6 million a day from in-app purchases in the U.S. alone (the game is available in 37 countries). Beyond the numbers, Hillary Clinton has invoked the game on the campaign trail, Justin Bieber has gone Poké-hunting in Central Park, and a reporter was publicly chided for playing it at a State Department briefing.

It almost didn't happen. Just 12 months ago Hanke was an increasingly restless Google employee (he launched Google Earth, among other things) and his company, Niantic, was an overlooked gaming skunkworks lost in the search giant. As Google reorganized itself into Alphabet, Niantic looked likely to be rolled back into the company's Android division or simply shut down. But Google had the wisdom to let Hanke seek outside investors and spin the company out. That paved the way for Hanke to approach Nintendo and the Pokémon Co., which oversees the brand's intellectual property, and make the smartest mobile-gaming deal of all time.

For Google the arrangement has worked out in spades. Google owns just under 30% of Niantic, whose game might hit $5 billion in annual revenue, according to a Macquarie Group analyst.

"If Google kept it all to themselves, I'm not sure you would have Pokémon Go, at least not at the speed at which we got it," says Gilman Louie, a Niantic board member.

Hanke has long loved videogames, having taught himself to code his own on his Atari 400 computer in Cross Plains, Tex., a town of 1,000 with a single stoplight. A self-described "hick from the sticks," Hanke graduated from the University of Texas, Austin and eventually wound up at Haas Business School at UC Berkeley with a view to starting a gam-



ing company. Not long after arriving there, he joined a classmate's startup, Archetype Interactive, whose only title, Meridian 59, is considered the first 3-D massively multi-player online role-playing game. (They sold the company on the day of their B-school graduation.)

After starting and selling another gaming firm in 2000, Hanke cofounded Keyhole, a geospatial software firm that provided users with satellite imagery of any locale on Earth. That technology caught the eye of Google cofounder Sergey Brin, who was infatuated with maps. In one meeting with Google CEO Eric Schmidt and other executives, Brin began using Keyhole to zoom in on the backyards of the people in the room while advocating for the acquisition of the startup. In October 2004 Google, which had just gone public, purchased Keyhole for about $35 million in stock.

Hanke thought he'd stay at Google only for a matter of months, but he remained for more than a decade as one of the two heads of the company's geo team. In his time there he oversaw the 2005 launch of Google Earth, negotiated the placement of Google Maps on the original iPhone with Steve Jobs and built Maps into Google's second-largest product by traffic, behind search.

Twenty years after Nintendo released the original game, Niantic CEO John Hanke is cashing in on global Pokémon nostalgia.

TIMOTHY ARCHIBALD FOR FORBES

But by 2010 Hanke wanted out and hoped to reignite his passion by exploring the possibility of combining maps with gaming. Persuaded to stay at the company by Google's other cofounder, Larry Page, he was given personnel and resources to create a secret gaming division within Google's San Francisco office. Hanke named his company Niantic Labs, after a ship that had taken miners to the Bay Area during the 1849 gold rush.

After dabbling in an augmented-reality product that allowed users to learn about city landmarks via mobile devices and the ill-fated Google Glass, Niantic released Ingress in late 2013. It was Hanke's first attempt at a location-based game and allowed players on two teams to claim certain locations around the world using their phones. Although it gained traction with serious gamers, Ingress was not considered a breakthrough inside Google.

By the spring of 2014 Niantic CEO Hanke was dreaming of applying location-based gaming to a well-established intellectual property that would entice more users. Both Mario and Donkey Kong were considered, but one name that kept coming up was Pokémon, a franchise that hit Millennials hard in the late 1990s with videogames, trading cards, movies and a television cartoon. As of May 2016 Pokémon products had grossed $45 billion in lifetime sales.

Fortuitously, an engineer in Hanke's former Google Maps division named Tatsuo Nomura was quietly concocting a plan around Pokémon, but for an entirely different reason. With April Fool's Day approaching, Nomura had an idea to offer mobile users a way to hunt for Pokémon while perusing Google Maps. Through a friend he was able to set up a meeting with the Pokémon Co., an entity that is partially owned by Nintendo and conveniently shared the same office complex with Google Japan in Tokyo's Roppongi district. "Their CEO liked the deal immediately," Nomura remembers. "There was not any real negotiation."

The success of the April Fool's prank caught the eye of Hanke, who reached out to Nomura to see if he could set up another meeting. Hanke wanted to know if Pokémon would be interested in making an actual mobile game. By May 2014 Hanke was in a conference room with Pokémon CEO Tsunekazu Ishihara, flanked by translators and discussing, of all things, Ingress. A devoted Ingress player, Ishihara immediately grasped how powerful location could be for a mobile game involving Pokémon. With the blessing of the late Nintendo CEO Satoru Iwata, Hanke began development of Pokémon Go that summer, agreeing to split game revenue with the Pokémon Co. and Nintendo. (Hanke declined to reveal the specific terms.)

Meanwhile, back in Silicon Valley Niantic's position within Google had become tenuous. As the company decided how to reorganize itself into Alphabet, Google's leaders wondered what to do with the "dangling chad" of Hanke's group. There was talk of rolling the company into the Android group, though the idea of falling back into the bureaucracy of Google's massive organization had little appeal to Hanke.

Instead, he broached the possibility of a spinoff and was given permission to go out and seek funding for an independent company. He met with several venture capital firms—among them Andreessen Horowitz and Kleiner Perkins Caufield & Byers—though all balked at the company's valuation of around $150 million. One investor from those meetings recalls that Hanke discussed only Ingress and made no mention of the upcoming Pokémon title. Eventually Hanke was able to cobble together a $35 million round at an even higher valuation (around $175 million) from Google, Nintendo, the Pokémon Co. and angel investors—no big VCs invested.

In defense of those that passed, Pokémon Go is barely a month old and history has not favored mobile-game makers like Zynga (Farmville) and King.com (Candy Crush), which serve as a warning to any viral-game maker. At this point Hanke is just trying to keep the servers running. With bags under his eyes, he's had little time to do much of anything else, not even play his own game. What level is he at?

"I'm, like, level 5," he says sheepishly.

FINAL THOUGHT

"After a certain point, money is meaningless. It's the game that counts." —**ARISTOTLE ONASSIS**

BY THE NUMBERS

AT YOUR SERVICE

BUSINESS SERVICES—ADMINISTRATIVE WORK, MIDDLE MANAGEMENT, LAW, MARKETING AND MORE—NOW MAKE UP THE LARGEST HIGH-WAGE PORTION OF THE ECONOMY, EMPLOYING NEARLY 20 MILLION AT AN AVERAGE SALARY OF $30 AN HOUR. TECH-RICH METROS HAVE CREATED THE MOST SUCH JOBS SINCE 2010. THE TOP FIVE METRO AREAS:

1. **NASHVILLE, DAVIDSON, MURFREESBORO, FRANKLIN, TENN.**
BUSINESS SERVICES EMPLOYMENT GROWTH RATE, 2010–15
47.2%

2. **SAN FRANCISCO, REDWOOD CITY, SOUTH SAN FRANCISCO, CALIF.**
45.7%

3. **AUSTIN, ROUND ROCK, TEX.**
42.3%

4. **SAN JOSE, SUNNYVALE, SANTA CLARA, CALIF.**
36.4%

5. **DALLAS, PLANO, IRVING, TEX.**
28.9%

RAINER GROSSKOPF/GETTY IMAGES

Find.Me.Here

Billions more people could finally get home deliveries if the world adopts What3Words' clever address system.

BY PARMY OLSON

In a fast-growing suburb outside New Delhi, young women hail pink motorcycle taxis through an app called Bikxie. Launched in January, Bikxie has a novel feature: It pairs women drivers with women customers. And soon it will have another. Its users in Gurugram, where rapid construction has created a confusing mess of locations, won't need a street address. Instead, says Bikxie founder Divya Kalia, riders will simply type three ordinary words to identity the nine-square-meter parcel of land where they want to be dropped off. For example, the entrance to Bikxie's office in New Delhi is artichoke.recruiter.sniff. Beyond India, FORBES' New Jersey headquarters is gold.wink.flesh. The front door to the White House? Length.grab.torch.

Bikxie is pulling this data from a unified global addressing system devised by a company fittingly named What3Words. The London-based startup, launched in 2013 by Chris Sheldrick, a former music and events organizer, has divided the entire planet into 3-meter-by-3-meter squares (the size of a small bedroom) and assigned each a three-word string. The goal: Make it easier to find the homes of the more than half of humanity who live in poorly marked areas, like many urban slums, or are among the 4 billion people who have no address at all. Much of Costa Rica, for instance, doesn't have street names or house numbers.

"In some countries home delivery for post doesn't happen," Sheldrick says. "People are used to going, 'I live behind the yellow lamppost near the coffee shop.'"

In Rio de Janeiro's favelas, a local mail-delivery company, Carteiro Amigo, already uses What3Words to find homes. Mongolia's national postal service signed up last May to use the system for deliveries to the country's 3 million citizens. Drivers with Direct Today Couriers in the U.K. use a What3Words-powered app and have cut missed deliveries by 83% since January. What3Words has raised $14.5 million from investors like Intel Capital and Aramex, the Middle East's equivalent of FedEx, which has asked big local retailers to add a What3Words box to checkout pages. In all, more than 250 businesses globally use What3Words, though it isn't profitable yet.

Sheldrick, 35, wants What3Words to become a global standard, the comprehensive fix to the addressing problem that several national governments, like Ghana's, have tried and failed to solve. He started the company after seeing some of his musical acts get lost in Italian villages and miss their gigs. Latitude and longitude coordinates failed to solve the problem. Mess up one of the 18 numbers, and you could end up 20 miles from your destination.

In January 2013 he began discussing the problem with Jack Waley-Cohen, an old friend from his chess team at Eton, the elite British boarding school. "If only someone could make GPS coordinates easy," he remembers saying over tea in his London flat. They needed a sequence of, ideally, three things, "something everybody could remember," he adds.

Words would do the trick. The pair divided the globe into 57 trillion squares that require about 40,000 different words to identify them all. They assigned short words to locations on land and longer ones to those on bodies of water.

To turn this clever idea into a business,

Chris Sheldrick's startup has divided the globe into a grid of tiny blocks, including this square in Hyde Park, London.

mit to a little-used system. (Sheldrick won't say how many people currently use the technology.) But there's the tantalizing future prospect of robots using Sheldrick's system to make deliveries. When Amazon announced it was testing drones, "very quickly the cogs turned in my head," says Sheldrick.

The other challenge is making money. Sheldrick won't disclose how much it charges clients or the total revenues, but FORBES estimates the startup has brought in less than $1 million in its first three years. What3Words licenses access to its formula, which converts GPS coordinates into three-word addresses. Some pay extra for software that hosts the formula on their own system, so that, say, users of a mapping app won't have to look up the address online.

Not everyone thinks the system is necessary. Starship Technologies, an Estonian startup that deploys and coordinates self-driving delivery robots for companies in the U.K., Germany and Switzerland, recently talked with What3Words. "Robots don't understand street addresses," says Starship COO Allan Martinson. "We may use What3Words as part of that address, but it must be widely used." Starship's sensor-laden robots already create their own maps across city streets, he adds, just like Google's Street View cars do. Amazon's drones may end up doing the same.

Either way, the startup may not remain independent for long. "What3Words is a perfect candidate to be taken over in a couple of years," says Martijn de Wever, founder of Force Over Mass Capital, which recently invested. He sees Google, Apple or Amazon being particularly interested. "They could integrate it fully within their current mapping technology." ✱

Sheldrick eschewed the open-source approach embraced by some other location-based enterprises, choosing instead to patent-protect the word-assignments and algorithm. His team packed the formula into 10 MB of space, making the service easy for businesses to incorporate into their apps, run from their own servers and use in areas with no mobile data coverage.

Sheldrick now faces several challenges. One is getting people to adopt a completely new way of defining location. That's a big ask, isn't it? "There's plenty of behavior-changing platforms," Sheldrick says, noting that Airbnb seemed creepy at first but is now second nature to travelers. "As you get more businesses pushing this, it becomes de facto," he says. "We're talking to all the large global logistics firms."

Business customers like Aramex are crucial to helping What3Words get companies to com-

PHOTOGRAPHED BY LEVON BISS FOR FORBES. CHRIS SHELDRICK WEARS A JACKET BY GIEVES & HAWKES; SHIRT BY JAEGER; PANTS BY TIGER OF SWEDEN; SHOES AND BELT BY TODS. STYLE DIRECTOR: JOSEPH DEACETIS; STYLE ASSOCIATE: JUAN BENSON.

FINAL THOUGHT

✱ *"My country is the English language."* —**KILDARE DOBBS**

TRENDING

WHAT THE 45 MILLION FORBES.COM USERS ARE TALKING ABOUT. FOR A DEEPER DIVE GO TO **FORBES.COM/TECHNOLOGY**

COMPANY
DOLLAR SHAVE CLUB

Unilever buys itself a billion close trims, picking up the online men's-grooming upstart for $1 billion cash—or considerably more than two bits.

PERSON
JORDYN CASTOR

The computer engineer, 22, has been blind since birth. She's honing Apple's VoiceOver speech technology, she says, to "help change the world for people with disabilities."

IDEA
OBESITY: THERE'S AN APP FOR THAT

Might games with ever-greater player mobility—even if they don't reach Pokémon Go's dizzying popularity—help kids control their weight?

The Fraud Detective

Alex Algard risked everything he owned to turn his struggling business, Whitepages, into a fast-growing tech company he expects to generate $150 million in revenue next year.

BY AMY FELDMAN

Every day thousands of consumers go to Under Armour's website and click "buy" on a T-shirt or a pair of running shoes, transactions that total an estimated $500 million a year. To those customers it may seem as if their transactions are processed instantly. But in that half-second or less, Under Armour, with the help of a Seattle-based tech company called Whitepages, makes the decision whether to trust the consumer and complete the sale.

Under Armour is just one of more than 2,000 businesses, including Wells Fargo, Saks and American Airlines, that rely on Whitepages' subscription-based service, Whitepages Pro, to assess millions of transactions each day. Is a buyer trying to pass off a fraudulent credit card? Or using a prepaid phone card and shipping to a Mail Boxes Etc., a red flag for fraud? As businesses crank up their online sales—and consumers move to mobile phones, which are tougher to connect to real addresses—the database that Whitepages began building nearly 20 years ago as a simple online phone directory has become increasingly valuable.

It has taken most of those 20 years for Alex Algard, Whitepages' 42-year-old founder and CEO, to transform what started as a side hustle into a real business with $70 million in revenue last year. That transition required guts and a steadfast belief in the business. In 2010 the company's two biggest clients cut back, its revenues plunged, and its investors decided they wanted out. "I was dreading going to board meetings," Algard says. "We were fighting about whether to invest in the business. It was a very painful process." And there was no guarantee the business would survive.

Sitting pretty: Alex Algard left Goldman Sachs because he was making more on his side venture.

RICK DAHMS FOR FORBES

The son of a Swedish father and a Korean mother, Algard was born in Stockholm, moved to Vancouver as a teenager and studied economics and engineering at Stanford. During the dot-com boom, he landed an internship with Morgan Stanley in Silicon Valley. While there, in 1996, he had an idea for an online directory and thought to call it Whitepages.com after the soon-to-be-obsolete phone book. When he typed in the URL, he saw a "coming soon" notice, so he contacted its owner and flew to Los Angeles to negotiate the purchase, paying just $900.

After graduation Algard took a job as a junior analyst at Goldman Sachs in New York, tinkering with the online phone directory in his lim-

ited free time. In those days, before the advent of open-source technology and cloud-based software, building a database of phone numbers would have been prohibitively expensive, so he wrote some code that pulled data from American Business Information (now part of Infogroup) in real time. It cost just $5,000 a year in licensing fees and allowed users to search nationally rather than having to go state by state.

Before long Algard's hobby, which generated revenue by displaying ads, was producing more income than his day job. Eleven months into his career he stunned his colleagues and bosses by quitting Goldman to pursue the dot-com dream. (Some at the firm were further stunned when they mistyped his URL and found themselves on Whitepage.com, then a porn site.)

Whitepages quickly became a cash cow. Consumers could save on directory-assistance charges by looking up numbers online, and advertising followed. An early win came from deals that rewarded Whitepages.com generously for forwarding searches for local businesses to Yellowpages.com and Superpages.com. The contracts produced $15 million a year by 2005, and those results attracted investors.

In 2005 Technology Crossover Ventures (TCV) and Providence Equity Partners invested $45 million for a minority stake. Revenues continued to grow almost effortlessly, reaching $66 million in 2008. But online business models were changing, Google was horning in on local business search, and the company's fortunes were tied to the contracts with Yellowpages and Superpages. "We saw the writing on the wall," says Max Bardon, who served as Whitepages' CEO during a period when Algard stepped down to focus on a second fast-growing startup, an online community for car enthusiasts. "We started building our own business-search capability instead of outsourcing to those guys."

But the new model required better engineering and design, and couldn't match the easy revenue—and 99% profit margins—of the business-search deals. When Yellowpages and Superpages cut back, their payments dropped from $33 million in 2008 to $7 million in 2010. "It felt like an asteroid had hit us," says Algard, who had by then returned as CEO and had to try to calm his VC investors. "They put a lot of pressure on us to magically go find profit. It really got to the point where I was thinking we would end up suing each other."

By 2012 Algard saw two options: He could find a buyer for Whitepages, or he could come up with some $80 million to buy out the VCs himself. He chose the latter. While Whitepages had cash on hand he could put toward a deal, he was still roughly $30 million short. To bridge the gap, the company took out a bank loan—and Algard pledged his family's house, savings accounts and other personal assets as collateral. "That's a ballsy move that I really respect," says Whitney Bouck, chief operating officer at HelloSign and a Whitepages board member. ("We're glad this worked out well for Alex and our investors," said a Providence Equity Partners spokesperson; TCV declined to comment.)

The deal left Algard with the task of turning Whitepages into a sustainable business. Now fully engaged, he shifted the company's business model, culminating this year with turning off the advertising on the consumer side—Whitepages' primary source of revenue—and switching to a subscription model. For a monthly fee of up to $29.95, users can get details on anyone they're trying to find, including mobile numbers and bankruptcy records. For business users, Algard created Whitepages Pro. "It keeps our fraud rates low, which is really, really important for our business," says Matt Oppenheimer, CEO of currency-transfer startup Remitly.

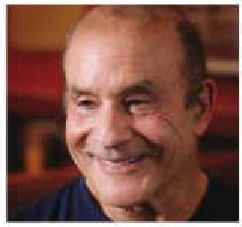
Algard's early insight was to link people's identities to their mobile phones rather than to their landlines and to work the data into an "identity graph" that ties together phone numbers, addresses, e-mail addresses, social networking profiles and the like. He has also spun off a division that uses the phone data to identify mobile-phone spammers. Called Hiya, the spin-off has deals with T-Mobile and Samsung.

Algard refused to say what impact he expects these changes to have on revenue this year but did say he expects it to surpass $150 million next year. A poker player, he says he has no regrets about borrowing millions to buy out his investors, though the company is still paying off the loans and his house is still on the line. "You must take risks to win," he says. "If you do not take risks, you do not win." *

FINAL THOUGHT

* *"Telephone books are, like dictionaries, already out of date the moment they are printed."* —**AMMON SHEA**

GO, CONSIDER, STOP



HOW TO HIRE A FELON

ZANE TANKEL, CEO OF APPLE-METRO, WHICH OWNS 36 APPLEBEE'S AND 2 PIZZA STUDIOS IN NEW YORK CITY AND ENVIRONS, HAS BROUGHT ON DOZENS OF FORMER INMATES AND PROMOTED MANY TO MANAGERIAL ROLES. HIS ADVICE:

LEARN THEIR "AHA" MOMENT

Pre-promotion, Tankel does a surprise in-person interview to ask when the employee realized he was ready to go straight. He expects a reply from the gut: no smooth talk, no platitudes.

PRUDENCE AND GUIDANCE

Tankel spends his days visiting restaurants, schmoozing workers—and keeping tabs on their progress and setbacks. "My role is to keep them moving forward."

WORKPLACE, NOT JAILHOUSE, MORES

Tankel once hired a dozen former inmates at one location. They hung out together, swapping prison tales, until one by one they went back. Lesson learned. "They've got to get absorbed by the culture," he says. "They can't *be* the culture."

—*A.F.*

The Canadian Dream

With Victory Square, Shafin Tejani is weaving together a startup ecosystem in Vancouver that has real advantages over its neighbors to the south.

BY ROBB MANDELBAUM

Shafin Tejani often uses the pronoun "we" when discussing his exploits as the founder of more than 20 startups and an investor in dozens more, as in "We're making a big push into Europe." Technically he is an executive committee of one, but he is building a team of sorts.

He recently sat down for a meeting in a conference room in the Vancouver offices of BC Diabetes, the practice of Dr. Tom Elliott. While Tejani is investing about $400,000 in a venture with Elliott to develop a genetic test that predicts how diabetics will respond to the drug liraglutide, his real purpose on this day was to get Elliott's reaction to a product demonstration.

Thirty-nine and preternaturally affable, Tejani, who greets almost everybody as "brother"—partners, friends, the waiter at lunch—had asked a couple of graduate students to demonstrate a device they had designed to test glucose levels. "I saw the market size and the market opportunity," Tejani says. "Diabetes is global. It's borderless."

It's also out of his comfort zone, which is why he sought the counsel of Elliott, a clinician with two decades of experience. Ultimately the doctor expressed skepticism, but Tejani had woven another strand into the web of startups he is building. In the past two or three years, he has seeded an eclectic portfolio featuring some of Vancouver's top young entrepreneurs. Through an investment entity called Victory Square, he has supplied time, knowledge, support services, access to his network and financial assistance—generally not more than several hundred thousand dollars—to some 16 startups.

Shafin Tejani takes a different approach to startups: "I go in planning to win every time."

RICK DAHMS FOR FORBES

British Columbia's technology companies—there are more than 9,700 of them—employ more people than the natural resources companies that once dominated the region, according to the BC Tech Association. Tejani has seen real benefits in being based in Canada. For one thing, his companies often pay their expenses in Canadian dollars and receive their revenues in American dollars. Plus, he helps his entrepreneurs take advantage of generous government support and incentives: grants and credits for making investments, for hiring recent college graduates, for R&D and more.

He likes to call what he does "venture build" as opposed to venture capital. Unlike VCs, who often leave startups to their own devices—so long as they are hitting milestones—Tejani showers his portfolio companies with support. "As a VC, you're making a bet knowing you're going to get one home run and a hundred outs," he says. "I go in planning to win every time." To improve his odds, he tends to think small, seeking startups that can turn a profit in six months and that are in need of his "core competencies," as he calls them, in online customer-acquisition and software development.

Lately, though, he's been thinking bigger. At the center of his efforts is a bid to stitch together a publicly traded enterprise, called Fantasy 6, that will stake out a piece of the fantasy sports market—never mind that the space is occupied by two behemoths, FanDuel and DraftKings. Tejani purchased one company outright and created a couple of others from scratch to fill roles in the nascent empire. He thinks Fantasy 6 could find a buyer in the next one to three years—a media company "like Disney" prepared to pay $150 million or more.

Tejani's parents, who are of Indian descent, immigrated to Vancouver from Uganda as young adults. Most of the entrepreneurs in Victory Square's portfolio are themselves first- or second-generation Canadians, many from Asia. "Even before capital, there was trust," says Samarth Chandola, who came from India and wound up working for a political candidate whose campaign rented office space from Tejani. In 2013 Tejani agreed to stake Chandola $25,000 to build a suite of learning games for children called Boximals.

Within a year Tejani and Chandola sold the company for $1 million to a Brazilian private equity fund. Then they started a mobile gaming company, V2 Games, that today employs more than 40 and is profitable on nearly $3 million in annual sales. Chandola has become something of a junior partner to Tejani, with a stake in both Fantasy 6 and one of its main affiliates, Immersive Environment, which is building real-world interactive experiences, starting with escape rooms. Immersive is managed by another Tejani protégé, Adrian Duke, whose first Victory Square company designs water slides with a 90-degree drop and a full loop. It built a prototype at a park near St. Louis and has sold four units.

Tejani started his first business 20 years ago in a dorm at what is now Western University in Ontario, a college sophomore hoping to make up for a lost scholarship. The business, iFluRtz, was a dating quiz-and-match service that he pitched as a fundraiser to high schools, which sold the program to students. Within a few years the business generated about $2.8 million in revenue and led to a school discount program and a mailing list of more than 60,000 merchants. From there Tejani slid neatly into retail loyalty programs, creating and selling six companies.

Meanwhile, after a friend asked him to build an online gambling site, he developed a rudimentary affiliate marketing tool to track traffic and compensate websites for leads. When his friend sold the site, Tejani was left with both his tracking tool and the website architecture, which he began marketing to other gaming sites, particularly in South America and often in exchange for equity.

He retired from online vice four years ago with, he says, $125 million in profits from all his ventures, as well as a back office of developers and digital marketers and a global address book. Darius Eghdami, CEO and cofounder of FansUnite, which will soon join the Fantasy 6 family, says his association with Tejani lowers his costs because a developer who would otherwise expect a salary of $60,000 to $65,000 might take 10% less to work with Tejani. And he marveled at Tejani's network of marketing and gaming contacts. "If I reached out to them," Eghdami says, "they wouldn't return my calls." *

FINAL THOUGHT

"Would the world be a better place if there were 50 Silicon Valleys? Obviously, yes." —**MARC ANDREESSEN**

CREDIT RIGHT

TRENDING

WHAT THE 45 MILLION FORBES.COM USERS ARE TALKING ABOUT. FOR A DEEPER DIVE GO TO **FORBES.COM/INVESTING**

PERSON
PAUL M. ENGLISH

Cofounded travel search site Kayak and sold it for $2.1 billion; his new startup, Lola, connects users with live travel agents who handle all details and create itineraries. Just like old times!

COMPANY
DABADO

When Steven Helfer and his brother Nicholas put together a Facebook page about "dabbing" (smoking marijuana concentrate), they didn't expect tens of thousands of "likes"—or that it would become a marketing platform for a new multimillion-dollar business.

IDEA
SMART CYCLING

Blubel is a device from a London startup that attaches to handlebars: a combination alert bell and trip planner that gives clear, easy-to-digest directions for the safest route.

Juice Your 529

Our state ratings, plus seven strategies to help you get the most from your college savings.

BY WILLIAM BALDWIN

Bonanzas and booby traps: Plenty of both await you in the complex world of 529s.

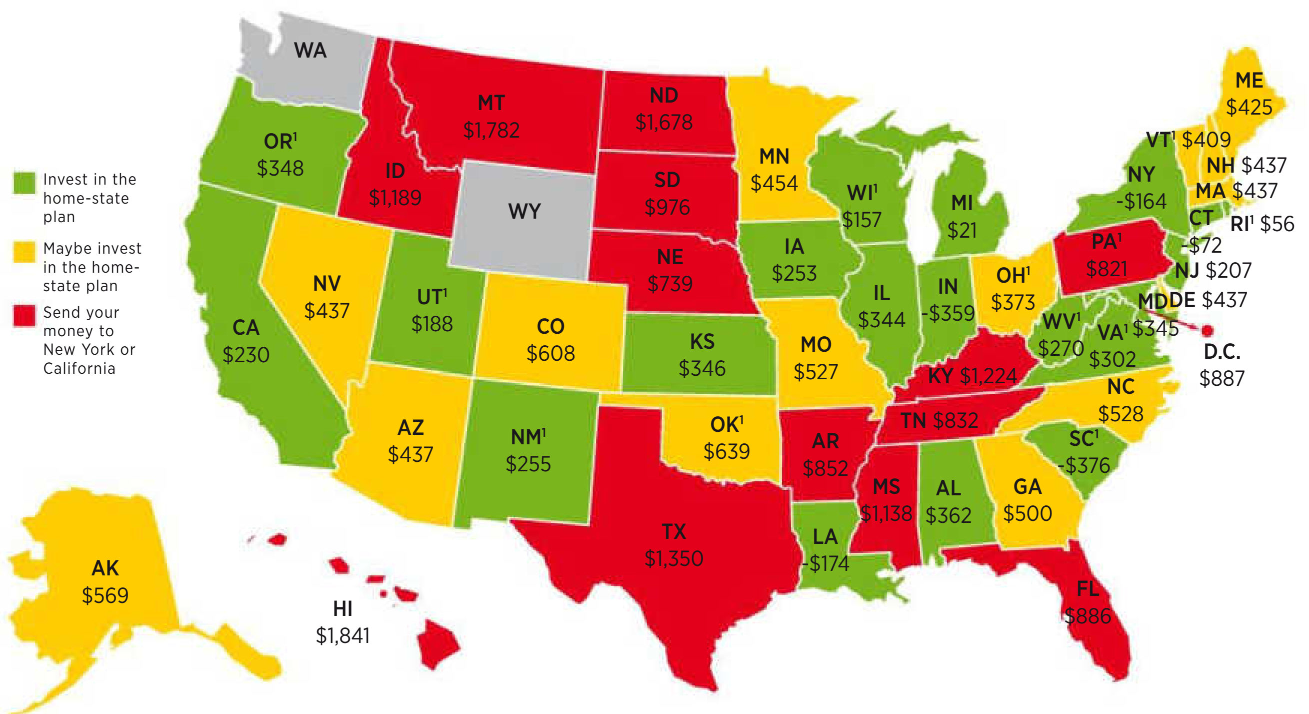
Needlessly complex, since the concept is simple. You set aside savings for college costs, and the earnings (per section 529 of the tax code) escape tax. But the execution is messy because 48 states plus the District of Columbia compete nationally for the business of overseeing the accounts. They have created a crazy quilt of investment choices and tax rules.

Two-thirds of states operating 529 plans offer tax deductions or other subsidies for contributions to college accounts, and the deal is usually available only to participants who patronize the home-state plan. What should you do if your state has a lucrative deduction but runs a crappy plan? The aim of this article is to answer that question and to offer guidance on other ways to extract the most from your account.

Strategic Insight, which tracks the money management industry, counts $230 billion in 529 assets, not including tuition prepayment plans. The money is driven into place

SHOULD YOU BUY INTO THE HOME-STATE 529?

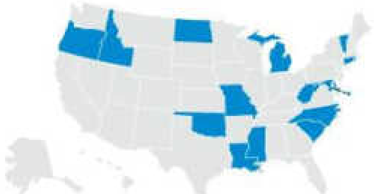
GREEN STATES OFFER THEIR RESIDENTS NICE SUBSIDIES OR LOW EXPENSES ON THE COLLEGE SAVINGS PLANS THEY RUN. RED STATES TREAT THEIR INVESTORS BADLY. COST SHOWN IS THE NET EXPENSE ON A $10,000 INVESTMENT HELD FOR 18 YEARS.



FEES AND EXPENSES OVER 18 YEARS ON A $10,000 INVESTMENT IN HOME-STATE 529 PLAN, NET OF STATE TAX BENEFIT ON A JOINT RETURN (A NEGATIVE NUMBER INDICATES THAT BENEFIT EXCEEDS THE EXPENSE). FEES AS OF FEB. 15. TAX BENEFIT ASSUMES STATE TAX IN HIGHEST BRACKET, OFFSET BY FEDERAL EFFECT FOR TAXPAYER IN THE HIGHEST FEDERAL BRACKET. NO CREDIT FOR TAX BENEFIT IF IT WOULD HAVE BEEN AVAILABLE ON A CONTRIBUTION TO AN OUT-OF-STATE PLAN. ASSUMES SINGLE BENEFICIARY AND THE LOWEST-COST INVESTMENT OPTION USING STOCKS OR BONDS. [1]STATE MAY PERMIT A DEDUCTION HIGHER THAN $10,000 OR MAY INCREASE IT FOR MULTIPLE BENEFICIARIES OR MAY ALLOW A CARRYOVER.
SOURCES FOR RAW DATA: SAVINGFORCOLLEGE.COM; TAX FOUNDATION.

1. ROLL-OUT

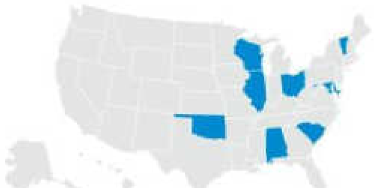
THESE STATES ALLOW A DEDUCTION OR OTHER SUBSIDY FOLLOWED BY A ROLLOVER TO ANOTHER STATE.



D.C., ID, OK, RI, AFTER WAITING PERIOD.

2. ROLL-IN

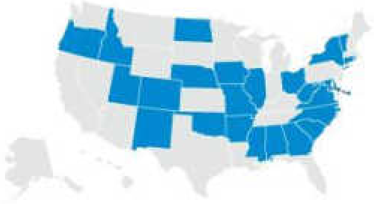
THESE STATES GIVE DEDUCTIONS FOR AMOUNTS ROLLED IN FROM OTHER STATES.



IL, VT, WI, PRINCIPAL ONLY.

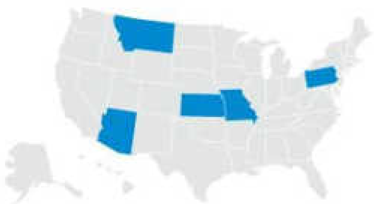
3. HOT MONEY

THESE STATES ALLOW DEDUCTIONS OR CREDITS FOR 529 CONTRIBUTIONS USED IMMEDIATELY.



4. BYPASS

YOU CAN GET DEDUCTIONS HERE EVEN WHEN SENDING MONEY OVER THE STATE BORDER.



5. HAZARD WARNING

THESE STATES LIMIT OWNERSHIP TRANSFERS.

not only by the tax exemption, both federal and state, on earnings, but also by the state deductions for contributions (there's no federal deduction). A wealthy New Yorker can pocket state and city 529 tax breaks cumulatively worth $20,000 (assuming $10,000 in 529 contributions a year for 20 years and a 10% combined state/local rate).

As a taxpayer you might have some misgivings about subsidizing sheepskins, which are in oversupply. (Economist Richard Vedder once counted 115,000 janitors with bachelor's degrees.) As a saver you might as well get as much of the available loot as you can.

The optimum 529 investment strategy depends on where you live, how much you're putting in and for how long. But three rules apply no matter what.

One rule is that you should do your retirement saving first, college saving second. That is because retirement assets are for the most part ignored on financial aid forms, while college assets are fair game. A core principle of aid administrators is that people who have saved for college are undeserving.

Here's how that principle is put into action. A 529 account whose "owner" (that's the person who controls disbursements) is the student's parent will get nicked 5% to 6% a year in the aid formula. In other words, $100,000 contained in a 529 will, over four years, reduce aid by a cumulative $20,000 or so. The same wealth stashed in a 401(k) won't do that.

The next rule is one that applies to all tax-sheltered investing: Get the cheapest investment option on the menu. That will probably be a stock or bond index fund.

Resist the lure of actively managed funds with seemingly terrific records—records, in case you didn't know, being close to useless in predicting future results. If you want to chase performance, do it in a taxable account, where at least you can take a capital loss for your mistakes.

The last general rule is to pace your withdrawals. If you or the student might be able to claim the American Opportunity Tax Credit, don't pay your entire college bill with 529 money. This federal credit hands you $2,500 toward the first $4,000 of tuition that isn't covered by a 529 distribution.

Parents with adjusted gross income below $160,000 can get the full college credit. Alternatively, a student who is not claimed as a dependent on the parent's return can grab the credit.

Now let's delve into geography. Some states, like Michigan and New York, have terrific deals for their citizens: low-cost funds and valuable deductions for contributions. Some, like California and Connecticut, have one of these two good features.

Other states seem to be in the 529 business for the sole purpose of picking savers' pockets. Neither Texas nor Hawaii offers a tax benefit for contributions. They both operate fee-gouging plans.

The map on page 50 highlights the best and the worst states. Here, we assume you're a high-bracket, joint-return filer putting aside $10,000 for a newborn. The net cost shown is the cumulative fee outlay (over 18 years) on the home-state plan, minus the value of any tax benefit for tossing the money in.

Green: Invest locally. Red: Send your money to one of the two states with the best plans. California has the cheapest stock index fund in the business, at 10 basis points ($10 a year per $10,000 invested). New York has the cheapest bond index fund, at 16 basis points.

If you live in a yellow state you might be able to come out ahead by opting for the home plan. To know for sure, you could calculate the net cost by figuring your tax savings off your tax return and your investment cost off the plan documents. If that's too much of a headache, just send your money to California or New York.

What if you are investing a lot more than $10,000? Or investing for a shorter period? Or you are the grandparent of the future student? Then the optimization game gets more nuanced. We have seven 529 strategies to help you.

SPLIT DOLLAR. Joseph Hurley, a New York C.P.A. who founded Savingforcollege.com and ran it for 17 years, suggests that savers consider splitting their accounts. Put just enough into the local plan to get the maximum tax deduction, then put the rest in a better-run plan elsewhere. An Arizona parent saving $10,000 a year would invest $4,000 at home and $6,000 next door in California.

ROLL-OUT. You put your money into the local plan for the deduction, then roll it into a good plan. Fifteen states plus D.C. permit this escape *(see map 1, p. 51)*; there's a waiting period in only four of these places.

ROLL-IN. Let's say you have a lot of money you want to invest early on and you live in Alabama. Put $100,000 into the California plan, then feed it back into Alabama's plan at the rate of $10,000 a year, claiming the maximum Alabama deduction each time. Eight states *(map 2, p. 51)* give deductions for amounts rolled in from other states.

HOT MONEY. You were about to pay the next college bill out of pocket. Instead, send it to your state's plan for the deduction, wait a month for the check to clear, then use the account to pay the college. Twenty-seven states *(map 3, p. 51)* allow a deduction or credit for contributions and don't penalize a rapid departure.

BYPASS. Five states (a) have overpriced 529 plans, (b) offer a tax deduction for contributions and (c) do not limit the deduction to customers of the home-state plan. If you live in one of these places *(map 4, p. 51)*, send your money to New York or California.

GRANDMA HANDOFF. There are two ways for grandparents to chip in to 529s. One is to give money to the parents and have the parents open a 529 with it. That makes sense if the parents are in a higher state tax bracket than the grandparents—for example, they live in New York and the grandparents live in 0% Florida.

The other way is for one of the grandparents to own the account and name the future student as beneficiary. They can prestuff it with five years of gift-tax exclusions ($14,000 per grandparent, per beneficiary, times five). That gets the money out of their estate if they survive for five years but leaves them with the flexibility to take it back if they get into a financial bind.

Grandparent-owned 529s get tricky on a financial aid application. They can escape the 5% asset assessment, but distributions are considered "income" and are whacked with a 50% hit. Let's dodge this tax.

Method I: Grandparent transfers ownership to the parent before money is taken out. Beware of the six states *(map 5, p. 51)* that make ownership transfers difficult; in some of these you can get around the transfer blockade by first rolling assets into a friendlier state. While you're at it, see if you can combine Method I with the roll-in gimmick cited above.

Joe Hurley recommends Method II: Use grandparent money beginning with the spring semester of sophomore year. Because of the time lag in aid formulas, none of the distributions will damage your aid. Clever families can also keep the money out of the reach of asset-based aid formulas for the first two years of school by naming a dummy beneficiary (any descendant who isn't getting financial aid) until it's time to disburse the money.

PRENATAL PLAN. You could set up a 529 when you're 25, naming yourself as beneficiary. You could use it for grad school. And if you don't? Ten years later, when your first child is born, you start making your kids the beneficiaries.

And what if you never have a family? Someday—there's no deadline—you collapse the account. At that point you owe regular tax plus a 10% penalty on the earnings, and you probably have to give back any state subsidy for the contribution. This is not a terrible outcome, given that a 529 allows you to defer tax on investment earnings for as long as you want.

FINAL THOUGHT

"The habit of saving is itself an education." —THORNTON T. MUNGER

SOUND STRATEGIES

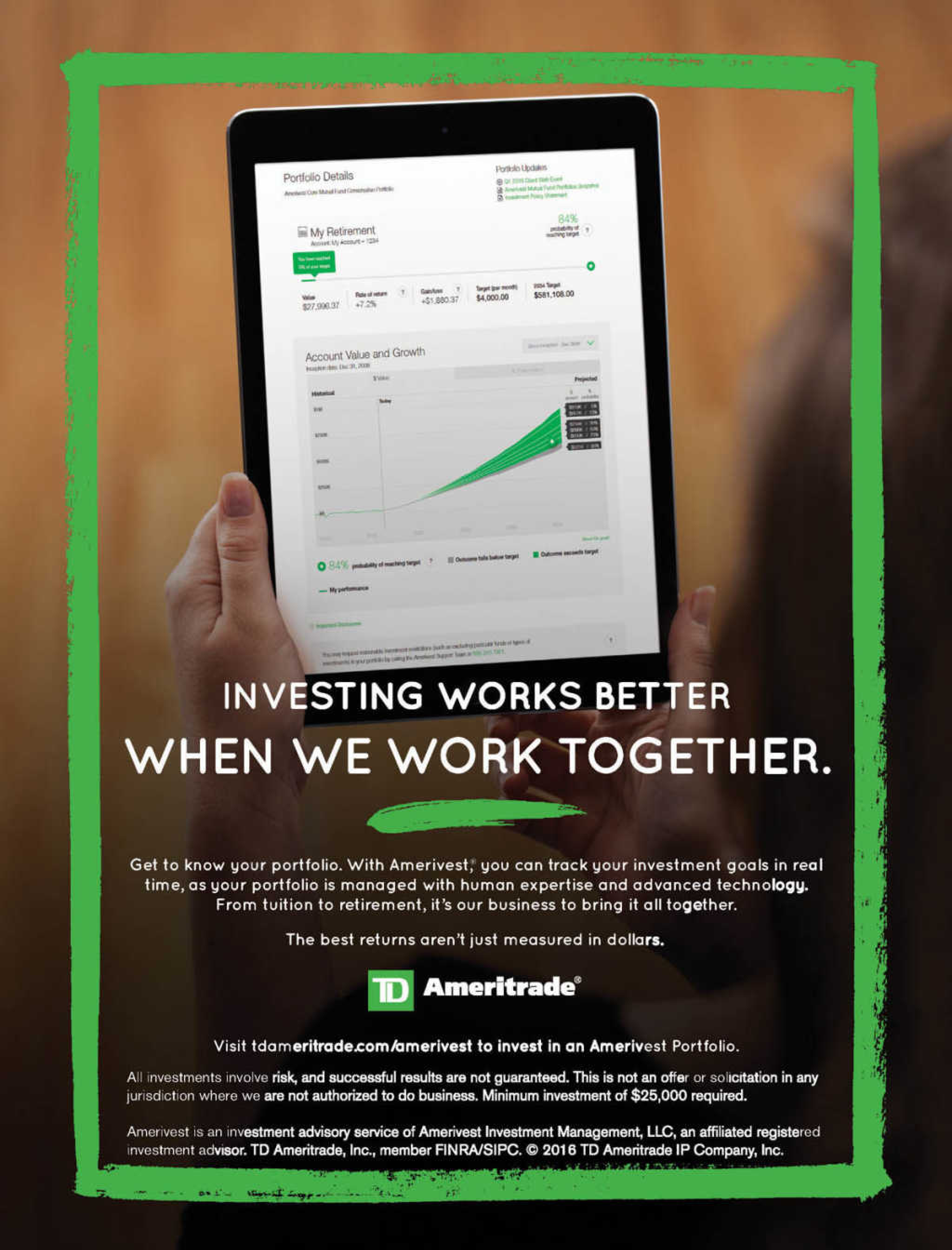
BEATING BREXIT

When the U.K. voted on June 23 to leave the European Union, many investors and traders were caught wrong-footed. Not Michael Cuggino. His $3 billion Permanent Portfolio Fund shone in June, gaining 3.9%, compared with 1% for the average fund in its balanced category and 0.1% for the S&P 500. Year-to-date Cuggino is up 14.2%, better than 99% of his peers.

His trick wasn't big bets on Brexit but rather already owning assets that hold value during market upheaval: physical gold, Swiss francs and franc-denominated bonds, alongside growth holdings such as Facebook. Such positions can be a lead weight during go-go rallies, but they work wonders in troubled times. "We may not hit the home run," Cuggino acknowledges, "but we're not gonna strike out much."

—Steve Schaefer

CHRIS J RATCLIFFE/AFP/GETTY IMAGES


Portfolio Details
My Retirement
Account Value and Growth
INVESTING WORKS BETTER
WHEN WE WORK TOGETHER.
Get to know your portfolio. With Amerivest,® you can track your investment goals in real time, as your portfolio is managed with human expertise and advanced technology. From tuition to retirement, it's our business to bring it all together.
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The Little People Get Hedge Funds

What happens when small investors get cut in on exotic short-selling strategies?

BY WILLIAM BALDWIN

If the market's Brexit tantrum has reminded you of the pain of volatility, you may be hunting for something magical on Wall Street: an investment that delivers most of the return from stocks but much less of the risk.

Hedge funds, those private partnerships offered to a select crowd, try to accomplish this by mixing stock purchases with short sales. The theory is that in a rising market the carefully selected long positions race ahead; in a correction, profits on the short sales insulate the portfolio from the worst of the decline.

Now ordinary folk can get in on the action. An expanding collection of publicly traded mutual funds combine long and short positions in stocks. With these, you can get hedge-fund-like returns.

Important question: Do you really want hedge-fund-like returns? Take a look at them before signing up.

Morningstar counts 133 publicly offered funds in its "long-short equity" category, holding a combined $34 billion. Results: awful. The average return for the bunch has been 2% a year over the 36 months to June 30. You could have had 11.7% a year from a stock index fund.

Hedge-fund-like? Sure, if that's any consolation. An index of equity hedge funds tracked by Hedge Fund Research shows a 3.1% annual return over three years, almost as bad as the return from the public long-short funds.

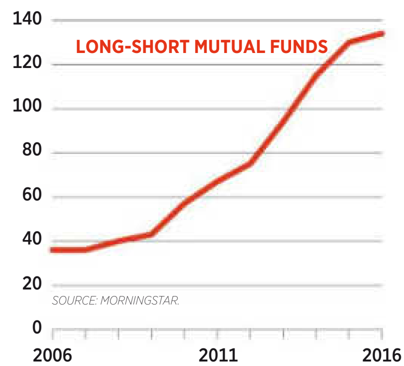
The question is why an ordinary saver would really need this stuff. For an answer we turned to Goldman Sachs, which oversees $112 billion of alternative assets (those being almost anything other than plain old stocks and bonds) and has 40 years of experience in the field.

Lawrence Restieri Jr., who helps market alternative investments at Goldman, says the idea is to get exposure to asset classes that are not closely correlated with the stock market. "Adding a return driver that behaves differently can help clients over time," he says. "You don't want the client, after an equity market crash, to sell all their equities and not get back in [before] the market recovers."

Protecting investors from self-

FUND GROWTH

THE POPULATION RISES, NOTWITHSTANDING THE QUIET DEMISE OF 60 OVER THE DECADE.



ROBERT BABBONI FOR FORBES

HOW DID LONG-SHORT FUNDS DO?

HERE ARE THE FIVE LARGEST LONG-SHORT EQUITY FUNDS AS OF MID-2013. THEIR RETURNS HAVE BEEN MUCH WORSE THAN YOU'D EXPECT FROM THEIR MARKET EXPOSURES.

FUND	TICKER	ASSETS 6/30/2013 ($BIL)	STOCK EXPOSURE[1]	EXCESS RETURN[2]
BOSTON PARTNERS LONG/SHORT RESEARCH	BPRRX	$1.1	58%	–1.0%
DIAMOND HILL LONG-SHORT	DIAMX	2.8	70	–3.5
MARKETFIELD	MFADX	10.5	35	–11.0
NEUBERGER BERMAN LONG SHORT	NLSAX	1.0	49	–3.1
WASATCH LONG/SHORT	FMLSX	2.1	77	–9.2

[1]MARKET RISK, AS DEFINED BY THREE-YEAR BETA AGAINST S&P 500. [2]THREE-YEAR ALPHA. NEGATIVE NUMBER INDICATES BELLY FLOP. *SOURCE: MORNINGSTAR.*

inflicted wounds is a worthy goal. But are long-short mutual funds a good way to achieve it?

Consider what the funds do to reduce risk. They have, on average, a sensitivity to stock market fluctuations that is equivalent to a 50% long exposure. (That could come, for example, from investing the whole wad in long positions, then taking on short sales equal to half that amount.) But there are easier ways to go 50% long. You could just put half your money in cash.

Someone who spent the last three years half in cash and half in a stock index fund would have landed an annual return just shy of 6%. That's four points better than what the long-short mutual funds delivered. In short, the long-short customers have allowed a lot of money to slip between their fingers.

Josh Charlson, who analyzes alternative investments for Morningstar, has some theories about what went wrong. The long-short crowd may have made too many short-sale bets against highfliers like Netflix and Amazon. Then there are frictional costs to their trading. Turnover in the category averages an effervescent 260% a year.

The biggest single drag on the results is the fees. Those 133 strivers have taken on a very challenging assignment—answered with "proprietary" models, "high conviction investments" and "patent pending" strategies—and charge accordingly. The average expense ratio runs to 1.9% a year. That's 38 times as high as for a stock index fund.

The Goldman Sachs Long Short Fund has 2.4% in annual expenses and a 468% turnover. Not quite two years old, it has delivered an average annual return of –9%.

Could you improve the odds of success by choosing only the best-performing funds? Don't count on it. Performance-chasing investors have an unfortunate habit of getting in at the top and bailing out at the bottom, says John Bogle, who founded Vanguard Group 41 years ago on the theory that investors should seek economy and simplicity in their portfolios. As a result, he says, the return on an average investor's dollar is often less than the return you see in a performance chart.

A case in point is the Gotham Absolute Return Fund, opened to much enthusiasm in 2012. Gotham founder Joel Greenblatt made a name for himself with his *The Little Book That Beats the Market* (John Wiley & Sons, 2010). The fund drew in billions of dollars to follow Greenblatt's "magic formula investing," which has the fund buying 530 scientifically selected stocks and shorting smaller doses of 448 others.

If you had bought this fund three years ago and stayed put, you would have gained 4.6% a year. That's not great for a fund with a 60% market exposure, although it does leave Gotham ahead of its dismal peer group.

Gotham's restless customers, alas, did not stay put. They had more money on the table during the bad months than during the good ones. Their average result, Morningstar reports under its "investor return" tab, has been –2.8% a year.

You could try to make your move into hedge-fund-like investing at just the right time, just before the magic formulas start working. But the odds are against you.

"You pay a terrible price for thinking you're smarter than the market," Bogle says. If you're worried about volatility, see if you can come up with a reduced-risk portfolio that has low turnover and low expenses. He recommends a 50-50 blend of an S&P 500 index fund and a short-term bond fund. ✱

FINAL THOUGHT

✱ *"In a hedge fund, you get paid on your batting average. So you go to the worst league you can find, where there's the least competition."* —**JULIAN ROBERTSON**

TRENDING

WHAT THE 45 MILLION FORBES.COM USERS ARE TALKING ABOUT. FOR A DEEPER DIVE GO TO **FORBES.COM/INVESTING**

RICHARD DREW/AP

PERSON
JAMIE DIMON

JPMorgan chief boasts of raises for 18,000 bank employees but leaves out that they're coming after thousands of layoffs.

COMPANY
NETFLIX

Subscriber growth fails to impress, but the company has no shortage of excuses—bad press and the upcoming Olympics among them.

IDEA
BANKING ON BONDS

Banks clear low earnings hurdle, thanks to cost cuts and Brexit-driven bond-trading boost.

EARNINGS GROWTH YOU CAN DEPEND ON

WHEN SO MUCH SEEMS so wrong to so many, why would any right-thinking soul own stocks? Everyone "knows" they're too pricey. What would pull them up? A tractor!

Out back on my firm's Washington State campus they were weed-whacking and uncovered a 1926 Farmall, an International Harvester model that revolutionized row-crop farming. Thanks to tiny, sharp-turning front wheels that meandered through rows nimbly, the Farmall turned a simple idea into big productivity gains, one of many that funneled us from half our labor in agriculture when my grandpa was young to under 1.5% now—while output grew vastly. While 1926 feels primitive, it's just 24 years pre-my-time. Pretty new!

Technology deployers keep boosting productivity via clever ideas. Moore's Law, Kryder's Law, the Shannon-Hartley Theorem, Koomey's Law and DNA technology all whiz along. Dreamers will fashion Farmall-like twists to spur upward-driving earnings growth. I've no clue who develops what or when long term. But it will happen. Bank on it.

If we buy out a good firm at 14 times stable earnings we get 7.1% forever (1/14)—reinvestable into growth at deferrable cap gains rates. Or we can lend lousy firms long-term cash at 5.9% pre-income-tax. What's better? The buyout, of course. Compounding that spread becomes immense. Buying the global market captures that spread plus all future growth that Farmall-like gains assure.

IN BULL MARKETS, BIG TECH STOCKS RUN IN SPURTS. SEVERAL GIANTS ARE NOW ON THE WAY UP

This is the basic, valid logic for owning stocks long term. Nothing liquid beats it. Better stocks are better still. And you're obviously better off short-to-intermediate term in an ongoing bull market. Here are five growing stocks I like now for this bull.

Recall January's fears of China breaking. Yet the country grows, albeit at steadily slower rates, and its enormous size means GDP 5% real growth is about $1 trillion—huge. And that means more **BAIDU (BIDU, 161)**, China's Google equivalent. Its stock has stunk for 18 months. It stinks about every two years—then shines and should now. I keep saying big tech runs in spurts late in long bull markets. Why now? At 12 times my 2017 earnings estimate it's been underloved too long and should respond to Chinese acceleration. It's a great growth firm valued like a slow-growth one.

In the same suit globally is **ALPHABET (GOOG, 739)**, a.k.a. Google, which has done poorly of late with disappointing ad volume growth. That should be more than offset ahead by rising mobile pricing tied to value added from "location targeting." Be careful: Big brother is watching. Big Brother sells at 18 times my 2017 earnings estimate.

Long-term readers know I urge being overweight big drug stocks through this bull market's life. **MERCK (MRK, 59)** should be ripe for another run. Consensus earnings estimates for 2017 of $3.70 are flat and too low. Expect positive surprise early on tied to its seven "under review" pipeline drugs, particularly in cancer and hepatitis. I think it should sell at a P/E of 20 by early 2017.

There are so many reasons to dislike Oregon-based sports and footwear giant **NIKE (NKE, 57)**—I love it. Overexposure to China! Easy-entry industry! The emotion of Phil Knight's departure! High saturation of developed markets! It goes on endlessly. But overseas Nike should surprise on the upside, earnings, too, even in China and emerging markets. And hence 22 times consensus earnings expectations for the May 2017 fiscal year should be blown away—blowing the stock up—in a good way.

If conservative, you will like Fox News. If liberal, the bulk of Fox's other TV programing, like cable channel Nat Geo Wild. If nonideological, its movies—classic old hits or new ones—like *X-Men: Apocalypse*. But as an investor you'll like owning it all and more via **TWENTY-FIRST CENTURY FOX (FOX, 28)** at 13 times my June 2017 fiscal year earnings estimate.

Roger Ailes' departure notwithstanding, expect growth to resume, succession management to get a honeymoon and the stock to be a blockbuster. F

THOMAS KUHLENBECK FOR FORBES

MONEY MANAGER KEN FISHER'S LATEST BOOK IS *BEAT THE CROWD* (WILEY, 2015). VISIT HIS HOME PAGE AT WWW.FORBES.COM/FISHER.

THE BREXIT EFFECT IS JUST BEGINNING

AFTER A DECADE of no growth in purchasing power for most people in Europe and North America—except for those at the top, who've garnered most of the income gains—voters are rejecting mainstream politicians who support what's seen as an untenable status quo.

This was made quite clear by the stunning rise of Donald Trump as Republican presidential nominee, the surprisingly strong showing of socialist Bernie Sanders—and the unexpected decision by U.K. voters to leave the European Union.

Slow global growth, as the excess debt built up in the 1980s and 1990s is worked off, is compressing incomes. Also, globalization—the most important economic phenomenon of the past three decades—transferred manufacturing and high-paid jobs from the West to Asia. With little unit-volume growth and virtually no pricing power in this business expansion, corporations have had minimal revenue growth. The route to profits growth was margin-boosting cost-cutting, with negative effects on labor compensation.

Regardless of the facts, fringe politicians have convinced many that the income squeeze is due to immigrants who steal jobs and compress wages by accepting low pay. Unfair trade practices by China and other emerging economies is another contention, as is terrorism by immigrant Muslims.

THE FALLOUT FROM BREXIT AND A NOSEDIVE IN CRUDE OIL PRICES COULD PRECIPITATE ANOTHER FINANCIAL CRISIS

Brexit was the culmination of this populism as even the normally staid British, who have enjoyed much faster growth than Continentals, joined in. They also rebelled against heavy regulation by EU bureaucrats in Brussels. Brexit and its fallout make it clear that many of the forces that drove global growth in earlier decades are now spent.

Almost all the manufacturing that can be moved economically from West to East has happened. Protectionism is on the rise as well as numerous attempts to devalue currencies against the dollar in an effort to spur weak domestic economies. Foreign trade growth has been slipping for years but will be further depressed by Brexit-inspired protectionism and uncertainty over the U.K.'s disengagement from the EU. A recession in Britain and the EU is almost inevitable.

Brexit also marks the end of the post-World War II attempt to unite Europe politically, economically and financially. Will Brexit be contagious? It's a very real risk.

Beyond Europe, slower worldwide economic growth and falling international trade will further depress growth in export-dependent China and other developing countries that send most of their exports directly and indirectly to subdued Europe and North America.

Slower global growth and abundant commodity supplies mean exporters will be forced to devalue their currencies to earn more dollars. That will make the $1.15 trillion in dollar-denominated nonbank emerging-market corporate bonds more expensive to service. For investors the safe-haven greenback is an obvious buy.

Slowing global growth also increases the likelihood that my $10 to $20 per barrel target for crude oil prices will be reached. Saudi-led OPEC is no longer willing to cut production to maintain oil prices while others gain market share. So OPEC is engaged in a high-stakes game of chicken, and in this price war marginal costs mark the bottom—$10 to $20 per barrel in the Permian Basin and less in the Persian Gulf.

Falling oil prices contribute to deflation, which is already evident in goods prices worldwide and will spread to services. If chronic general deflation results, buyers will hold off in anticipation of still lower prices as the Japanese have for two decades, a further depressant to economic growth.

I expect more easing from central bankers, led by the Bank of England. Safe-haven currencies will benefit, and high-grade corporate bonds will continue to appeal to yield-hungry investors.

Negative interest rates will become more common with inflation fading into deflation. This is bad news globally, especially for banks. In fact, I think the fallout from Brexit and a nosedive in crude oil prices could well precipitate a financial crisis and global recession. "Mad as hell" voters will push lawmakers into implementing major fiscal stimuli, deficits be damned. Will massive stimuli save the day and restore economic growth? I certainly hope so. F

THOMAS KUHLENBECK FOR FORBES

A. GARY SHILLING IS PRESIDENT OF A. GARY SHILLING & CO. AND AUTHOR OF *THE AGE OF DELEVERAGING: INVESTMENT STRATEGIES FOR A DECADE OF SLOW GROWTH AND DEFLATION* (JOHN WILEY & SONS, 2011). WWW.FORBES.COM/SHILLING.

FINDING HIGH INCOME IN VALUE STOCKS

BACK IN THE INFAMOUS 1980S I managed a junk-bond mutual fund when ten-year Treasurys were yielding 7% to 8%. Today you can't even get 2% without taking risks. Strategists have to look under a lot more rocks to find whatever extra yield they can for savers while steering clear of imprudent risks.

I suggest turning to stocks to generate income. My Portfolio123 Smart Alpha Equity Income portfolio aims to do that by analyzing a broad range of fundamental measures like debt, return on capital, margin and asset turnover as well as market sentiment, which has been better than many realize in capturing qualitative factors relating to risk. The screen requires above-average yields, but I eliminate companies whose yields rank in the highest 10%, these being the ones Mr. Market is most nervous about. From among those that pass the screen, I select the 20 with the most favorable estimate-revision and analyst-upgrade trends.

INTERNATIONAL BUSINESS MACHINES (IBM, 160) and its 3.3% yield intrigue me. Mr. Market is punishing the stock for the lackluster prospects of the company's core technology-services business and seems skeptical of its future in the newly targeted areas of cloud computing and intelligent analytics. I get that, but a 3.3% yield seems like overkill given that this large, generally stable firm spends only 27% of cash flow on the dividend. Capital spending, share buybacks and the dividend account for only 68% of cash flow. Another plus for the company is its long-standing history of adapting to progressive stages of technology evolution. Anybody who wrote IBM off as roadkill in the early 1990s missed out on making a lot of money.

WE'RE TALKING EGGS, NOT A FAD. 4% YIELD IS AN INCOME-SEEKER'S DREAM

TUPPERWARE's (TUP, 62) 4.4% yield is attractive. Its elevated level owes something to a spillover effect from the negative attention focused on another multilevel marketer, Herbalife, targeted by activist hedge fund investor Bill Ackman as a short sale. Tupperware distributors really distribute to actual customers and get deactivated if they go dark. Admittedly, in the U.S. the Tupperware party may evoke visions of *Ozzie and Harriet* or *Mad Men*, but they're still quite hip overseas. Also, Tupperware adapts. In China, "demos" are held in rented studios in lieu of too-small apartments. Dividends consume 60% of cash flow; add in capital spending and the total is 84%. The yield is high enough that investors need not demand more growth than Tupperware can deliver.

HOLLYFRONTIER's (HFC, 24) 5.5% yield may seem like a walk on the wild side, but the business fundamentals are sound. As an independent domestic refiner, it earns the difference between the prices of oil and refined gasoline. Spreads bounce around and can make for short-term disappointments, as have occurred lately. I'm in the dividend game, however, and not the beat-the-guidance game, and I am therefore more interested in the company's strong commitment to returning excess cash to shareholders. Besides the dividend, Holly buys back stock. It added debt lately and has room to add more, given its investment-grade ratings (Baa3 and BBB–) and leverage that stands at about half the industry median. Over the past 12 months the dividend and the maintenance portion of capital spending consumed about half of well-below-peak cash flow.

CAL-MAINE FOODS (CALM, 41) leads the U.S. in shell-egg production, supplying about 23% of national consumption with familiar brands like Egg-Land's Best and Land O' Lakes. It is looking at growth opportunities via acquisitions within this fragmented industry, from eggs in liquid, dried or frozen form, and nutritionally enhanced, cage-free and organic eggs. We're talking about eggs; it's not some kind of a fad business. It's stable. That makes the stock an income-seeker's dream, especially with a yield of 4.3% based on a dividend that's only 30% of cash flow.

CATO (CATO, 36), with its 3.7% yield, has appeared often in my equity-income screens for years. One may think it's tough for a smallish regional strip-mall-based apparel retailer to flourish against powerful megamerchants and hot up-and-comers attacking from below. For Cato, this middle ground is a sweet spot. Its merchandise is more fashionable than is typically found at discounters but is priced below department-store levels. Cato has walked this tightrope for a long time, and even now the debt-free retailer uses only 33% of its cash flow to cover the dividend.

THOMAS KUHLENBECK FOR FORBES

MARC GERSTEIN IS RESEARCH DIRECTOR AT PORTFOLIO123 AND AUTHOR OF *SCREENING THE MARKET* (WILEY, 2002). FOR MORE FROM GERSTEIN GO TO WWW.FORBES.COM/GERSTEIN.

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Features

AUGUST 23, 2016

The first picture cofounder Kevin Systrom published on Instagram six years ago has since accumulated 55,600 likes. Now a #billionaire after selling to Facebook, Systrom has made the photo app a growth engine for Zuckerberg & Co. **PAGE 62**

ForbesBrandVoice
WITH KPMG

PHOTOGRAPHED BY KEVIN SYSTROM

INSTAGRAM'S BIG PICTURE

INSTAGRAM IS EMERGING AS FACEBOOK'S GROWTH ENGINE, TURNING MARK ZUCKERBERG'S PURCHASE INTO ONE OF THE GREATEST TECH DEALS OF ALL TIME. BUT NO TEARS FOR THE PHOTO-SHARING APP'S COFOUNDER, KEVIN SYSTROM. HE'S BUILDING AN EMPIRE—AND JUST MADE HIMSELF A BILLIONAIRE.

BY KATHLEEN CHAYKOWSKI

ETHAN PINES FOR FORBES


Instagram
kevin
EXIT

With 9.6 million Twitter followers, 79-year-old Pope Francis might be the most surprising breakout star of the social media age. Keen to reach a younger generation, the pontiff summoned a person with a platform that rivals even the Catholic Church when it comes to Millennial members: Kevin Systrom, CEO of the photo-sharing app Instagram, which has more than 500 million users, including 63% of U.S. Millennials. Ever the shrewd pitchman, Systrom, 32, brought a gift to their February meeting at the Vatican's Apostolic Palace, something that was both thoughtful and promotional: a booklet of ten Instagram images—a peaceful protest, refugees, a lunar eclipse—touching on themes close to the pope's heart. "He mentioned how when he talks to children they don't necessarily speak his language, but they will show him pictures on their phones, and how that's the most powerful way of communicating," says Systrom, who readily admits he isn't "as religious as a lot of people in the world."

But the two found themselves singing from the same visual hymnbook. Three weeks later Systrom was again on a flight to Rome. "When I saw the pope the second time, he was like, 'Keviiinnn!,' as if we had gone to college together, like we played at the same golf club or something," he says. As the 6-foot-5 Systrom, clad in an Italian suit, stood over him, the pope officially joined Instagram as @franciscus, posting an image of himself kneeling, with the caption "Pray for me" in nine languages. It's been "liked" 327,000 times.

Since then Instagram has become the place to get an intimate look inside the Holy See. A world that was previously cloistered and out of reach now shows @franciscus blessing dogs at St. Peter's Square, comforting the sick, walking alongside African refugees and even smiling for selfies with worshippers. In just four months he's amassed 2.8 million followers, or nearly a third of his Twitter audience, which he's been cultivating for about four years.

Almost as telling is how many Facebook followers the pope has: zero. He still hasn't debuted there, content to message his flock via Twitter and to share his life—and reach Millennials—via Instagram.

And that suits Mark Zuckerberg just fine. When Zuckerberg decided to shell out nearly $1 billion in 2012 to buy the photo-sharing app, which had just 30 million users, it was widely seen as a sign of a new Silicon Valley bubble. But he appears to have outsmarted everyone once again. In the four years since the purchase, Instagram has become one of the fastest-growing platforms of all time, with about as many users as Twitter (310 million), Snapchat (100-million-plus) and Pinterest (100 million) combined.

And while Facebook's other big (and more expensive) acquisitions—message service WhatsApp and

Holy alliance: Kevin Systrom personally got Pope Francis onto Instagram.

virtual reality pioneer Oculus VR—also draw eyeballs and buzz, respectively, Instagram generates revenue: about $630 million in 2015, according to eMarketer.

Of course, this is small beer compared to the Facebook juggernaut, with its 1.7 billion users and $18 billion in sales. But if we've learned anything in the digital age, a ubiquitous service, whether it's Yahoo or AOL or BlackBerry, can wither on a dime when the next cool platform comes along. Ask anyone under 18 (a cohort who view Facebook as their parents' social network): Instagram is that next platform. Systrom and his lean team are future-proofing Facebook, in the process proving Zuckerberg's purchase was one of the five best deals of the Internet era. FORBES estimates that Instagram, if broken out, is now worth somewhere between $25 billion and $50 billion.

And that number is poised to rise. As Facebook shows signs of saturation, Instagram added its latest 100 million users in nine months. Sales this year are expected to nearly triple, to $1.5 billion, and triple again, to $5 billion, by 2018 (according to eMarketer).

"PEOPLE HATE IRRELEVANCE MORE THAN THEY HATE ADVERTISING."

And the most remarkable (and profitable) part of all is that Instagram is still run as a skunkworks within Facebook: Its 350 employees make up slightly less than 3% of Zuckerberg's 13,600-person army. "The combination of this visual opportunity to tell your story as a person, a marketer and a business, combined with the ability to target the audience, has been very powerful," says Facebook COO Sheryl Sandberg. "Kevin's leadership has been the driver." Like any company of its size, Facebook is becoming unwieldy. In Instagram and Systrom, Zuckerberg retains an entrepreneurial engine.

WITHIN FACEBOOK'S Menlo Park campus Instagram has carved off its own bunker, deliberately set across the street and a short bike ride from the mother ship. The office is decorated with large posters of Instagram photos selected by staff: Mount Everest, Oakland's Lake Merritt, latte art. Another wall is covered with a collage of giant fingerprints. Systrom also differs from Zuckerberg in personal style, preferring stylish shoes and nice suits to Zuckerberg's hoodies and tight T-shirts, and carrying himself with a self-deprecating ease that contrasts with Zuckerberg's more strained demeanor.

Such differences aside, Systrom's path to Facebook seemed preordained. In 2005 Zuckerberg tried to persuade him to skip his senior year at Stanford and launch a Facebook photo service. Systrom declined, costing himself what surely would have been tens of millions in stock options. He wound up working in a coffee shop (where he famously once had to serve Zuckerberg), then at Google and the startup Odeo. Inspired by location-based apps like Foursquare, Systrom and his friend Mike Krieger launched the mobile check-in game Burbn in 2010. Systrom soon pivoted to a photo app, creating the first filter, X-Pro II, while on vacation in Mexico. More filters followed. Users did, too—by the millions.

But even then, Instagram ran lean. It had just 6 employees its first year and 13 when it sold to Facebook. "Most companies that serve half a billion people have thousands of people. We're still in the hundreds, so we have to focus," Systrom says. "It's prioritizing that makes us efficient and makes us succeed." Simple has always been Systrom's credo.

Instagram's road to mass adoption has come through an intuitive app that has easy editing tools and a set of filters that allow anyone to turn smartphone photos and videos into edgy, nostalgic, glamorous, intimate or dramatic visual diaries. Instagram filters transform everyday life into an airbrushed ideal—personal advertisements to share with friends and fans.

Today virtually every public figure, from Aziz Ansari to the Dalai Lama to Taylor Swift, is active on Instagram. Athletes treat it like a second scoreboard. When soccer superstar Lionel Messi passed 30 million followers in December, Stephen Curry made headlines for sending him a signed Golden State Warriors jersey with his No. 30 emblazoned on the back. Messi returned the favor a few months later with his own signed Barcelona No. 10 jersey when Curry passed the 10 million mark.

But Instagram is far more than a vehicle for celebrities to cut out the paparazzi and go directly to their fans. What Systrom calls the app's "superpower" is its ability to cater to the hyperspecific passions and obsessions of a wide range of interest groups. Users have rallied around visual hubs dedicated to Korean light shows, artisanal cheese shops, skateboarding tricks (Tony Hawk is an active user), break dancing and extreme body painting. Every day users spend more than 21 minutes on average in the app and collectively upload more than 95 million photos and videos.

That sticky engagement is reshaping entire industries. Look no further than fashion. This year designer Misha Nonoo, whose modern women's clothing has been worn by Emma Watson and Gwyneth Paltrow, ditched the runways of New York Fashion Week and launched her spring 2016 collection with Aldo Shoes exclusively on Instagram. Systrom's team helped Nonoo prep a new account for her "InstaShow," letting fans scroll through dozens of her looks inside the app. Nonoo replaced 20 models and an expensive set with three top models and a smartphone. The experiment worked beautifully, driving more traffic to her site than any runway event ever had—and for only 65% of the cost.

INSTAGRAM FILTERS TRANSFORM EVERYDAY LIFE INTO AN AIRBRUSHED IDEAL.

Nonoo is hardly alone among fashionistas. This year Tommy Hilfiger created an "InstaPit," which gave influential Instagrammers prime seating at his show so they could capture the best shots and share them with their followers. And at this year's Met Ball *Vogue*'s Anna Wintour, who has become pals with Systrom, hosted an exclusive Instagram video studio, where A-list celebrities like Madonna and Blake Lively posed for photos and clips on the app. In all, the coziness between the fashion world and Instagram generated 283 million engagements—likes and comments—across 42 million accounts during four weeks of shows early this spring in New York, London, Milan and Paris.

Instagram's reach extends far beyond fashion. In 2014 Wal-Mart even added Systrom to its board to harness his digital expertise. Brands ranging from fast food to big banks advertise on Instagram to take advantage of the site's unique features. At this year's Coachella, Sonic Drive-In made special square-shaped milk shakes for a single-day Instagram campaign. A "Shop Now" button on the ads let people place an order, which Sonic delivered on the spot. More than three-quarters of festivalgoers who clicked on the "Shop Now" button purchased a shake. Says Todd Smith, Sonic's president and chief marketing officer: "We wanted to present the shakes in a different way that would work only on Instagram."

In all, more than 200,000 companies are now advertising on Instagram, up from just hundreds last June. A Nielsen study of more than 700 campaigns found that for 98% of them ad recall from sponsored posts on Instagram was 2.8 times higher than average for online advertising. It's the kind of effectiveness that lured the TV Land network to Instagram to promote *Teachers,* which led to a 21% increase in awareness of that series. And it's what convinced the music-venue chain House of Blues Entertainment to use Instagram's direct response ads to sell tickets for artists performing at the Fillmore in Charlotte, N.C. "Instagram is one simple visual feed. The focus is each piece of content," says Mikey Kilun, House of Blues' director of digital and social strategy. "When I go on Facebook, I'm distracted by so many things."

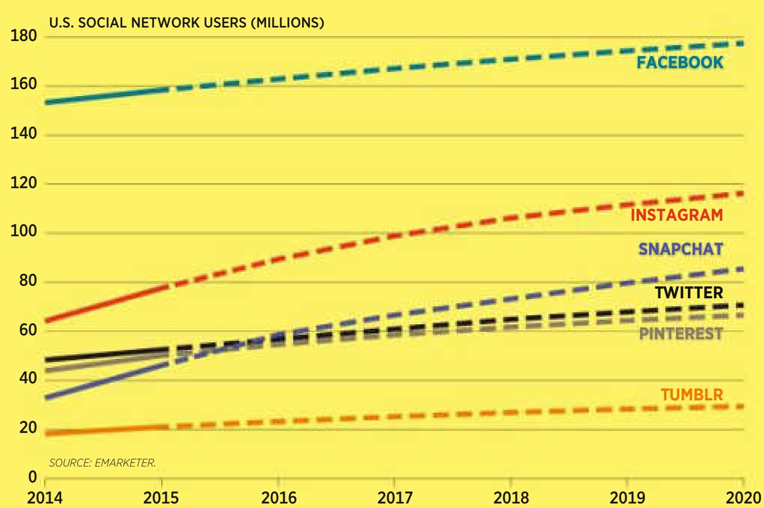
IF ZUCKERBERG made one of the great deals in recent history, then it would follow that Systrom made one of the worst. That $1 billion price tag might well have been ten times as large if he'd waited a year or two.

Two mitigating factors in Systrom's defense: First, FORBES estimates that Systrom, who got mostly Facebook stock in the purchase, can now join the Billionaires List with an estimated net worth of $1.1 billion. Not too shabby and a lot better than if he'd taken Zuckerberg's first job offer a decade ago.

Second, Facebook has accelerated Instagram's growth massively. "It's because of Facebook we were

PRETTY PICTURE

NOT EVEN SNAPCHAT HAS BEEN ABLE TO OVERCOME INSTAGRAM'S DRAW.



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Chef & Restaurateur

BETHANY MOTA
YouTube Star

CHRISSY TEIGEN
Model & Author

SOPHIA AMORUSO
Nasty Gal

CHANGE THE WORLD

The Under 30 Summit, the world's greatest gathering of young entrepreneurs and game-changers from October 16-19, 2016, is more than tripling its size from October 16-19th, over 5,000 of the planet's current and future leaders in every field will converge on Boston for 5 interconnected stages:

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The Under 30 Village will bring together participants from all 5 tracks for demonstrations, networking, performances and food and drink. At night, the Under 30 Summit shines, with our signature evening activities, including the Under 30 Music Festival (past acts have included Afrojack, Wiz Khalifa and A$AP Rocky), our famous citywide Bar Crawls, and the Under 30 Food Festival. And the final day is devoted to service, with optional opportunities to speak at local schools and mentor Boston's next generation of entrepreneurs.

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FOR MORE INFORMATION PLEASE VISIT **UNDER30SUMMIT.COM** | FOLLOW US @FORBESUNDER30 | #UNDER30SUMMIT able to get to this scale," says Systrom. "Instagram was growing quickly on its own, but it was good to have that rocket booster." By working inside the social media giant, Instagram could draft off its billion-plus members, exploiting its technology, top-notch infrastructure and engineers, and massive sales force. "This is having Michael Jordan and Magic Johnson on the same team," says NYU marketing professor Scott Galloway. Facebook's Sandberg echoes the sentiment: "Combined, Facebook and Instagram own more than one out of every five minutes you spend on a mobile phone. Together we're the best ad platform by far."

Being a company within a company has its advantages. In addition to weekly chats with Zuck, Systrom frequently consults with the leaders of Facebook-owned units WhatsApp and Oculus, plus executives like Sandberg, chief technology officer Mike Schroepfer and chief product officer Chris Cox. "One of the things I love about working here is I get to sit in a room with all of those people, and we all can help each other, and we all can learn from each other," Systrom says. "We have very different businesses, but a lot of the same challenges exist—regulation, shifts in the creative ecosystem, what tools people value, how people want to communicate. We face a lot of the same competitors."

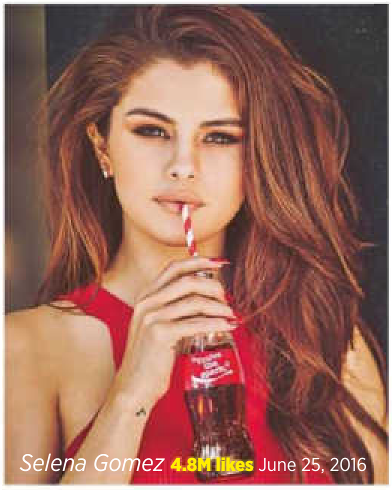
To stave off competition, Facebook lends Instagram its sales operation, offering access to more than 3 million advertisers, ad tech, relevance algorithms, spam-fighting tools and, perhaps most helpful, unparalleled user data (on interests, gender, location, occupation and more). For marketers, extending Facebook ad campaigns to Instagram is seamless—98 of the top 100 spenders on Facebook are on Instagram, too.

But for all Instagram and Facebook share, they diverge on a key cultural trait. Facebook's mantra is "Move fast and break things." Instagram's core maxim could be "Handle with care." It's a value that's defined the company since Systrom and Krieger started it. "Kevin only wanted to hire people who were as committed to the product as he was," says Steve Anderson, the founder of Baseline Ventures and Instagram's first investor. "He held to that standard. You could argue it might have slowed the growth of the company, but it ended up being the right decision."

The tortuous pace extended to advertising. Systrom built the business cautiously, ensuring that marketers didn't overwhelm and turn off users. Even as

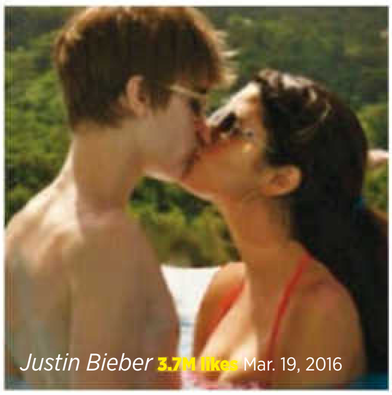
POPULARITY CONTEST

INSTAGRAM HAS EMERGED AS THE SOCIAL NETWORK OF CHOICE TO ENGAGE YOUNG FANS. HERE, FOUR OF THE MOST-LIKED PHOTOS EVER.



Selena Gomez **4.8M likes** June 25, 2016

Kendall Jenner **3.6M likes** May 25, 2015



Justin Bieber **3.7M likes** Mar. 19, 2016

Cristiano Ronaldo **3.6M likes** July 10, 2016 advertisers were clamoring to get on board, Systrom opened the spigot gradually, testing the first round of ads to make sure they jibed with Instagram's audience before inviting a larger set of clients. Its first ad, in November 2013, was from Michael Kors—the kind of luxury goods brand that might have advertised in a glossy magazine and was attracted to the similarly clean and visually arresting Instagram interface. Until late 2014 Systrom—taking a page from *Vogue*'s Wintour—personally reviewed every ad in a print booklet before giving the green light.

Instagram has since branched out beyond photo ads, debuting video and carousel ads, opening its ad platform widely across more than 200 countries and lengthening video ads to 60 seconds. Still, an internal team continues to work with advertisers to create captivating ads that still feel like a natural part of the app. "Not everyone loves ads, but our ads have gotten so much better from day one," Systrom says. "People hate irrelevance more than they hate advertising."

SYSTROM AND HIS LEAN TEAM ARE FUTURE-PROOFING FACEBOOK.

SYSTROM MIGHT MOVE SLOWLY, but he's not stubborn. Over the years he's made countless product changes, adding direct messaging and hashtags for topics and places, creating an "Explore" tab for following trends, and adding videos. But unlike Facebook, which launches and shutters many experiments (apps like Paper and Slingshot and Rooms), Instagram has been more careful, releasing only four separate apps so far, including Boomerang, for creating one-second GIF-like looping video clips; Layout, for collages; and Hyperlapse, for time-lapse videos. (Bolt, a messaging service Instagram tested in a few countries outside the U.S., fared worse and has been shuttered.)

The natural evolution of Instagram points to video. Tech companies like Google, Twitter, Facebook and Pinterest have already yanked away advertising dominance from old-line print media. With roughly $70 billion bleeding out of the TV advertising business and onto iPhones, every content company is racing to own mobile video. Video-first networks like YouTube, Vice and Snapchat have a big head start. For Instagram to catch up, it needs to perform a delicate balance—push hard into video without alienating the 500 million users who come for the still images. Instagram's video advertising program, which was launched in 2014, accounts for just 19% of the ads on the platform, according to research firm L2.

Krieger, a fellow Stanford alum who runs Instagram's backbone as chief technology officer, says his cofounder's caution has always been balanced by a strong point of view about where he wants to go. Throughout the company's history Systrom faced internal resistance when championing several of the app's biggest changes. Employees pushed back when he proposed adding video-sharing in June 2013, when he advocated moving beyond the app's trademark square images into portrait and landscape shots, and this year when Instagram rolled out an algorithmic feed that selects content by relevance rather than chronology. "The idea of adding video to Instagram honestly freaked a lot of our employees out," Krieger says. Systrom tackled the challenge like a reassuring parent: He acknowledged the move was scary but convinced his team he wasn't about to drive them off a cliff. "He's willing to make the calls that move the product forward, even when it's not obvious or immediately popular," Krieger adds. Systrom himself is sanguine about his deliberate and stepwise approach: "The good news is it's working so far."

It's working especially well for Facebook. This year Zuckerberg laid out a three-year, five-year and ten-year vision for his company. Facebook itself dominates the first chapter. The second focuses on Instagram and other products like Messenger and WhatsApp. While the last two are vastly popular (with 1 billion users each) and may well become large businesses someday, neither generates sizable revenue so far. That leaves Instagram, at least for now, as the force that will turbocharge Facebook as it drives toward Zuckerberg's ten-year horizon, when new products based on virtual reality and artificial intelligence will reshape social media, communications and computing in ways still unknown.

Technology changes, but Systrom's original vision for Instagram remains: Create a visual record of everything happening around the world at any time, allowing users to zoom in to any corner of the planet they wish to explore. To hit that goal, Systrom envisions doubling the number of users to a billion or perhaps even tripling it, building an audience that rivals Facebook itself. "We had to remind ourselves to celebrate 500 million users," says Systrom. "To get to this scale is a mark, not a badge on our uniform but a signal of our ambition. We're obviously not stopping now." F

THE GREAT RE|WRITE

Reversing Climate Change

A Profit Motive For Saving The World

BY LEONARD BRODY

Global Thermostat's test unit at SRI International's Menlo Park campus extracts carbon dioxide from the fumes of SRI's natural-gas-driven power plant.

What if you could you place more than a century of climate change into reverse? Global Thermostat has grand ambitions for rewriting the future of energy. The company's technology, being tested at a commercial-scale demonstration site in Silicon Valley, can remove carbon dioxide from the air, potentially undoing decades of damage to the planet's climate.

"It's not going to mitigate climate change; it's going to resolve it," boasted CEO and cofounder Graciela Chichilnisky, imagining a day when tens of thousands of these CO_2 vacuum cleaners are at work around the world.

When attached to carbon-emitting electric power plants, the company's technology could turn those plants into "carbon negative" factories that remove more carbon from the air than they emit, she said. The process is powered by the power plant's residual heat. And the carbon captured is in a pure enough form that it may be sold at a profit, for industrial uses including plastics manufacturing, biofertilizers, biofuels, greenhouses, desalination of water and making soda pop fizzy. Global Thermostat has been setting up deals to provide CO_2 capture systems for many of these applications already, she said. Most of these uses (not the fuels) would keep the carbon sequestered and out of the atmosphere.

"It's such a huge change to say you can produce money while cleaning the atmosphere, that you can produce electricity while cleaning the atmosphere, that it looks too good to be true," she said. "If something looks too good to be true, people say they want to look somewhere else. I don't blame them. But at this point we have to look at solutions very seriously."

Chichilnisky holds Ph.D.s in mathematics and economics from MIT and the University of California, Berkeley. She cofounded Global Thermostat in 2010 with Peter Eisenberger, a physicist and distinguished professor of earth and environmental sciences at Columbia University. They co-invented the technology. Eisenberger works on developing it; Chichilnisky runs the business side.

The Global Thermostat test unit that stands like a modernist sculpture on the SRI International campus in Menlo Park, California, is 12 by 15 feet on the ground and 40 feet high. "Like a big dehumidifier," Chichilnisky said. A shiny carburetor on one side mixes fresh air with fumes from SRI's natural-gas-driven power plant. Inside, water vapor and sorbents extract CO_2 from the air.

A unit like the one at SRI could extract up to 10,000 tons of carbon per year, she said. Bigger versions could capture up to 100,000 tons. Those numbers are an insignificant dent in the amount estimated to be in the atmosphere and what energy generation emits every year. The answer, on a global scale, would be farms of these units. Thirty thousand clusters around the world, each group capturing a million tons, would keep pace with the more than 30 billion tons of carbon dioxide pumped into the sky annually—a figure that nations around the world have committed to reduce. The equipment would require about an acre of land per million tons of carbon per year. The units can capture CO_2 from fresh air anywhere but pull out more when attached to power plants, where emissions are heavy.

The potential of this approach to cure the planet's ills remains to be seen. The technology and its economics have skeptics. Many scientists do agree that reducing carbon emissions alone is just one piece of the world's energy future. Subtracting carbon is needed too. Global Thermostat's strategy is to tie carbon extraction to its profit potential rather than save-the-world altruism.

"You need to make it profitable," Chichilnisky said. "As it turns out, CO_2 is a molecule that's valuable for so many things."

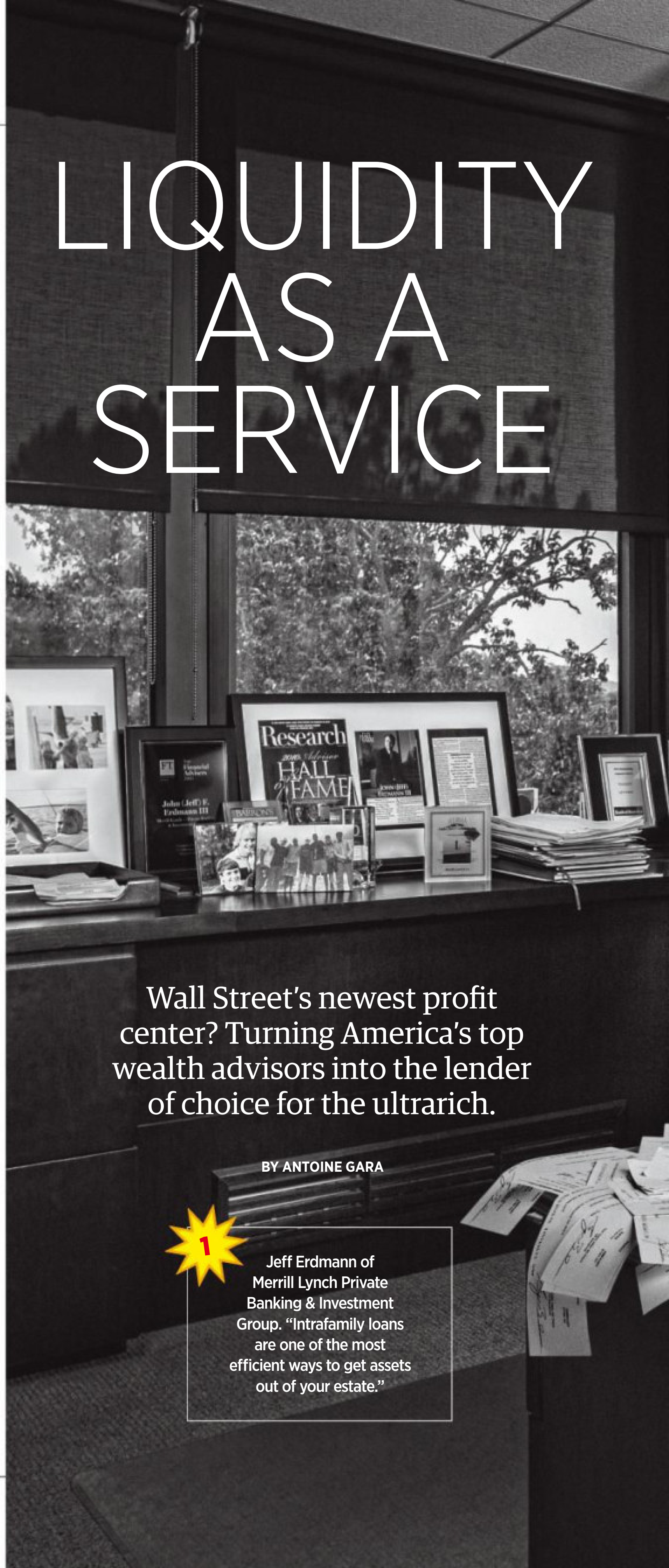
Creating financial incentives is a strategy Chichilnisky put to work when she designed the carbon market mechanism incorporated into the Kyoto Protocol in 1997. The goal of that multinational treaty was to persuade nations to lower their carbon emissions. It was a tough sell, because a nation's economic development is closely linked to its energy use, and no nation wants to curtail its prosperity. The carbon market allowed developed nations with limitation targets to pay for excess emissions, with the money going to fund carbon-reducing projects in developing nations, like rural electrification using solar panels. The system has had its critics. But it got nations with very differing interests to come together on energy projects, in the common interest of reducing global carbon emissions.

Like a lot of individuals who are working to rewrite the rules, Chichilnisky has received both criticism and awards. It's par for the course, she said. "When I receive these awards, I'm suspicious," she joked. "I always say that if you really are very creative, you don't get an award. You get punished." If she is successful, the company will embark on a path of rewriting the entire dialogue around global reaction to climate change.

A Carbon Negative Solution

Global Thermostat's CO_2 capture systems range in size, with each unit capable of extracting anywhere from 10,000 to 100,000 tons of harmful CO_2 emissions per year—either directly from the air or industrial smokestacks, or a combination of both. The captured CO_2 can then be sold for profit across multiple industries, turning an environmental liability into an asset.

KPMG ***Voice:*** Read more of The Great Rewrite series at **forbes.com/TheGreatRewrite**



LIQUIDITY AS A SERVICE

Wall Street's newest profit center? Turning America's top wealth advisors into the lender of choice for the ultrarich.

BY ANTOINE GARA

1 Jeff Erdmann of Merrill Lynch Private Banking & Investment Group. "Intrafamily loans are one of the most efficient ways to get assets out of your estate."

During the dark days of 2009 Morgan Stanley president James Gorman agreed to purchase a majority stake in Smith Barney from Citigroup for what eventually totaled $13.5 billion. It was a fraught transaction on both sides. Citigroup, crushed by its ill-fated slate of collateralized debt obligations, needed to raise cash. Morgan Stanley wasn't much better off—it initially needed to raise $2 billion in common equity to close the transaction—and critics questioned whether the steady but unsexy fees and commissions that would be generated by an army of 18,500 financial advisors justified the cost.

Gorman, however, had other plans for his bet-the-ranch asset. His first move as chief executive in 2010: installing 200 lending specialists at Morgan Stanley's wealth-management offices across the country. The financial advisors wouldn't just allocate money—they also would source loan deals from America's ultrarich.

Seven years in, Gorman's bet has paid off. During the stretch Morgan Stanley Wealth Management—as the combined Morgan and Smith Barney operations are now known—has increased its lending to $61 billion. Last year alone that translated into some $3 billion in net interest income, double the amount five years ago. Last quarter—a down period for Wall Street—loans to wealth clients and their deposits generated more revenue than Morgan Stanley's merger-advisory and equity-underwriting practices combined.

"We have wealthy clients who have positions they don't want to liquidate, and they want to invest in other things, such as purchasing other assets," Gorman says. And with his brokerage arm already holding some $2 trillion in assets, the new purchases often translate into yet more fees.

His competitors can do the math. Across Wall Street, which has seen its lucrative proprietary trading and alternative investment arms crushed over this decade, the hot product today is individual debt, driven in large part by legions of financial advisors. In the tech field, software as a service has become the holy grail of profits; finance's new holy grail can be defined as liquidity as a service.

If you tally up the loans in the wealth-management arms of big firms such as Bank of America Merrill Lynch, JPMorgan, Goldman Sachs, UBS and Wells Fargo, in addition to Morgan Stanley, you will find that the total comes to nearly a half a trillion dollars—more than double

PHOTOGRAPH BY SASHA MASLOV FOR FORBES

America's Top 100 Wealth Advisors

The market is hitting new highs, interest rates are tumbling toward zero, and passive and "robo" investment strategies are on the rise. In these turbulent times the best financial advisors continue to find ways of making themselves indispensable.

	TEAM ASSETS ($MIL)[1]	MIN. ACCT. SIZE FOR NEW BUSINESS ($MIL)[2]
1 Jeff Erdmann MERRILL LYNCH GREENWICH, CT	$5,531	$2.5
2 Brian C. Pfeifler MORGAN STANLEY NEW YORK CITY	7,700	25
3 Christopher Errico UBS PRIVATE WEALTH MANAGEMENT NEW YORK CITY	3,100	5
4 Andy Chase MORGAN STANLEY MENLO PARK, CA	37,000	0.5
5 Patrick Dwyer MERRILL LYNCH MIAMI	2,660	10
6 Rob Clarfeld CLARFELD FINANCIAL ADVISORS TARRYTOWN, NY	5,480	5
7 Mark Curtis GRAYSTONE CONSULTING PALO ALTO, CA	20,000	5
8 Rod Westmoreland MERRILL LYNCH ATLANTA	3,778	10
9 Gregory Vaughan MORGAN STANLEY MENLO PARK, CA	17,329	10
10 Ric Edelman EDELMAN FINANCIAL SERVICES FAIRFAX, VA	15,492	0.005
11 Andy Burish UBS FINANCIAL SERVICES MADISON, WI	3,725	0.5

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the figure at the beginning of the decade. By unlocking liquidity from their clients' portfolios, top advisors—many of whom are featured in FORBES' inaugural list of America's Top Wealth Advisors—are driving profitability at a time when many Wall Street initiatives are hampered by strict regulations.

LIKE SO MUCH OF WALL STREET, many traditional wealth-management tasks—investment selection, asset allocation, estate planning, trusts and taxes—are viewed as commodities. If you look for a common thread in our list of top wealth advisors—the top 200 in our expanded ranking oversee some $675 billion in assets—you'll find the kinds of high-touch concierge services that the ultrarich have come to expect in every facet of their lives. Lavish birthday parties for clients? Check. Career workshops or summer internships for clients' kids? Of course. We even found a top wealth advisor who stocks the refrigerators of clients' vacation homes with necessities like half-and-half and makes sure the hedges are trimmed. Going beyond the call of duty seems to correlate with success for those on our list.

"These wealth managers have taken on the role of CFO of the financial lives of wealthy families," says R.J. Shook, founder of Shook Research, a firm that analyzes data and conducts hundreds of in-person broker interviews to compile FORBES' list of top advisors.

That's where lending comes in. The financial crisis ushered in the dual era of tight credit and low interest rates. By overcoming the former to access the latter, financial advisors have made liquidity a huge new value-added service. In an era in which the very rich are more likely to have big money in real estate, art, private equity or pre-IPO shares than in a basket of stocks foisted on them by their broker, that's no small thing.

Take Bank of America Merrill Lynch's Jeff Erdmann, the top-ranked advisor on our list. From his offices in Greenwich, Conn., Erdmann oversees $5.5 billion in assets for families with a typical net worth of $50 million. One of his top clients, a high-powered chief executive, recently wanted to help his son buy a $10 million apartment in Manhattan, but he was looking to avoid the tax

BRIAN PFEIFLER

MORGAN STANLEY, NEW YORK CITY
ASSETS UNDER MANAGEMENT: $7.7 BILLION

To understand Brian Pfeifler, know three things: He's a Morgan Stanley lifer, he spent time as an investment banker and bond trader before moving into wealth management, and he has zero inclination to dip his toe into the concierge side of wealth management.

"I think you can always find someone who can go out and book tables and pay bills," he says. "The stakes are so high and the amounts of capital we manage so large that it would be a very poor use of my time."

Instead, Pfeifler prefers the intellectual challenge of finding anomalies in the market and places where his clients can increase their already substantial wealth. (His average client has a $75 million net worth and at least $25 million in investable assets.) One area that's been particularly lush is the private market. Because companies have been staying private longer and because Morgan Stanley has banking relationships with some of the hottest unicorns on the market, Pfeifler has been able to get his clients in on investment rounds for Uber and Palantir.

CHRISTOPHER ERRICO
UBS, NEW YORK CITY
ASSETS UNDER MANAGEMENT: $3.1 BILLION

Unlike most FAs compelled to offer packaged products, Christopher Errico is a stock picker at heart and recommends that his clients hold up to 20% of their portfolios in his best ideas.

"For a portion of the portfolio, I think people want to take more direct, concentrated and concise stock positions," says Errico.

His stock-picking bent was reinforced after 9/11, when he was working for Morgan Stanley and calling clients with a fervent pitch: "America is on sale, and we need to start buying stocks." One client who took his advice bought $60 million of blue chips like McDonald's, General Electric, Heinz and Boeing. After they recovered, he referred dozens of friends who are now an important piece of Errico's $3.1 billion business.

Errico has been a long-term bull on oil and gas master limited partnerships with strong balance sheets and durable cash flows. "I still like the sector. Last year was a tough year, but it has come back nicely."

hit he'd suffer from selling out of his portfolio of low-cost-basis stocks. Erdmann recommended his client transfer the $10 million in appreciated stock to his son's trust and then have the son borrow $10 million from his father using a nine-year loan that was priced at an interest rate of 1.18%. Every year the son will make interest payments on the loan from his trust. At maturity the trust will repay the loan and own his father's stock. If it appreciates in value—let's say it doubles—the father has successfully moved $20 million to his son while avoiding Uncle Sam.

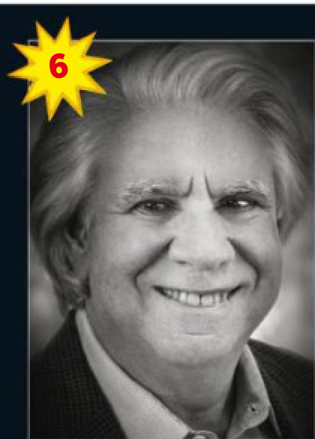
"Wealthy families are taking advantage of low interest rates and using strategies from intrafamily loans from an estate-planning standpoint to collateralized loans to finance everything from airplanes to ranches to ski houses," says Erdmann. A few years ago, when a retailing chief executive client of his needed a $45 million credit line on short notice in order to come off the wait-

ROB CLARFELD
CLARFELD FINANCIAL, TARRYTOWN, NY
ASSETS UNDER MANAGEMENT: $5.5 BILLION

Lost your wallet in Prague? Want a quart of half-and-half waiting in the fridge when you arrive at your Aspen house? Need a lawyer after a dustup with traffic cops on the New York State Thruway? Rob Clarfeld and his team will take care of all of this and more—if you have at least $5 million to invest.

Clarfeld is a certified financial planner and a CPA, and estate-planning is a specialty of his firm. Typical clients have about $80 million in net worth.

"Investments are a critical part of our business. But we supplement it with extremely hands-on financial services," he says, ticking off services like bill paying, document management and dealing with insurance policies. "We do all the annoying aspects that we all hate to do ourselves."



ing list to purchase a new Gulfstream G650, Erdmann rang up his firm's in-house aviation-financing team, and five days later the client had the money for his private jet in hand. Erdmann has since done a handful of other jet deals.

Erdmann's 27-person team has its own lending specialist and extends about 50 mortgages a year. Roughly 50% of his clients are borrowing from Bank of America Merrill Lynch at any given time. The vast majority of these loans are secured by liquid family assets and have loan-to-value ratios well below 50%, meaning they are low risk. Other firms will lend up to 80%, depending on the collateral. A Picasso painting, for example, might afford a client a loan approaching 60% of the appraised value of the work.

UBS wealth advisors Jeffrey Kobernick and Robert Sechan, numbers 95 and 96 on our list, specialize in working with private-equity executives. Lending helps their clients manage cash calls when buyout deals are struck. These executives may need to post millions on short notice, says Kobernick, who

AMERICA'S TOP 100 WEALTH ADVISORS

		TEAM ASSETS ($MIL)[1]	MIN. ACCT. SIZE FOR NEW BUSINESS ($MIL)[2]
12	Shelley Bergman MORGAN STANLEY NEW YORK CITY	$6,000	$3
13	Ron Carson CARSON WEALTH MANAGEMENT GROUP OMAHA	6,600	0.1
14	Richard Saperstein HIGHTOWER ADVISORS/TREASURY PARTNERS NEW YORK CITY	11,231	5
15	Marvin McIntyre MORGAN STANLEY WASHINGTON, D.C.	3,283	2
16	Charles Zhang ZHANG FINANCIAL PORTAGE, MI	3,364	0.25
17	Raj Sharma MERRILL LYNCH BOSTON	9,870	5
18	Steve Hefter WELLS FARGO HIGHLAND PARK, IL	2,700	3
19	James Hansberger MORGAN STANLEY ATLANTA	2,500	2
20	Jon Goldstein FIRST REPUBLIC MENLO PARK, CA	6,719	20
21	Paul Tramontano FIRST REPUBLIC INVESTMENT MANAGEMENT NEW YORK CITY	6,719	25
22	Martin Halbfinger UBS PRIVATE WEALTH MANAGEMENT NEW YORK CITY	3,346	5
23	Michael Stolper VERITABLE LP NEWTOWN SQUARE, PA	13,136	20
24	Lyon Polk MORGAN STANLEY NEW YORK CITY	10,267	10
25	John Waldron WALDRON PRIVATE WEALTH PITTSBURGH	1,156	2
26	Reza Zafari MERRILL LYNCH LOS ANGELES	13,289	10
27	Richard Jones MERRILL LYNCH LOS ANGELES	13,289	10
28	Gregg S. Fisher GERSTEIN FISHER NEW YORK CITY	3,261	0
29	Tom Moran WELLS FARGO NAPLES, FL	3,044	2
30	Paul Pagnato PAGNATOKARP RESTON, VA	2,383	10
31	Rebecca Rothstein MERRILL LYNCH BEVERLY HILLS, CA	3,717	1
32	Kevin Peters MORGAN STANLEY PURCHASE, NY	4,750	4
33	David Hou FIRST REPUBLIC LOS ANGELES	12,618	5
34	Robert Skinner FIRST REPUBLIC MENLO PARK, CA	12,618	5
35	Saly Glassman MERRILL LYNCH WEALTH MANAGEMENT BLUE BELL, PA	3,927	0.25
36	Michael Klein ROBERT W. BAIRD & CO. MILWAUKEE	10,027	10

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	TEAM ASSETS ($MIL)[1]	MIN. ACCT. SIZE FOR NEW BUSINESS ($MIL)[2]
37 William Greco UBS FINANCIAL SERVICES HARTFORD, CT	$4,724	$0.5
38 Brian Frank MORGAN STANLEY ATLANTA	3,630	2
39 Martin Eby WMS PARTNERS TOWSON, MD	2,946	3
40 Jason Katz UBS FINANCIAL SERVICES NEW YORK CITY	1,864	0
41 Susan Kaplan KAPLAN FINANCIAL SERVICES NEWTON, MA	1,569	1
42 Peter Rohr MERRILL LYNCH PHILADELPHIA	2,855	10
43 Jordan Waxman HIGHTOWER ADVISORS/HSW NEW YORK CITY	2,000	10
44 Mark Douglass MORGAN STANLEY MENLO PARK, CA	17,329	10
45 Thomas Keegan MERRILL LYNCH NEW YORK CITY	21,175	10
46 Michael Poppo UBS FINANCIAL SERVICES NEW YORK CITY	1,170	2
47 Andrew Berg HOMRICH BERG ATLANTA	4,389	2
48 John Olson MERRILL LYNCH WEALTH MANAGEMENT NEW YORK CITY	2,733	1
49 Mark Schulten WELLS FARGO LONG BEACH, CA	1,582	0.25
50 Brent Brodeski SAVANT CAPITAL ROCKFORD, IL	5,277	0.5
51 David Singer MERRILL LYNCH CINCINNATI	2,274	2.5
52 Laila Pence PENCE WEALTH MANAGEMENT NEWPORT BEACH, CA	1,505	0.5
53 Alan Whitman MORGAN STANLEY PASADENA, CA	1,734	0.1
54 David Ellis III UBS PRIVATE WEALTH MANAGEMENT CINCINNATI	1,357	2
55 Louis Chiavacci MERRILL LYNCH CORAL GABLES, FL	1,998	10
56 Brian Hetherington MERRILL LYNCH NEW CANAAN, CT	2,241	10
57 Randy Carver RAYMOND JAMES MENTOR, OH	1,015	0.5
58 Peter Princi GRAYSTONE CONSULTING BOSTON	5,100	2
59 Hank McLarty GRATUS CAPITAL ATLANTA	1,401	1
60 Kevin Myeroff NCA FINANCIAL PLANNERS CLEVELAND	1,300	0

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MARK CURTIS
GRAYSTONE CONSULTING, PALO ALTO, CA
ASSETS UNDER MANAGEMENT: $20 BILLION

During the wave of technology IPOs in the 1980s, Mark Curtis advised executives on which funds they should pick to park newfound stock riches.

CFOs eventually began calling Curtis in search of someone who could help manage their corporate stock-option plans. So in 1993 Curtis poached a team of stock-plan specialists from the Bank of San Francisco to build his own practice. Today Silicon Valley's abundant employee stock ownership plans drive Curtis' practice. With dozens of private startups boasting billion-dollar valuations, there's no shortage of need for his expertise in the timing and execution of stock options.

In June a San Francisco-area unicorn, valued at more than $5 billion, brought in Curtis' team to advise a group of 28 longtime employees about selling up to $1 million of stock. Eighteen of those employees also requested one-on-one meetings.

creates secured credit facilities as a pressure valve for cash. "When we came to UBS in 2008, our lending book was almost nonexistent," says Kobernick, who manages some $6.4 billion in client assets. "Now it is half a billion dollars."

IF LIQUIDITY CAN BE A GREAT SERVICE for the ultrarich, it's equally transformative for the bottom lines of the banks. At Morgan Stanley, for example, loans and lending commitments have mushroomed nearly tenfold, to $61 billion, since 2010, helping to triple pretax profits at the bank's wealth arm. "Very little of Morgan Stanley's net interest income needs to be paid to the advisor," says Nomura Securities analyst Steven Chubak, who points out that its wealth-management margins have more than doubled, to 22%. "The vast majority of that falls to the bottom line."

For Wall Street it's a remarkable pivot. As anyone with a margin account knows, borrowing against your assets has been a brokerage staple for decades. Buy stocks, borrow against those stocks to buy more stocks, repeat (as long as the market climbs). But liquidity as a service has nimbly increased lending—and the demand for wealth managers—at the same time shilling (as well as lending against) individual stocks has become passé. After learning the lessons of 2008 and 2009, the ultrarich want a safety valve—and sometimes, ironically, that could mean assuming more debt.

"I ask every client I sit down with, what happens if you have a liquidity crunch? How do we fix it?" says Patrick Dwyer, FORBES' fifth-ranked wealth advisor, who recently set up a $45 million unsecured line of credit for the CEO of a publicly traded company who wanted a cash source but didn't want to put a lien on his concentrated stock position.

Wealth loans vary in cost, but the best clients can typically get secured credit for 75 to 125 basis points above the London Interbank Offered Rate (Libor). That

ROD WESTMORELAND
MERRILL LYNCH, ATLANTA
ASSETS UNDER MANAGEMENT: $3.8 BILLION

Wining and dining has always been part of Rod Westmoreland's job description. As a young Naval officer in the 1970s, he was in charge of running the mess hall on the navy destroyer U.S.S. *Harold J. Ellison*. Four decades later he frequently hosts dinner parties and wine tastings at his Atlanta home. Clients have even tapped his event-planning skills; one recently asked him to plan a $100,000 bash for his wife's 50th birthday.

Westmoreland's client roster is fairly small, numbering just 41, but boasts $3.8 billion in assets. He specializes in liquidity events and is often called in when someone attains newfound wealth, like after selling a business. Clients are usually looking for advice on creating family foundations, negotiating prenups for their kids, picking private equity deals or financing the fun stuff. One client wanted help planning a trip to see Daniel Lanois concerts in seven European cities. "It's often their first chance to enjoy life" after spending years focused on their business, says Westmoreland.

would put asset-backed loans at between 1% and 2%. Unsecured lines would cost above 2%.

For Andy Chase of Morgan Stanley, based in Menlo Park, Calif., FORBES' fourth-ranked wealth advisor, with $37 billion in client assets, liquidity as a service solves a dilemma posed by the rise of privately held firms like Uber and Palantir. These so-called unicorns are raising capital from investors and wealthy families at multibillion-dollar valuations, creating massive, but illiquid, paper wealth. But are they generating the cash to buy a Bay Area home and fund an executive lifestyle?

Chase says one of the biggest demands among his clients is for the ability to borrow against pre-IPO stock. Sometimes Morgan Stanley is able to structure loans against this stock; other times Chase combs his clients' holdings for other collateral to lend against.

"They have no understanding of why we can't loan them money. [My clients] have people that are begging to put equity into their company at a big price, and we can't loan them money," Chase says. "If I believe the client will pay us back, then I will go to the mat to somehow arrange a loan. And we do get those loans done more often than not." Every time he does, Chase creates a more loyal client—and one more inextricably tethered to his firm.

"Everyone has a need for banking, everyone has a mortgage, and everyone has commercial banking relationships," says Brian Pfeifler, a New York City-based advisor for Morgan Stanley who placed second on our list and oversees $7.7 billion in assets for clients with a typical household net worth of $75 million. "We always ceded the lending portion of the business to another firm because we didn't have the capability."

Expect the "bankification" of Wall Street's big players to only get bigger. Morgan Stanley's Gorman has predicted that his firm's wealth loans will jump at least another 30%, to $70 billion, by the end of 2017, an amount approaching 10% of the firm's current balance sheet. And there's plenty of room to grow from there:

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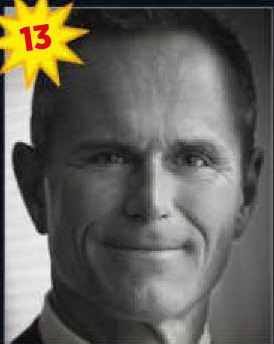

RON CARSON

CARSON WEALTH MANAGEMENT GROUP, OMAHA
ASSETS UNDER MANAGEMENT: $6.6 BILLION

Ron Carson grew up on a family farm in Tekamah, Nebr., and it turns out harvesting corn, soybeans and alfalfa wasn't a bad precursor to a wealth-management career. Fellow farm families accounted for his first clients when he launched a financial advisory business out of his University of Nebraska dorm room in 1983.

Today Carson manages $6.6 billion and is focused on seeds that have yet to sprout. He sees a big growth opportunity with not-yet-rich Millennials. He hosts investing webinars for clients four times a week and created an advisory council to find out what the twentysomethings want (in short: efficient advice for a fee that doesn't eat up portfolio gains). The feedback has him considering a flat monthly fee rather than a percentage, and he's willing to take on smaller accounts.

"If you had asked me three years ago, our minimum to invest would have been a million dollars," he says. "Today we don't really have a minimum."

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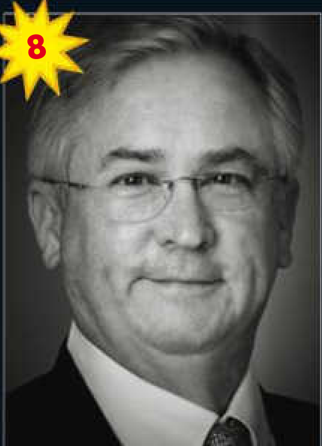

AMERICA'S TOP 100 WEALTH ADVISORS

		TEAM ASSETS ($MIL)[1]	MIN. ACCT. SIZE FOR NEW BUSINESS ($MIL)[2]
61 Michael Valdes	MERRILL LYNCH TAMPA	$2,681	$5
62 Adam Carlin	MORGAN STANLEY CORAL GABLES, FL	2,201	7.5
63 Joe Montgomery	WELLS FARGO WILLIAMSBURG, VA	15,313	5
64 Charles Bean	HERITAGE FINANCIAL SERVICES WESTWOOD, MA	1,029	1
65 Nestor Vicknair	MERRILL LYNCH WEALTH MANAGEMENT HOUSTON	1,650	3.5
66 Brian Strachan	MORGAN STANLEY BOSTON	1,231	1.5
67 Gerard Klingman	KLINGMAN & ASSOC./RAYMOND JAMES NEW YORK CITY	1,572	2
68 Terry Cook	UBS PRIVATE WEALTH MANAGEMENT BELLEVUE, WA	1,150	10
69 Clarke Lemons	WATEROAK ADVISORS WINTER PARK, FL	1,448	1
70 Thomas Sullivan	MERRILL LYNCH WEALTH MANAGEMENT GARDEN CITY, NY	1,946	1
71 Troy Griepp	MORGAN STANLEY SAN FRANCISCO	7,583	10
72 Debra Wetherby	WETHERBY ASSET MANAGEMENT SAN FRANCISCO	3,978	10
73 Wally Obermeyer	OBERMEYER WOOD INVESTMENT COUNSEL ASPEN, CO	1,580	1
74 Roger Carter	MERRILL LYNCH SAN FRANCISCO	4,569	10
75 Jeffrey Colin	BAKER STREET ADVISORS SAN FRANCISCO	7,657	5
76 Drew Freides	UBS PRIVATE WEALTH MANAGEMENT LOS ANGELES	2,758	10
77 William Corbellini	MERRILL LYNCH DALLAS	2,715	3
78 Ron Weiner	RDM FINANCIAL GROUP WESTPORT, CT	722	1
79 Jesse Bromberg	MORGAN STANLEY SAN FRANCISCO	2,041	2
80 Scott Magnesen	MORGAN STANLEY OAK BROOK, IL	2,650	0.25
81 Barry Garber	DEUTSCHE BANK BALTIMORE	2,400	5
82 Scott Tiras	TIRAS WEALTH MANAGEMENT HOUSTON	2,184	0.5
83 Richard F. Connolly Jr.	MORGAN STANLEY BOSTON	1,700	2
84 Jeff Grinspoon	HIGHTOWER ADVISORS VIENNA, VA	1,230	1
85 Bryan Stepanian	DEUTSCHE BANK GREENWICH, CT	3,700	10

Rank	Name	Firm / Location	Team Assets ($Mil)[1]	Min. Acct. Size for New Business ($Mil)[2]
86	Elaine Meyers	J.P. MORGAN SECURITIES SAN FRANCISCO	$2,600	*$10*
87	Mark Smith	M. J. SMITH & ASSOCIATES/RAYMOND JAMES GREENWOOD VILLAGE, CO	742	*0.5*
88	Robert Waldele	MERRILL LYNCH WEALTH MANAGEMENT NEW YORK CITY	7,599	*5*
89	Shawn Fowler	MORGAN STANLEY DENVER	2,885	*5*
90	Robert Balentine	BALENTINE ATLANTA	2,373	*5*
91	Mike Sawyer	MORGAN STANLEY NEW YORK CITY	2,900	*25*
92	Patricia Brennan	KEY FINANCIAL WEST CHESTER, PA	690	*0.5*
93	E. Geoffrey Sella	SPC FINANCIAL/RAYMOND JAMES ROCKVILLE, MD	641	*0*
94	David Bieber	MORGAN STANLEY NEW YORK CITY	2,541	*2*
95	Jeffrey Kobernick	UBS PRIVATE WEALTH MANAGEMENT NEW YORK CITY	6,371	*5*
96	Robert Sechan	UBS PRIVATE WEALTH MANAGEMENT NEW YORK CITY	6,371	*5*
97	Noel Weil	MERRILL LYNCH NEW YORK CITY	7,937	*10*
98	Jonathan Beukelman	UBS PRIVATE WEALTH MANAGEMENT LINCOLN, NE	1,141	*2*
99	Shawn Rubin	MORGAN STANLEY NEW YORK CITY	1,500	*2*
100	Ron Hughes	MERRILL LYNCH ATLANTA	926	*25*

Methodology

This ranking, developed by our partners at Shook Research, consists of a qualitative and quantitative measurement of thousands of wealth managers with a minimum of seven years of experience, weighing factors like three-year revenue trends, assets under management, customer satisfaction, credentials and compliance records. The data are measured using an algorithm with different weightings for elements like industry best practices, business models and recent activity. For the full list and more, see **www.forbes.com/top-wealth-advisors.**

DATA AS OF 3/31/16. [1]ADVISORS ARE JUDGED ON INDIVIDUAL CONTRIBUTION BUT TOTAL TEAM ASSETS ARE SHOWN. [2]MINIMUM ACCOUNT SIZES ARE APPROXIMATE SINCE THEY CAN VARY DEPENDING ON A RANGE OF CIRCUMSTANCES.

CHARLES ZHANG

ZHANG FINANCIAL, PORTAGE, MI
ASSETS UNDER MANAGEMENT: $3.4 BILLION

Charles Zhang likes to play the numbers game. A Chinese immigrant who speaks English with a heavy accent, he started in 1991 by purchasing hundreds of leads from his first employer, American Express, then hitting the road to meet with those prospects. Today he manages $3.4 billion for 1,200 clients.

Zhang attributes his success to shoe leather; he has never acquired another advisor practice and he isn't chasing the superrich. His account minimum is $250,000.

"I'm not a person who can handle clients like the CEO of Microsoft," says Zhang, 49. Still, his roster draws from the executive ranks at local companies like Kellogg and Stryker.

New clients seeing dollar signs get a dose of reality, though: Zhang requires them to sign a document showing—to the dollar—how much they would lose in a 40% down market. When a panicked client calls during market turbulence, he or she can expect a mandatory cooling-off period.

"It's their money and they can pull it out and put it back in again, but I'm not going to do it," says Zhang.

Morgan Stanley's wealth business now stands at $2 trillion in client assets and $153 billion in deposits. Yet just 2% of Morgan Stanley's wealth clients have a mortgage with the firm, and only 16% have arranged a securities-based loan.

Perhaps best of all for Wall Street and the too-big-to-fail crowd, lending to the ultrarich is a growth area that's relatively safe. "We've had something in the order of a dozen mortgage delinquency and default issues out of tens of thousands," said Gorman recently. Why? "We've got their assets. We know exactly what they've got. We're not dealing with the mass market." In the Federal Reserve's June stress tests, for example, the regulator pegged the loss rate on Morgan Stanley's book of mortgage loans to its ultrawealthy clients at 1.7% in a sharp downturn. At M&T Bank, a mortgage lender to the mass affluent, the Fed pegged loss rates at 5.6%.

Safe has never been sexy on Wall Street, which is why financial advisors have long played second fiddle to investment bankers in the brokerage-firm hierarchy. But as the financial industry has reshaped itself post-meltdown, these superbrokers are emerging as the new rainmakers, in a method built to last. "If we do this right, we will generate attractive returns on the firm's capital," says Andrew Kaiser, head of the private bank at Goldman Sachs, which has $28 billion in funded loans, up from essentially nothing a decade ago. "But in addition we are going to create stickier relationships with our clients." F

REBECCA ROTHSTEIN

MERRILL LYNCH, BEVERLY HILLS, CA
ASSETS UNDER MANAGEMENT: $3.7 BILLION

Rebecca Rothstein began her brokerage career at one of the worst possible moments: a few months before Black Monday, the day in October 1987 when $500 billion in wealth evaporated. For young Rothstein the turbulence was both a learning experience and a relationship-building opportunity.

"I spent my entire weekend telephoning every client—I didn't have that many—and I held their hands," she recalls. "I learned early on that having a service model is the best way to do business."

Rothstein and her 12-person squad, which includes her 33-year-old son, now oversee $3.7 billion for a roster that skews heavily toward Hollywood stars and real estate moguls. Typical clients have net worths of $20 million, and one thing that hasn't waned is her high-service focus. Rothstein is old school. She prefers face-to-face meetings or the telephone and won't go more than 12 weeks without speaking to a client. She also makes a habit of hiring the offspring of her clients as interns. "So many kids come," she says. "It's like a Carvel ice cream store."

BOTTOM: RINGO CHIU/ZUMA/NEWSCOM


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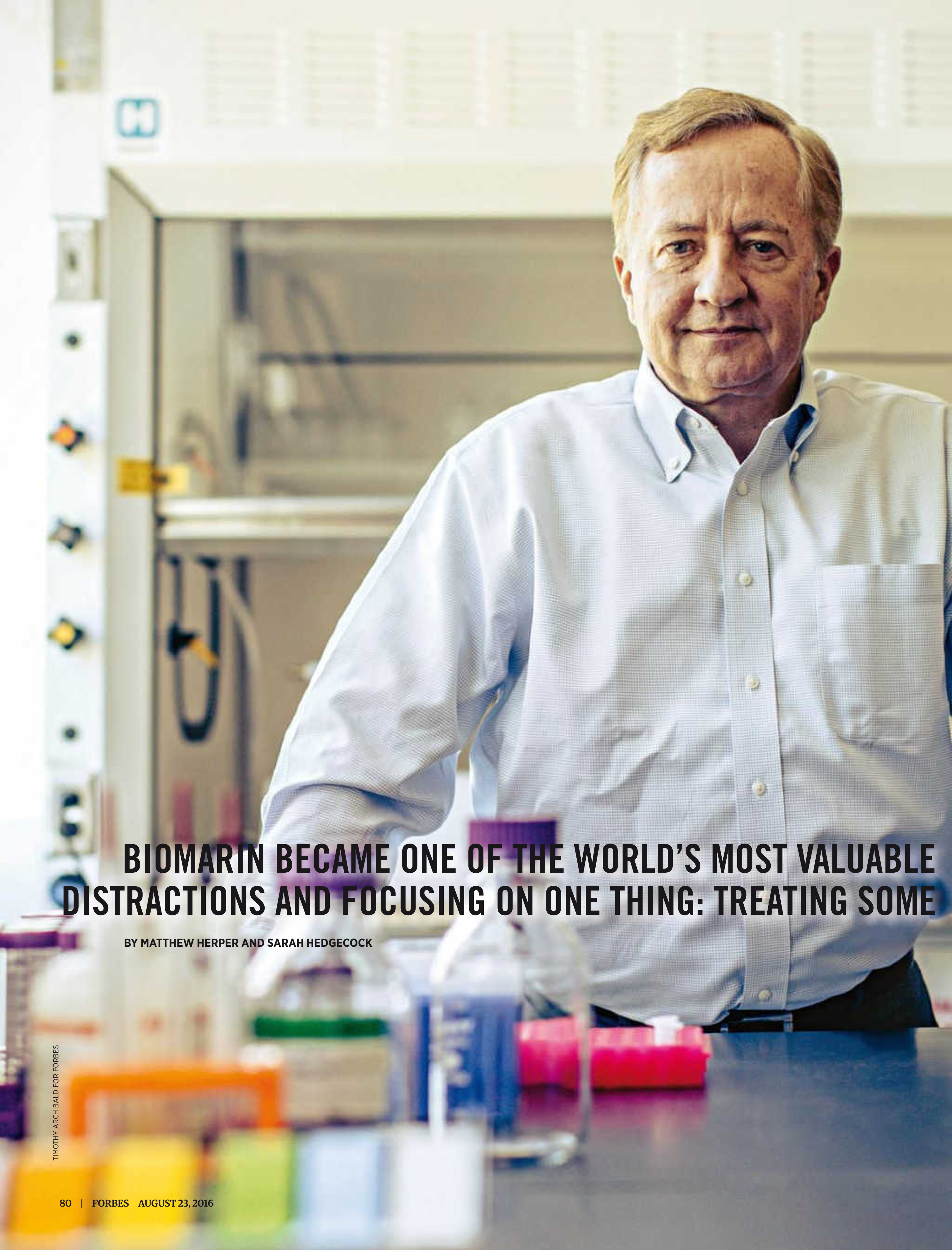

TIMOTHY ARCHIBALD FOR FORBES

BIOMARIN BECAME ONE OF THE WORLD'S MOST VALUABLE DISTRACTIONS AND FOCUSING ON ONE THING: TREATING SOME

BY MATTHEW HERPER AND SARAH HEDGECOCK

FROM RARE TO GREAT

BIOTECHS BY JETTISONING COSTLY
OF THE RAREST DISEASES ON THE PLANET.

Before he started preschool, little Ryan Dant could hit a baseball with the skill of a much older child. His father, a Dallas-area police lieutenant, clung to that fact when the doctors told him something was wrong. “I could throw a baseball overhand to a 3½ -year-old, and he could hit it,” Dant says. “He was fine.”

But Ryan wasn’t fine. He had a rare disease called mucopolysaccharidosis I (MPS I), in which toxic, jelly-like starches built up in his body. They would severely stunt his growth, cause his organs to swell and kill him by his tenth birthday, the doctors said. Worse, the doctors told Dant, no drug company would take on the disease. Where was the profit when only a dozen American kids were born with the disorder each year?

Mark Dant refused to give up. He found a doctor who was working on an MPS I treatment, and used bake sales and golf tournaments to try to get clinical trials started. It wasn’t enough. But then a biotech startup, BioMarin, licensed the product, and the studies started. Ryan, just shy of his ninth birthday, was patient number three.

Today BioMarin, the company that funded the testing of that drug for Ryan Dant, has annual sales of $890 million based on four approved drugs that treat just 8,000 patients worldwide. For some patients the cost of a BioMarin drug could reach $1 million a year, paid for by governments (outside the U.S.) or insurance (inside of it). BioMarin, based in San Rafael, Calif., is expected to turn its first profit from continuing operations next year and has a market capitalization of almost $15 billion, based on the medicines it sells and on hopes for more, including a gene therapy that might cure hemophilia. Shares are up 460% over the past ten years.

“What we have is know-how, in terms of understanding the development and the commercialization of drugs for ultrarare disorders,” says Jean-Jacques “J.J.” Bienaimé, 63, BioMarin’s chairman and chief executive.

Ryan Dant is a testament to that. Every week for 18 years he has been hooked up to an IV to get BioMarin’s first drug, Aldurazyme. Now 28, Ryan stands 5 foot 6, attends the University of Louisville, has a girlfriend and, in a childhood dream come true, drives a Mustang he bought using money he earned as a student equipment manager for the Southern Methodist University football team, among other jobs.

But the line connecting Aldurazyme’s approval to BioMarin’s success is anything but straight. When Bienaimé arrived at the company in 2005, Aldurazyme had been on the market for two years. Yet BioMarin looked as if it were about to go out of business.

A BIG PART OF THE problem was that in 2004 previous management, doubting the potential for profits from treating rare diseases, had spent $175 million to buy a version of the steroid prednisone that was supposed to taste better so kids would take it. A generic-drug company quickly found a way around the patent, and sales of the drug amounted to just $19 million a year. Investors, enraged, started a proxy fight.

The company responded by booting the CEO and bringing in J.J. Bienaimé, a Frenchman who had cut his teeth marketing the clot-buster Activase at Genentech in the late 1980s and then went on to serve as CEO of two biotechs (SangStat and Genencor) that were each sold for hundreds of millions of dollars. The idea was that he was going to dress the listing BioMarin up for sale.

WHERE WAS THE PROFIT WHEN ONLY A DOZEN AMERICAN KIDS WERE BORN WITH THE DISORDER EACH YEAR?

But instead Bienaimé began working on a turnaround. He laid off 100 of the company’s 300 employees—basically, everyone who was supposed to be selling the tasty steroid—then handed his remaining executive team copies of Jim Collins’ book *Good to Great*, which posits that leaders should be humble but focused and that confronting bad news directly is key to building a strong company.

Under the previous leadership, Emil Kakkis, the brilliant UCLA doc who had developed Aldurazyme, had been in charge not only of drug development, which he was good at, but also of sales, which he was not. Bienaimé told him to focus on the science.

“What J.J. brought was a much more sensible and steady hand,” says Kakkis, now CEO of UltraGenyx, another rare-disease-focused biotech. “He was more rational and reasonable, and not bombastic and demanding.”

At the time, BioMarin was marketing Aldurazyme in a partnership with Genzyme, now part of Sanofi, in a deal that gave Genzyme half the profits (and costs) for


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a Fortune 500 company.
They will, however, run
into a collapsed building to save you.
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SCHOOL FOR DISASTER SEARCH DOGS
CAJUN
YELLOW LAB
CLASS OF 2016
Will work for toys — preferably indestructible ones

the drug. Meanwhile, executives were negotiating another deal with Genzyme for a drug to treat a different form of MPS, called MPS VI. That deal was even worse: It would give Genzyme the international rights to the drug, Naglazyme—and most patients with MPS VI lived outside the U.S. Bienaimé's decision was simple and swift: Forget it.

"It probably saved the company," Bienaimé says. "If we had sold the rights to Genzyme, we would not be an independent company."

It was a crazy gamble. It meant having to build an international sales force from scratch. BioMarin's first sales reps in Europe operated out of Internet cafes. But it worked. Approved in 2005, Naglazyme now generates annual sales of $303 million. It costs $340,000 a year for a "typical" patient, but since dosages are based on weight, it can be more expensive. In 2012 analysts at Bernstein Research estimated that for adult patients the cost could be more than $1 million annually. BioMarin says that number is high. Now almost all of the 1,100 patients outside India and China with MPS VI take it, and 85% of patients live outside the U.S.

That was the start of a run of expensive and life-changing medicines. BioMarin's rare-disease machine had another hit in 2007: Kuvan was approved to treat phenylketonuria (PKU), known to most people as the disease warned about on cans of Diet Coke. Patients can't process an amino acid, phenylalanine (found in meat and Nutrasweet), and it destroys their brains. About 7,500 patients are being actively treated for PKU in clinics; treating a typical patient costs $100,000 a year. Sales in 2015: $240 million.

But BioMarin was so cash-strapped at the time Kuvan was approved that its experimental drug pipeline was dry. Kakkis, who'd shepherded its three drugs through the Food & Drug Administration, left to found a patient advocacy group (he later started another company). Bienaimé hired an old Genentech colleague, Henry Fuchs, to replace him.

Fuchs' first drug pick was another MPS treatment, this one for MPS IVA. Called Vimizim, it is BioMarin's biggest winner yet. Launched in 2014, the drug has already generated sales of $228 million. It costs $380,000 for a typical patient, and BioMarin thinks there are 3,000 MPS IV patients around the world; it's identified 60% of them.

WHO PAYS FOR THESE expensive drugs? In the U.S., mostly insurance companies or, if the patient is poor, Medicaid. In most other countries governments pay for the medicines.

"TO MAKE A MEDICINE FOR US, I FEEL LIKE IT'S A MIRACLE. BECAUSE WE ARE SO RARE."

Why are they willing to pay so much? Partly because these drugs do change lives, even though they are not cures. Mark Dant says Aldurazyme is not a cure for Ryan, but it is keeping him going until the science advances. "Here's the gift of BioMarin: Ryan will be here, waiting," he says. Dant just retired as a police officer and is now the executive director of the National MPS Society, an advocacy group.

"On my 22nd birthday, for the first time in my life, I had meat," says Bailey Fleming, a 24-year-old Kuvan patient. Sheri Wise, 36, grew up riding horses on her parents' Oklahoma farm even though she's only 3 foot 4. Vimizim made her unending skeletal pain fade. "When you grow up with pain, it just becomes a constant," she says. "I've noticed that now there are a lot of times I don't hurt at all."

Kendra Gottsleben, 31, a Naglazyme patient in South Dakota, stands 39 inches tall and uses a wheelchair. But she says she knows it is because of BioMarin that she doesn't need it in the house. "To make a medicine for us, I feel like it's a miracle. Because we are so rare," she says.

A miracle, maybe, but one driven by commerce. With so few patients BioMarin can give personal attention to each one and make sure treatments get paid for. "What my insurance doesn't pick up, BioMarin will get taken care of, so I don't have any out-of-pockets," says Wise, the Vimizim patient.

Gottsleben says that when she had insurance problems with a non-drug-related issue—a cornea transplant—she called her BioMarin customer care representative, who helped sort things out. Like most rare-disease companies, BioMarin gives money to charities that help patients when a drug is not fully covered. Because the money isn't earmarked to pay for a particular drug, this does not run afoul of federal antikickback regulations.

Are insurers okay with this system? Changing it is certainly not a top priority. Patients with these diseases are so uncommon, drug companies argue, that they don't add up to a big line item and account for, BioMarin says, only 1% of drug spending in the U.S. And unlike makers of drugs for cancer, BioMarin has "no intention of" making double-digit price increases, Bienaimé says.

But when it comes to actually trying to restrict the prices of drugs like those BioMarin sells, Steven Miller, the chief medical officer of U.S. pharmacy benefits manager Express Scripts and a critic of high drug prices, doesn't think insurers have much leverage.

PRICEY PRESCRIPTIONS

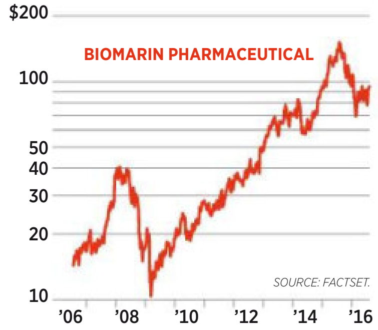
THESE RARE-DISEASE DRUGS ARE EXPENSIVE. THEY CAN BE LIFE-CHANGING FOR PATIENTS, AND THEY HAVE TRANSFORMED BIOMARIN'S BOTTOM LINE.

MEDICINE	CONDITION	SYMPTOMS	ANNUAL COST PER PATIENT ($THOU)	2015 TOTAL NET PRODUCT REVENUES ($MIL)
VIMIZIM	MORQUIO A	Short stature, loose joints, clouded eyes	$380	$228
KUVAN	PHENYLKETONURIA	Seizures, developmental delay, intellectual disability	100	239
NAGLAZYME	MUCOPOLYSACCHARIDOSIS VI	Large head and tongue, enlarged liver, short stature, joint deformities	340	303
ALDURAZYME	MUCOPOLYSACCHARIDOSIS I	Hydrocephaly, heart valve abnormalities, corneal clouding	350	218

SOURCES: BIOMARIN; AMERICA'S HEALTH INSURANCE PLANS; U.S. NATIONAL LIBRARY OF MEDICINE.

BOOMING STOCK

SHARES IN BIOMARIN HAVE ROCKETED AS IT HAS BROUGHT FOUR TREATMENTS FOR OBSCURE DISEASES TO MARKET.



"To be very frank, we are a price acceptor when it comes to ultra-orphans," says Miller. "There's no competition. It's pharma that's putting these prices out there. There's nothing we can do."

Russell Teagarden, a former senior vice president of the National Organization for Rare Disorders and now a consultant to drug companies, thinks some pricing pressure may be imminent as rare-disease drugs get lumped in with other high-priced medicines. "There probably is a growing comfort with payers starting to [try to control] costs for rare diseases," Teagarden says.

GIVEN THE POSSIBILITY of price pressure, some of BioMarin's next bets look risky. It is, for instance, developing a drug for children with achondroplasia, a leading cause of dwarfism. People with achondroplasia are smaller and have some skeletal problems, but unlike those with MPS, they have life expectancies that are almost normal. Bienaimé acknowledges that the drug will command a comparatively lower price.

Recent years have brought distractions. In February 2010 BioMarin spent $20 million on an experimental cancer medicine—a stretch for a rare-disease company. It invested $100 million in the drug before changing focus and selling the drug to Medivation for $410 million and a royalty. Along the way the company got into a p.r. flap when a woman dying of ovarian cancer ran a social media campaign to get access to the drug. BioMarin, like most drug companies, does not give drugs to any patient who asks, both because of the cost of manufacturing the drug and the risk that bad results will hurt the drug's chances of approval.

There was also an outright mistake: spending $600 million to buy Kyndrisa, a treatment for muscular dystrophy, developed by a tiny biotech in Leiden, Netherlands called Prosensa. The drug seemed to help children with the terrible degenerative disease in an early trial but failed in a larger one. Bienaimé was preternaturally confident, telling investors he knew what he was doing and attacking a rival medicine from Sarepta, another small biotech. But both the FDA and European regulators rejected the drug, despite impassioned pleas from patient advocates.

"It's true that I was very positive on Kyndrisa," Bienaimé says. "The FDA asked us to file. We had priority review, breakthrough designation. We had everything. The signals were very positive. So they do all that, and then they tell you your data were garbage." He laughs. "Call it a mistake—fine."

Investors, meanwhile, were getting sick of the company raking in revenue but showing no profit. Bienaimé listened and took cost-cutting measures, including stopping the cancer effort and a second rare-disease program. BioMarin has previously recorded a profit as a result of asset sales but predicts its continuing operations will turn cash-flow-positive next year.

The most tantalizing prospect is something BioMarin licensed from University College London and St. Jude Children's Research Hospital: a treatment for hemophilia. It is a gene therapy in which a virus deposits a gene in patients' liver cells that produces a protein missing in the most common type of hemophilia. In a small clinical trial only a few months long, the treatment seems to return patients' protein levels to almost normal. "It really is amazing. It's just a wonderful time," says Timothy Nichols, a hemophilia expert at the UNC School of Medicine who is not paid by BioMarin.

But Bienaimé is also facing a challenge that often causes biotech innovation to stall: success and the size that comes with it. His 200-person startup has turned into a 2,300-person pharmaceutical company. He says it won't happen to his company.

"I said I wanted to manage a big company," he shrugs. "So now it is a big company."

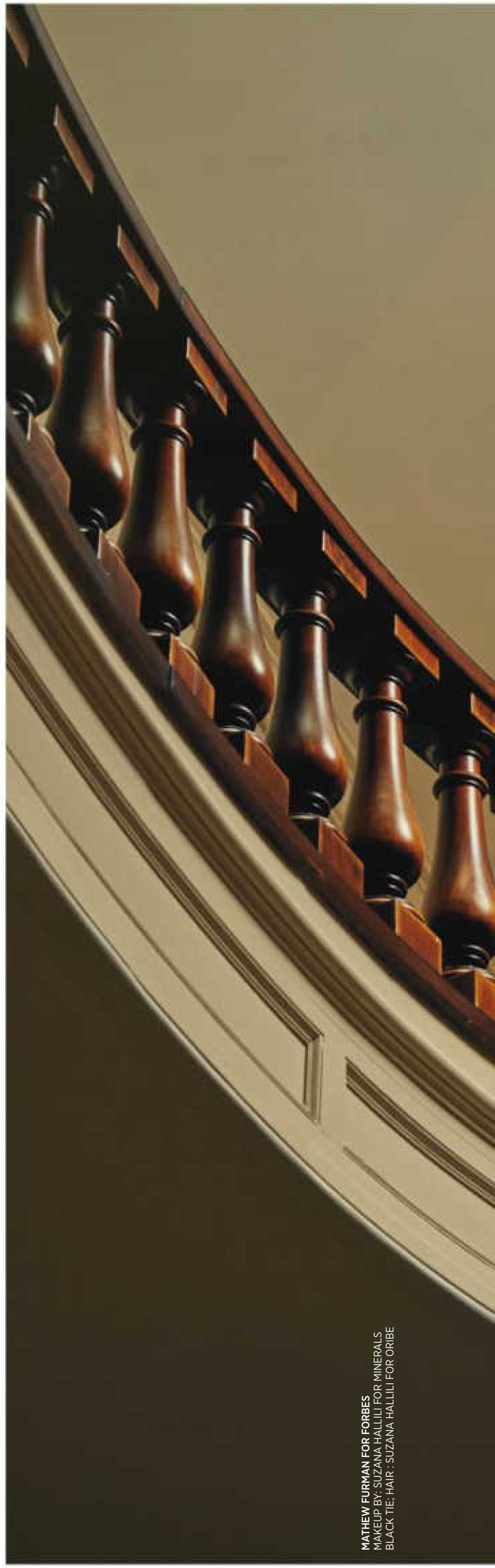
TURNAROUND U

AS HUNDREDS OF VENERABLE INSTITUTIONS OF HIGHER EDUCATION LIMP ALONG, STRUGGLING TO PAY THEIR BILLS, A NEW BREED OF INNOVATIVE, ACTIVIST COLLEGE PRESIDENTS ARE RETHINKING THE BUSINESS OF EDUCATION.

BY MATT SCHIFRIN

Drew University always had an Ivy League look. Drive through the gated entrance of the leafy, 186-acre Madison, N.J. campus and you're soon confronted by Mead Hall, a massive Greek-revival mansion built in 1836, with its brick façade, white portico columns and green colonial window shutters. The rooms inside are just as stately, with 20-foot-high ceilings and large oil paintings of the founders and past presidents staring down at you. But the mood starts to change as you walk across the grand foyer and up a long staircase to the president's office suite.

Once there, you will meet MaryAnn Baenninger, the 13th president of Drew, and her cabinet of executive officers. Dressed in a taste-



MATHEW FURMAN FOR FORBES
MAKEUP BY: SUZANA HALLILI FOR MINERALS
BLACK TIE; HAIR: SUZANA HALLILI FOR ORIBE

There is a new culture of accountability in Drew's ivory tower thanks to its no-nonsense president, MaryAnn Baenninger.

ful pantsuit and silk scarf, Dr. Baenninger may look like she belongs in an ivory tower, but hers is no stuffy academic administration. She and her team are change agents who have recently been recruited to turn around Drew, which had been hemorrhaging students and revenues.

It is one of hundreds of middling colleges around the nation that struggle each year to bring in enough students and tuition revenue to pay their bills. In 2015 the university, which has 2,151 students, accepted about 70% of applicants for its Class of 2019. (By comparison, schools such as Harvard and Stanford accept less than 5%.) But even with its generous acceptance policy Drew is a perennial member of the "space available" list of colleges in need of freshmen well past the traditional May 1 deadline, because most of its accepted students prefer other schools.

And Drew's discount rate—the percentage of tuition it rebates in the form of "aid" to attract students—recently hit an alarmingly high 69%. Despite that, freshman enrollment has fallen from a peak of 506 in 2009 to 302 in 2014, the year Baenninger arrived after righting the finances of the College of Saint Benedict in St. Joseph, Minn.

Drexel's dealmaker president, John Fry, is a real estate mogul dressed in academic regalia.

Drew is in good company. According to the National Association of College Business Officers, the average institutional discount rate has been climbing for decades, to 49% for incoming freshmen, up from 39% in 2006. The epidemic of deep tuition discounting is a symptom of inefficient pricing policies, which disguise the poor fiscal health of most institutions. "There are more than 3,500 nonprofit colleges, and most are struggling to get students," says economist Lucie Lapovsky, a former college president who is now a consultant. "We have too many schools. They spend more and more on marketing and financial aid, and less is going into the investment in faculty and the direct delivery of education." She adds, "A school of 1,000 students often has the same administrative structure as a school of 5,000." Indeed, if ever there was an industry in dire need of bold entrepreneurial leadership, it is higher education, and Baenninger is the rare product of academia who actually gets it.

During the 1990s she was a psychology professor at The College of New Jersey. Back then it was called Trenton State College and was undergoing transformation from teachers college to full-blown liberal arts institution, now referred to as TCNJ. The College of New Jersey is now ranked number one in the Northeast among public colleges. From TCNJ, Baenninger became a director at the Middle States Commission on Higher Education, the accrediting organization for some 526 colleges, where she got to examine the books and interview the administrations, faculty and students of about 100 schools, ranging from Princeton to Sarah Lawrence to Finger Lakes Community College. "It is a very rigorous process, covering finances, academics, facilities, student affairs and everything in between," says the 60-year-old Baenninger. "It was an apprenticeship to be a college president."

When she arrived at Drew, student retention, or the number of freshmen who continue on to sophomore year, had been bouncing between 75% and 85%, compared with about 98% for top liberal arts colleges like Amherst and Dartmouth. The all-important six-year graduation rate was a pitiful 62%, compared with about 95% at top schools.

"The reason we weren't retaining kids didn't have to do with the academics," Baenninger explains. "It had to do with everything else. Just navigating the environment here was disproportionately complicated, and there was an annoying bureaucracy that didn't fit with a caring liberal arts institution."

Baenninger is referring to what undergraduates call the "Drew screw." Simple tasks like switching a class or handling a financial aid problem or fixing a dorm room issue became bogged down in red tape. Part of the problem is endemic to higher education, which is notoriously inefficient. However, some of Drew's problems were the legacy of previous administrations, including the 15-year presidency, until 2005, of former New Jersey governor Thomas Kean, who concurrently served as chairman of the 9/11 Commission and added on layers of bureaucracy befitting his status.

Baenninger moved quickly to streamline and overhaul management. "The number of new employees here is staggering," she says of the new Drew. "The only way you can change the culture is to change key people."

Among her first hires was Robert Massa as vice presi-

DAVID YELLEN FOR FORBES

dent of enrollment. Massa is renowned among higher education insiders for helping to rescue Johns Hopkins during a budget crisis at its school of arts and sciences in 1989, when it was overspending on financial aid. After a decade instilling enrollment discipline at Hopkins, Massa reversed a severe enrollment decline at Pennsylvania's Dickinson College, in part by championing its then-radical SAT-optional strategy. During his ten-year tenure Dickinson's admissions rate fell from about 60% to 40%, and the liberal arts college rose in the rankings.

Another key hire was Kira Poplowski as vice president of communications and marketing. Poplowski cut her teeth at Pitzer College, once regarded as the red-headed stepchild of the prestigious five-college Claremont, Calif. consortium. At Pitzer, Poplowski was part of the team that rebranded the school's image from an easy-A college for leftist stoners to one steeped in academic excellence and sustainable, green living. Pitzer's admit rate has plummeted from about 50% in 2003 to 12% in 2016.

Baenninger also sought talent outside of academia. Marti Winer, Drew's chief of staff, spent seven years in hospitality management for Wyndham Hotel Group and was also an active member of the college's alumni board. "Marti knows Drew, but she also has the corporate background and doesn't suffer fools gladly," says Baenninger, who has made a practice of temporarily installing Winer in key administrative roles after she fires staffers.

"We are building a culture of accountability in an environment where shirking responsibility has been easy," says Winer. "This was a huge paradigm shift for us."

To make sure she wasn't perceived as an all-stick-and-no-carrot manager, Baenninger began doling out bonuses, but only to those who exhibited leadership that went above and beyond their specific job description.

"The second important value we are instilling is customer service," says Winer, noting that the term "customer" makes most in academia bristle. "At every touch point you have, it has to be a good experience."

Baenninger recalls one incident early in her tenure, when the former registrar refused to accommodate a transgender alumna who wanted to have the name on her diploma changed to reflect her new identity. As soon as Baenninger got wind of the unhappy alum, she reversed the registrar's decision. "'We can't change history' was the former registrar's excuse," scoffs enrollment chief Massa.

To attract the right student applicants, Massa and Poplowski have focused Drew's marketing on three concepts under a "Declare Yourself" theme: proximity to New York City (Drew is a 45-minute train ride from Penn Station), experiential learning and mentorship. And to help new students navigate the city, all freshman seminar teachers are required to escort their classes on a full-day course-related Manhattan field trip. Drew's "Find Your Yoda" marketing

THE BEST 100

To find America's finest liberal arts colleges and research universities, we gave each institution points based on five metrics: low student debt, high graduation rates and postgrad salaries, overall student satisfaction and proven career success. Included below: a school's place on our Grateful Grads Index (which scores the ROI of 200 colleges), and fittingly, letter grades for financial health.

EDITED BY CAROLINE HOWARD

1 Stanford University
Stanford, CA
Undergrad pop. 7,019
Total cost $64,477
Grateful Grad Rank 11
Financial Health A+

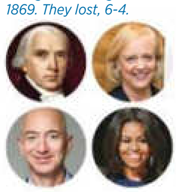
Stanford-educated entrepreneurs have created some 39,900 companies since the 1930s that generate annual revenues of $2.7 trillion. Collectively, they would constitute one of the world's largest economies.

EVAN SPIEGEL, JOHN MCENROE, KEVIN SYSTROM, MICHELLE WIE

2 Williams College
Williamstown, MA
Undergrad pop. 2,072
Total cost $66,240
Grateful Grad Rank 3
Financial Health A+

3 Princeton University
Princeton, NJ
Undergrad pop. 5,391
Total cost $61,160
Grateful Grad Rank 1
Financial Health A+

Princeton faced Rutgers University in the first-ever college football game in 1869. They lost, 6-4.



JAMES MADISON, MEG WHITMAN, JEFF BEZOS, MICHELLE OBAMA

4 Harvard University
Cambridge, MA
Undergrad pop. 10,338
Total cost $64,400
Grateful Grad Rank 25
Financial Health A+

5 Massachusetts Institute of Technology
Cambridge, MA
Undergrad pop. 4,512
Total cost $63,250
Grateful Grad Rank 16
Financial Health A+

CARLY FIORINA, SALMAN KAHN

6 Yale University
New Haven, CT
Undergrad pop. 5,477
Total cost $66,445
Grateful Grad Rank 8
Financial Health A+

7 Pomona College
Claremont, CA
Undergrad pop. 1,650
Total cost $64,870
Grateful Grad Rank 20
Financial Health A+

8 Brown University
Providence, RI
Undergrad pop. 6,548
Total cost $65,380
Grateful Grad Rank 14
Financial Health A+

Its iconic Van Wickle Gates open only for convocation and commencement. Legend has it, students who walk through them more than twice will have bad luck.

EMMA WATSON, JANET YELLEN

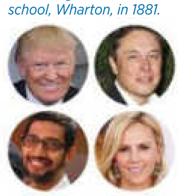
9 Wesleyan University
Middletown, CT
Undergrad pop. 2,928
Total cost $65,443
Grateful Grad Rank 39
Financial Health A+

Lin-Manuel Miranda performed his ***In The Heights*** *as a Wesleyan student before it became his first Broadway hit. His* ***Hamilton*** *won 11 Tony Awards in 2016.*

10 Swarthmore College
Swarthmore, PA
Undergrad pop. 1,542
Total cost $64,363
Grateful Grad Rank 18
Financial Health A+

11 University of Pennsylvania
Philadelphia, PA
Undergrad pop. 11,548
Total cost $66,800
Grateful Grad Rank 24
Financial Health A+

It established the world's first collegiate business school, Wharton, in 1881.



DONALD TRUMP, ELON MUSK, SUNDAR PICHAI, TORY BURCH

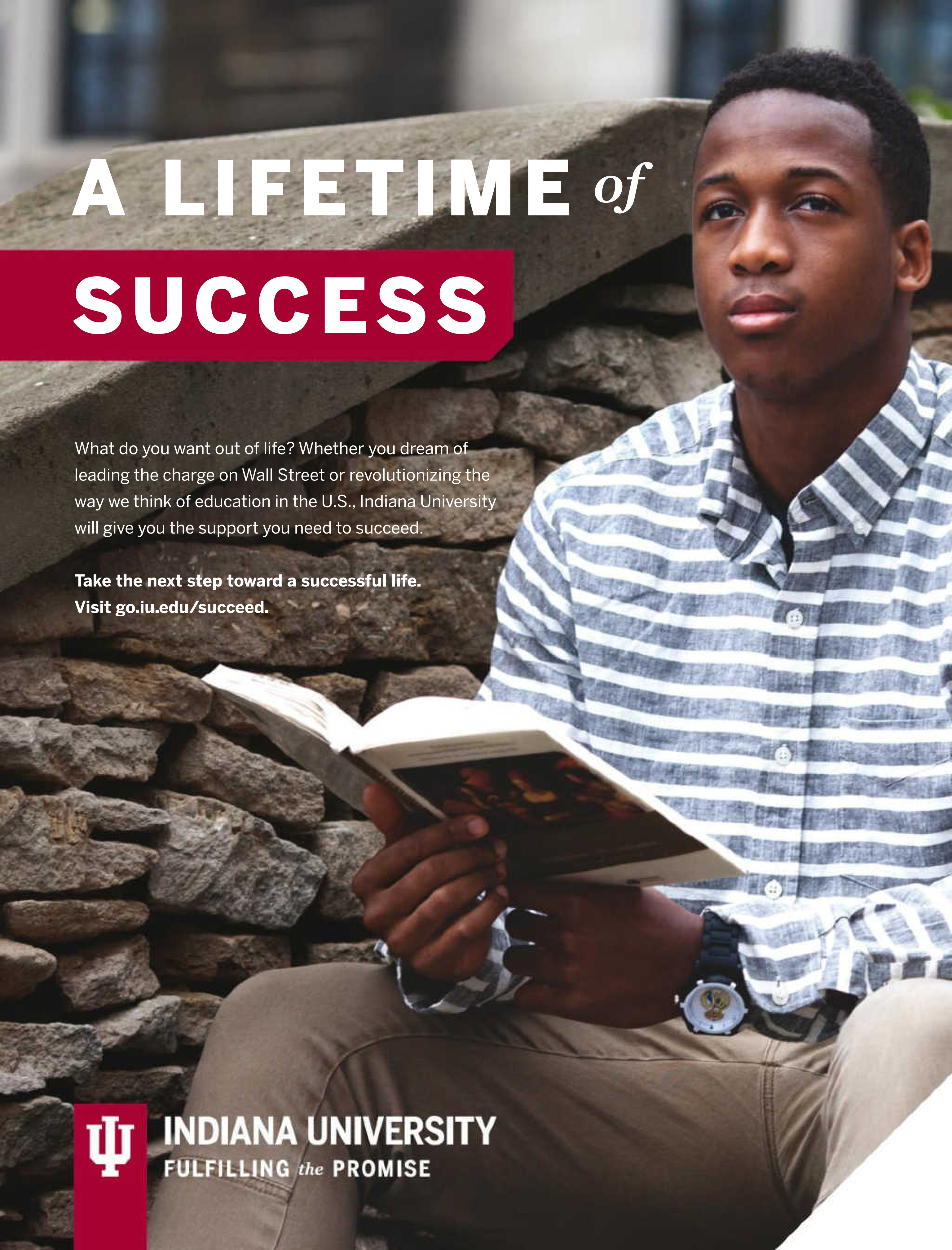
12 Amherst College
Amherst, MA
Undergrad pop. 1,792
Total cost $66,572
Grateful Grad Rank 6
Financial Health A+

DAVID FOSTER WALLACE

13 University of Notre Dame
Notre Dame, IN
Undergrad pop. 8,448
Total cost $64,775
Grateful Grad Rank 12
Financial Health A+

The Fighting Irish have the highest winning percentage of any college football program, and Notre Dame is the only university with intramural tackle football.

CONDOLEEZZA RICE, JOE MONTANA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INDIANA UNIVERSITY
FULFILLING the PROMISE

Bennington College's wunderkind president, Mariko Silver, is blazing a nonlinear path through academia and the pastures of Vermont.

slogan reinforces the school's Ivy-level student-to-faculty ratio of 10 to 1.

To get the word out, Baenninger got permission to dip into Drew's $214 million endowment and increased budgets to allow Poplowski and Massa to execute their vision. Poplowski hired the New York design firm Pentagram to revamp Drew's marketing assets. Drew's new branding shows an oak leaf featuring a silhouette of the Manhattan skyline in its center. Massa hired new admissions officers, including a veteran with deep connections at elite private high schools.

Less than two years into its turnaround, Baenninger and her team are making excellent progress. Applications increased for the first time in six years—by 15%—in 2016, and enrollment jumped 20%, to 360 for the Class of 2020. Early-decision enrollment doubled, and transfer students increased 28%. Drew's average SAT scores went up by 30 points, and its admission rate fell from 70% to 58%. Retention to sophomore year has climbed to 88%, Drew's discount rate fell by eight percentage points, and net revenue per student increased by about $5,000.

The transformation is far from complete, but given the university's operational reboot and its location, it's easy to see how Drew (ranked No. 274 on FORBES' top colleges list) might one day join other elite schools once considered "safeties" and are now highly selective and financially secure—schools like New York University, Northeastern, Pitzer, Tufts and the University of Southern California.

JUST BACK FROM A vacation at his beach house in Amagansett, N.Y., Drexel University president John A. Fry is driving his son's Toyota FJ Cruiser through the streets of West Philadelphia, pointing out all the buildings he has either rehabilitated or constructed in the past few decades. "There's the Inn at Penn and the Penn Alexander School," he says, referring to the University of Pennsylvania's luxury hotel and Philly's award-winning K–8 public school. "That was one of my last projects."

A few minutes later we are on John F. Kennedy Boulevard, close to Philadelphia's 30th Street Station, passing a large parking lot, some unsightly industrial buildings and a Firestone auto repair. "This is a property I purchased in 2011 for $21.8 million," says the 56-year-old Fry with the kind of bravado you would expect from a real estate mogul rather than an academic. Then again, Fry is part of a growing number of university presidents without a doctorate.

An M.B.A. who spent the beginning of his career at Peat, Marwick and Coopers & Lybrand consulting with universities and other nonprofits, Fry was hired by the University of Pennsylvania's then-incoming president, Judith Rodin, in 1995, after a strategic plan he developed convinced her that he should be her new executive vice president, effectively putting him charge of all of Penn's nonacademic affairs. "I had to go from a 25-person boutique consulting practice to administrative COO of this organization with a $3 billion budget and 27,000 employees," says Fry, who was 34 at the time.

Using Penn's ample capital to partner with local developers, Fry was the driving force in rehabilitating the once crime-ridden University City area, now one of the most desirable

THE BEST 100

14 United States Military Academy
West Point, NY
Undergrad pop. 4,414
Total cost $0

15 Northwestern University
Evanston, IL
Undergrad pop. 9,048
Total cost $68,060
Grateful Grad Rank 45
Financial Health A+

16 Columbia University
New York, NY
Undergrad pop. 8,100
Total cost $69,084
Grateful Grad Rank 46
Financial Health A+

WARREN BUFFETT, RUTH BADER GINSBURG

17 Dartmouth College
Hanover, NH
Undergrad pop. 4,289
Total cost $67,044
Grateful Grad Rank 2
Financial Health A+

18 Tufts University
Medford, MA
Undergrad pop. 5,177
Total cost $65,900
Grateful Grad Rank 59
Financial Health A+

19 Bowdoin College
Brunswick, ME
Undergrad pop. 1,805
Total cost $63,440
Grateful Grad Rank 4
Financial Health A+

After the school year kicks off with a lobster bake, the largest student group on campus, the Outing Club, leads canoeing, rafting, camping and sight-seeing trips throughout Maine.

KENNETH CHENAULT, REED HASTINGS

20 University of Chicago
Chicago, IL
Undergrad pop. 5,738
Total cost $70,100
Grateful Grad Rank 22
Financial Health A+

FRANCO VOGT FOR FORBES

parts of Philadelphia, with an array of fancy restaurants and retailers. "We have people who bought homes there for $100,000 and $200,000 that are now worth $800,000," says Fry.

In 2002 Fry took his neighborhood revitalization and public/private partnership strategy to his next stint as president of Franklin & Marshall College in Lancaster, Pa. At F&M Fry sought to drastically alter Lancaster's landscape by moving a rail yard a mile down the road, demolishing an abandoned linoleum factory and rehabilitating a landfill, which had cut off the campus from the city and caused its students to be constant crime victims. The move would effectively double the size of the campus and pave the way for another vibrant retail and residential renaissance.

In 2010, before Fry could fully realize his Lancaster remake (during his tenure F&M's admission rate fell from to 62% to 45%; it is now 32%), he was tapped to return to Philadelphia, after the longtime and beloved president of Drexel, Constantine Papadakis, died of lung cancer at age 63.

Today Fry wears a popular Lokai bracelet, with its black bead containing mud from the Dead Sea, peeking out from his tailored suit cuff. The bead symbolizes hopefulness for those at a low point in life. And from an admissions standpoint Drexel is at rock bottom. It currently accepts nearly 80% of its applicants, yet its yield has been a pitiful 8%, meaning that only one in 12 accepted students actually chooses Drexel over rival schools.

Fry expects Drexel to shed its long-standing reputation as an easy-admission commuter college with a sprawling hodgepodge of a campus. To shore up admissions, he brought in Randall Deike as the school's senior vice president of enrollment and student success. In a similar position at NYU for the previous five years, Deike played a big role in the school's impressive ascendance in selectivity and other college rankings.

While Deike refocuses the university's admissions strategy—Drexel recently terminated its free "fast app" program, which brought in more than 47,000 applicants in 2014, many of whom knew little about the school and had no intention of attending—and pushes Drexel's cooperative, experiential learning, and its emphasis on science and engineering, Fry is executing a grand plan to redevelop the blighted neighborhoods adjacent to Drexel, which abuts the Penn campus. However, unlike Penn, which has a $10 billion endowment, Drexel, with a modest $670 million endowment, lacks deep pockets.

So Fry has teamed up with two REITs, Brandywine Realty Trust and American Campus Communities, to develop large tracts of land around the Drexel campus. Drexel's neighborhood remake will include some $5 billion worth of real estate development, including a $3.5 billion "Innovation Neighborhood" along the Schuylkill River rail yards, which will include research facilities and an incubator

THE BEST 100

21 Georgetown University
Washington, DC
Undergrad pop. 7,595
Total cost $66,971
Grateful Grad Rank 137
Financial Health A

From George Washington to Abraham Lincoln to Barack Obama, 14 presidents have visited Georgetown.

JIM GAFFIGAN, MIKE BIRBIGLIA, NICK KROLL, JOHN MULANEY

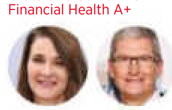
22 Boston College
Chestnut Hill, MA
Undergrad pop. 9,856
Total cost $65,620
Grateful Grad Rank 83
Financial Health A

23 Haverford College
Haverford, PA
Undergrad pop. 1,194
Total cost $66,648
Grateful Grad Rank 15
Financial Health A+

24 United States Naval Academy
Annapolis, MD
Undergrad pop. 4,511
Total cost $0

25 Davidson College
Davidson, NC
Undergrad pop. 1,770
Total cost $62,894
Grateful Grad Rank 7
Financial Health A+

26 Duke University
Durham, NC
Undergrad pop. 6,626
Total cost $66,739
Grateful Grad Rank 9
Financial Health A+



MELINDA GATES, TIM COOK

27 Carleton College
Northfield, MN
Undergrad pop. 2,057
Total cost $64,420
Grateful Grad Rank 17
Financial Health A+

28 Washington and Lee University
Lexington, VA
Undergrad pop. 1,890
Total cost $61,235
Grateful Grad Rank 13
Financial Health A+

29 Cornell University
Ithaca, NY
Undergrad pop. 14,282
Total cost $65,494
Grateful Grad Rank 37
Financial Health A+

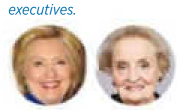
30 Rice University
Houston, TX
Undergrad pop. 3,926
Total cost $58,253
Grateful Grad Rank 26
Financial Health A+

John F. Kennedy made his famous "We choose to go the moon" speech at Rice in 1962. In his speech, he likened the lunar mission's inherent challenges to the annual Rice-Texas football game.

31 Claremont McKenna College
Claremont, CA
Undergrad pop. 1,301
Total cost $66,325
Grateful Grad Rank 5
Financial Health A+

32 Wellesley College
Wellesley, MA
Undergrad pop. 2,323
Total cost $63,390
Grateful Grad Rank 10
Financial Health A+

Within 20 years of graduating, 60% of alumnae work in the C-Suite or as executives.



HILLARY CLINTON, MADELEINE ALBRIGHT

33 Vassar College
Poughkeepsie, NY
Undergrad pop. 2,421
Total cost $65,480
Grateful Grad Rank 27
Financial Health A+

34 Middlebury College
Middlebury, VT
Undergrad pop. 2,526
Total cost $63,456
Grateful Grad Rank 19
Financial Health A+

35 United States Air Force Academy
Colorado Springs, CO
Undergrad pop. 3,952
Total cost $0

36 University of Virginia
Charlottesville, VA
Undergrad pop. 16,483
Total cost $29,572 / $58,745

TINA FEY, KATIE COURIC

37 Barnard College
New York, NY
Undergrad pop. 2,573
Total cost $65,261
Grateful Grad Rank N/A
Financial Health A

62% of faculty members are women. The national average: just 38%.

JOAN RIVERS, MARTHA STEWART

38 College of William & Mary
Williamsburg, VA
Undergrad pop. 6,299
Total cost $33,630 / $55,330

39 California Institute of Technology
Pasadena, CA
Undergrad pop. 983
Total cost $63,471
Grateful Grad Rank 23
Financial Health A+

Caltech is one of the top colleges in percentage of graduates who go on to earn a Ph.D. Its alumni pull in fat paydays and rank among the highest-earning, with average midcareer salaries over $100,000.

GORDON MOORE, LINUS PAULING

40 University of California, Berkeley
Berkeley, CA
Undergrad pop. 27,126
Total cost $35,255 / $59,963

41 Colby College
Waterville, ME
Undergrad pop. 1,847
Total cost $63,330
Grateful Grad Rank 28
Financial Health A+

space, a $58 million hotel called The Study at University City, a child-care center, a public high school and some $340 million to be spent on three high-rise student apartment complexes and a dining center.

In another opportunistic move, dealmaker Fry recently acquired Philadelphia's struggling 204-year-old Academy of Natural Sciences. "It was totally asset-rich: a $50 million endowment, 18 million objects, a coveted piece of real estate, but no liquidity," says Fry, who used a $1 million grant from the Pew Charitable Trust to finance it. Now Drexel offers majors in a new Department of Biodiversity, Earth and Environmental Science, and the academy's acclaimed research scientists have improved Drexel's student-to-faculty ratio.

"We won't outspend anyone to victory," says Fry, noting that Drexel will own all the land under the buildings, "but we can out-hustle and out-partner any other institution."

WITH A FEW NOTABLE EXCEPTIONS like Bowdoin and Middlebury, small rural campuses in frigid northern locations are generally a tougher sell to prospective freshmen. So when the board of trustees of Bennington College in Vermont were looking for a president with fresh ideas, they chose 35-year-old Mariko Silver, whose nonlinear path to the top of academia epitomizes the type of unconventional education Bennington has long offered.

When she got the call from the headhunter charged with Bennington's search in early 2013, Silver was three months pregnant and planning a move to Hanoi, working on a project for Arizona State University, USAID, the World Bank, the Asian Development Bank and Intel to rethink engineering education in Vietnam.

Among academics, Silver is a wunderkind. A descendant of Jewish and Japanese immigrants, whose father was an award-winning documentary filmmaker and whose mother was chairman of the National Endowment for the Arts, Silver had a first-rate education. In high school she attended New York City's Fieldston and L.A.'s Harvard-Westlake, then went on to Yale. Silver turned down Oxford to pursue a master's degree in science and technology policy from the University of Sussex in England, and was then considering business school.

But in the summer of 2001 a serendipitous cocktail party conversation connected Silver, then 23, to Michael Crow, the vice provost of Columbia University,

The Value Investor's Guide to College

In many respects college admission is a classic case of momentum investing. Everyone chases the same schools, which become harder to get into and more expensive each year. But why not consider "hot colleges in the making" under innovative management? The below schools all have high acceptance rates (think of it as a low P/E) and viable turnaround strategies.

BENNINGTON COLLEGE: 59% Overachiever Silver has already boosted its endowment and is on a mission to hit 1,000 students.

BENTLEY UNVERSITY: 46% Dynamic leadership from attorney Gloria Larson. Business-focused with an emphasis on internships. Local rival Babson is in its crosshairs.

BERRY COLLEGE: 61% An innovator president and a breathtaking 27,000-acre campus in the Appalachian mountains.

DREW UNIVERSITY: 58% Management and operations are being overhauled. Its proximity to New York City is key.

DREXEL UNIVERSITY: 76% Co-op schools are hot and dealmaker Fry is turning Drexel into the NYU of Philly.

GOUCHER COLLEGE: 76% President Jose Antonio Bowen is breathing new life into Goucher, radically changing its curriculum.

LONG ISLAND UNIVERSITY: 83% With a campus in hipster-haven Brooklyn and 20,000 students, president Kim Cline is one to watch.

PURDUE UNIVERSITY: 59% Former Indiana governor Mitch Daniels is a cost-cutter who's beefing up the focus on STEM and startups.

UNIVERSITY OF THE ARTS: 67% Enrollment had been sliding for years at this Philly-based college. New president David Yager is an artist with a business-friendly focus.

URSINUS COLLEGE: 83% New president and economist Brock Blomberg learned the ropes at the Wharton of the West, Claremont McKenna.

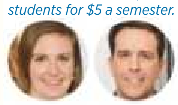
THE BEST 100

42 Colgate University
Hamilton, NY
Undergrad pop. 2,875
Total cost $64,800
Grateful Grad Rank 32
Financial Health A+

Colgate's lucky number: 13. 13 men founded the university with $13 and 13 prayers. Abiding by the 13 articles of the school's original constitution, students stroll to class on 13 Oak Drive.

43 Oberlin College
Oberlin, OH
Undergrad pop. 2,961
Total cost $66,870
Grateful Grad Rank 43
Financial Health A+

The Allen Memorial Art Museum rents paintings, including works by Picasso, Dali and Lichtenstein, to students for $5 a semester.



LENA DUNHAM, ED HELMS

44 University of Michigan
Ann Arbor, MI
Undergrad pop. 28,395
Total cost $27,812 / $57,432

The college owns two golf courses: the U-M Golf Course on South Campus in Ann Arbor and the Radrick Farms Golf Course. Only faculty, staff and alumni can hit these links.

45 Vanderbilt University
Nashville, TN
Undergrad pop. 6,851
Total cost $63,532
Grateful Grad Rank 38
Financial Health A+

46 University of California, Los Angeles
Los Angeles, CA
Undergrad pop. 29,633
Total cost $33,391 / $58,099

47 University of North Carolina, Chapel Hill
Chapel Hill, NC
Undergrad pop. 18,350
Total cost $24,349 / $49,431

48 Kenyon College
Gambier, OH
Undergrad pop. 1,662
Total cost $64,360
Grateful Grad Rank 34
Financial Health A

49 Bucknell University
Lewisburg, PA
Undergrad pop. 3,565
Total cost $65,268
Grateful Grad Rank 76
Financial Health A+

50 Hamilton College
Clinton, NY
Undergrad pop. 1,904
Total cost $63,870
Grateful Grad Rank 30
Financial Health A+

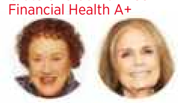
51 College of the Holy Cross
Worcester, MA
Undergrad pop. 2,787
Total cost $61,524
Grateful Grad Rank 52
Financial Health A+

Its athletics programs truly live up to the phrase "student athletes": Holy Cross has the third-highest graduation rate for NCAA D-I athletes.

52 Bates College
Lewiston, ME
Undergrad pop. 1,773
Total cost $64,590
Grateful Grad Rank 64
Financial Health A

53 Whitman College
Walla Walla, WA
Undergrad pop. 1,498
Total cost $59,902
Grateful Grad Rank 44
Financial Health A+

54 Smith College
Northampton, MA
Undergrad pop. 2,563
Total cost $64,486
Grateful Grad Rank 35
Financial Health A+



JULIA CHILD, GLORIA STEINEM

55 Lafayette College
Easton, PA
Undergrad pop. 2,503
Total cost $63,680
Grateful Grad Rank 48
Financial Health A+

56 Franklin & Marshall College
Lancaster, PA
Undergrad pop. 2,209
Total cost $65,640
Grateful Grad Rank 68
Financial Health A

THE BEST 100

57 Colorado College
Colorado Springs, CO
Undergrad pop. 2,050
Total cost $63,600
Grateful Grad Rank 108
Financial Health A

The campus lies just hours away from ten ski resorts and seven national parks.

58 University of Rochester
Rochester, NY
Undergrad pop. 6,266
Total cost $65,264
Grateful Grad Rank 47
Financial Health A

59 Harvey Mudd College
Claremont, CA
Undergrad pop. 804
Total cost $69,355
Grateful Grad Rank N/A
Financial Health A+

For the first time in spring 2016, its science, technology, engineering and math college had more women (54%) graduating with a computer science major than men. And it had double the national average of female engineering grads: 42% versus 19%.

60 Washington University in St. Louis
St. Louis, MO
Undergrad pop. 7,401
Total cost $67,751
Grateful Grad Rank 29
Financial Health A+

61 Wake Forest University
Winston-Salem, NC
Undergrad pop. 4,867
Total cost $64,478
Grateful Grad Rank 41
Financial Health A

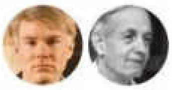
62 Villanova University
Villanova, PA
Undergrad pop. 7,118
Total cost $62,773
Grateful Grad Rank 185
Financial Health A-

Holy work experience! At Villanova's Vatican Internship, students contribute to the Pope's Twitter account.

KYLE LOWRY

63 Carnegie Mellon University
Pittsburgh, PA
Undergrad pop. 5,888
Total cost $65,895
Grateful Grad Rank 57
Financial Health A+

100% of Carnegie Mellon's electricity comes from wind and solar power sources; it is in the top ten for green power among higher-ed institutions in the U.S.



ANDY WARHOL, JOHN NASH

64 Reed College
Portland, OR
Undergrad pop. 1,374
Total cost $64,480
Grateful Grad Rank 36
Financial Health A+

65 University of Southern California
Los Angeles, CA
Undergrad pop. 18,739
Total cost $67,212
Grateful Grad Rank 31
Financial Health A+

66 Johns Hopkins University
Baltimore, MD
Undergrad pop. 6,357
Total cost $65,496
Grateful Grad Rank 67
Financial Health A+

Leader in higher-ed R&D, Johns Hopkins spent a record $2.2 billion on science and tech in 2014. It ranks number one for federal projects, spending a record $1.9 billion.

67 Emory University
Atlanta, GA
Undergrad pop. 7,829
Total cost $63,058
Grateful Grad Rank 79
Financial Health A+

68 Macalester College
St. Paul, MN
Undergrad pop. 2,073
Total cost $61,853
Grateful Grad Rank 72
Financial Health A+

KOFI ANNAN, ARI EMANUEL

69 University of Wisconsin, Madison
Madison, WI
Undergrad pop. 30,694
Total cost $24,673 / $43,923

70 Bryn Mawr College
Bryn Mawr, PA
Undergrad pop. 1,308
Total cost $63,990
Grateful Grad Rank 21
Financial Health A+

71 Union College
Schenectady, NY
Undergrad pop. 2,242
Total cost $64,245
Grateful Grad Rank N/A
Financial Health A

72 University of Illinois, Urbana-Champaign
Champaign, IL
Undergrad pop. 32,959
Total cost $29,764 / $44,924

Its Research Park opened in 2001 and now houses more than 100 high tech companies. The on-campus facility annually offers over 600 students opportunities for R&D and product development experience.

STEVE CHEN, JAWED KARIM

73 Grinnell College
Grinnell, IA
Undergrad pop. 1,734
Total cost $61,498
Grateful Grad Rank 86
Financial Health A+

74 Brandeis University
Waltham, MA
Undergrad pop. 3,729
Total cost $65,954
Grateful Grad Rank 66
Financial Health A

75 University of Washington
Seattle, WA
Undergrad pop. 30,672
Total cost $27,034 / $49,338

76 Lehigh University
Bethlehem, PA
Undergrad pop. 5,062
Total cost $60,575
Grateful Grad Rank 92
Financial Health A+

Known simply as "The Rivalry," the matchup between Lehigh and nearby Lafayette College ranks as college football's longest-running contest.

77 New York University
New York, NY
Undergrad pop. 24,985
Total cost $68,400
Grateful Grad Rank 120
Financial Health A-

MARTIN SCORSESE, ALAN GREENSPAN

who recruited her to be his tech policy specialist, essentially bringing together academic research and industry to get products to market. The endeavor had already produced more than $1 billion in royalties for Columbia. Following 9/11, Columbia was chosen to lead a multi-institutional research response to terrorism. Silver, already becoming known as a gifted, get-the-job-done project manager, organized the program.

Then in 2002, when Crow became president of Arizona State University, Silver went with him as director of strategic projects and played a key role in ASU's transformation, from a sports-crazy party school with bloated academic departments to a more efficient, leading research university with new public-private partnerships in fields like genomics research. During her initial six years at ASU, Silver earned a doctorate in economic geography from UCLA, but then in 2008 Arizona governor Janet Napolitano asked Silver to be her policy advisor on economic development, innovation and higher education. Six months into that job President Obama picked Napolitano to be Secretary of Homeland Security, and Silver went along as an undersecretary and international strategist. After nearly three years Silver returned to ASU as special counsel to Crow and a professor in the department of politics and global studies.

Silver's new challenge is to revive Bennington's tired brand among artsy small colleges. When she arrived in 2013, applications were falling and enrollment had dropped to just 159 freshmen, despite an acceptance rate of 65%. Retention was only 83%. Bennington's puny $17 million endowment didn't offer Silver much of a cushion, considering the tiny Vermont school competes for students with better-endowed colleges like Bard, Sarah Lawrence and Skidmore.

"Bennington is an undervalued asset," insists Silver, now 38, from her office in the "The Barn," a red H-shaped building in the middle of a meadow, which has avant-garde works of modern art hanging on its walls. "That means it has something major to contribute to society." Silver points out that each of its 675 or so undergrads is tasked with creating his or her own "learning plan" and must arrange for a seven-week off-campus field study each January and February. "Unlike other schools, Bennington forces students to learn how to be strategic. You have to build your strategy brain to move through a Bennington education," she says, mentioning that one of the Class of 2016 graduated with a concentration in space architecture.

One key hire for Silver has been CFO Brian Murphy, an accountant and one of the architects of the Savannah College of Art & Design's rise to prominence among art schools, with its 12,000 students and its campuses in Atlanta, China and France. Another is the vice president and dean of admissions and financial aid, Hung Bui, a former admissions officer at Colby College who earned an M.B.A. from Carnegie Mellon and spent nine years as an analyst and fund manager.

Almost immediately Murphy implemented a new accounting system and dismissed KPMG, Bennington's accountant. "I used to be a senior tax manager at KPMG. A tiny school doesn't need to be paying Big Four rates," says Murphy, who also dismissed Bennington's endowment manager because of poor returns.

Working with data-driven Bui, who devised his own spreadsheet-based model to shape Bennington's freshman class, Murphy is tackling the biggest Achilles' heel for tuition-dependent colleges: the discount rate, which was hovering around 58%.

Says Murphy, "For the more affluent family, aid may be immaterial. ... It may even be counterproductive. You may come across as desperate as an institution."

According to Bui, Bennington still suffers from a reputation among guidance counselors of being a place for rich kids, which, believe it or not, is a legacy of mentions on 1980s sitcoms like *Cheers* (Diane went to Bennington) and *The Cosby Show* (Theo wanted to go). Today Bui is smarter about doling out dollars.

Bennington has widened its net for new applicants, as Bui and his team have increased high school visits by 33% and introduced a new "dimensional application," which allows high school students to have complete control of their own application, using any medium or format, in lieu of transcripts and standardized test scores. "Before I came, Bennington was looking for that one student at each high school," says Bui, referring to the college's elitist philosophy that Bennington students were unique. "In reality, there are many students that would be attracted to this type of education. ... There is a hunger for this type of education in China and internationally, where the educational path is more rigid."

Bennington has already turned the corner. In the fiscal year ending June 2015, Bennington had a $2.2 million operating surplus, up from a deficit of $6.9 million the year before. The college's discount rate has fallen to 43%. Applications jumped 14% this year, and enrollment has climbed to 203 freshmen for the Class of 2020. Bennington's acceptance rate fell below 60% for the first time in more than 20 years. About 13% of Bennington's students are international, but those lucrative prospects should increase.

Bui is organizing a tour of China in September, including a symposium at Beijing's luxurious Peninsula Hotel on "The Importance of Innovation and Creativity in Higher Education." The hotel is offering the venue free of charge, and Stanford and Johns Hopkins—both coveted and far more selective than Bennington—have agreed to join the agenda, so it is likely to be packed with Chinese students and parents. Of course, Bennington president Silver will be delivering the keynote address.

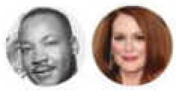
The new Bennington means business, and it's not the Chinese who need to hear her lesson. F

THE BEST 100

78 University of Florida
Gainesville, FL
Undergrad pop. 32,829
Total cost $20,661 / $42,939

79 Boston University
Boston, MA
Undergrad pop. 18,017
Total cost $65,906
Grateful Grad Rank 152
Financial Health B

*Two of the **Boston Globe** reporters portrayed in the 2016 Academy Award Best Picture **Spotlight** are alumni; BU has more than a dozen Pulitzer Prize winners among its former students.*

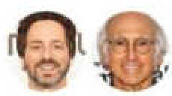


MARTIN LUTHER KING JR., JULIANNE MOORE

80 Dickinson College
Carlisle, PA
Undergrad pop. 2,364
Total cost $64,541
Grateful Grad Rank 102
Financial Health A

81 Connecticut College
New London, CT
Undergrad pop. 1,893
Total cost $64,965
Grateful Grad Rank 58
Financial Health A

82 University of Maryland
College Park, MD
Undergrad pop. 27,056
Total cost $25,137 / $46,285



SERGEY BRIN, LARRY DAVID

83 Scripps College
Claremont, CA
Undergrad pop. 972
Total cost $66,060
Grateful Grad Rank N/A
Financial Health A+

84 Trinity College
Hartford, CT
Undergrad pop. 2,316
Total cost $66,420
Grateful Grad Rank 33
Financial Health A+

85 Skidmore College
Saratoga Springs, NY
Undergrad pop. 2,632
Total cost $64,850
Grateful Grad Rank 62
Financial Health A

86 Brigham Young University
Provo, UT
Undergrad pop. 27,163
Total cost $17,718
Grateful Grad Rank N/A
Financial Health A+

True to its Mormon roots, BYU asks students, faculty and staff to sign an honor code affirming that they will refrain from alcohol, tobacco and premarital sex, and adhere to dressing and grooming standards.

MITT ROMNEY, STEPHENIE MEYER

87 Wheaton College
Wheaton, IL
Undergrad pop. 2,432
Total cost $45,260
Grateful Grad Rank 56
Financial Health A+

88 Santa Clara University
Santa Clara, CA
Undergrad pop. 5,486
Total cost $63,666
Grateful Grad Rank 153
Financial Health B

89 Georgia Institute of Technology
Atlanta, GA
Undergrad pop. 14,682
Total cost $25,780 / $45,972

90 Kalamazoo College
Kalamazoo, MI
Undergrad pop. 1,461
Total cost $54,766
Grateful Grad Rank N/A
Financial Health A

91 DePauw University
Greencastle, IN
Undergrad pop. 2,215
Total cost $58,478
Grateful Grad Rank 54
Financial Health A+

One of the nation's most Greek-life-centric schools, DePauw is home to the first modern-day sorority, Kappa Alpha Theta, as well as the Alpha chapter of Alpha Chi Omega.

92 Cooper Union
New York, NY
Undergrad pop. 893
Total cost $62,710
Grateful Grad Rank N/A
Financial Health A+

Students get a half-tuition scholarship and can receive additional need-based aid.

93 University of Texas, Austin
Austin, TX
Undergrad pop. 39,523
Total cost $26,322 / $51,192

LAURA BUSH, RENEE ZELLWEGER, WES ANDERSON, NEIL DEGRASSE TYSON

94 Sewanee: The University of the South
Sewanee, TN
Undergrad pop. 1,631
Total cost $51,950
Grateful Grad Rank 42
Financial Health A

95 University of Georgia
Athens, GA
Undergrad pop. 26,882
Total cost $25,134 / $43,344

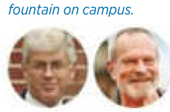
96 Trinity University (Texas)
San Antonio, TX
Undergrad pop. 2,241
Total cost $52,618
Grateful Grad Rank 117
Financial Health A

97 Rhodes College
Memphis, TN
Undergrad pop. 2,031
Total cost $57,714
Grateful Grad Rank 71
Financial Health A

98 Denison University
Granville, OH
Undergrad pop. 2,278
Total cost $60,710
Grateful Grad Rank 90
Financial Health A+

99 Occidental College
Los Angeles, CA
Undergrad pop. 2,040
Total cost $67,046
Grateful Grad Rank 78
Financial Health A

Oxy students celebrate their birthdays by being thrown into the main fountain on campus.



JACK KEMP, ARTHUR PECK

100 Centre College
Danville, KY
Undergrad pop. 1,387
Total cost $51,030
Grateful Grad Rank 40
Financial Health A

IN LIBERTY THEY TRUST
Michael Liberty's world is a surreal one. His friends come from the most rarefied circles, and his mobile payments unicorn, Mozido, has raised $300 million and attracted an all-star cast of investors and directors.

The Financial Theranos?

BY NATHAN VARDI

JOHN UELAND FOR FORBES

Industry's

A charismatic founder, a star-studded board and investor list, a $5.6 billion valuation—Mozido had everything a unicorn could want except a cohesive product. Now with a cash flow crisis, federal subpoenas and employee layoffs, it's hard to see how this ends well.

As party tricks go, it's tough to top what went down at Michael Liberty's 2014 charity bash, which he sponsored together with his financial technology startup, Mozido. As the sun set over the Pacific, a plane soared above the 1,000 guests at an elegant Santa Monica beach club and disgorged 13 former Navy SEALs and 2 of Liberty's executives. The former group was accompanied by a giant American flag; the latter two held a giant check, signed by Liberty, for $1 million, designated to support military families.

The USC marching band serenaded guests with a medley of patriotic songs. Speeches came from the likes of retired general James Mattis, former head of U.S. Central Command, and the former Mexican president Vicente Fox. As donations piled in, the aptly named Liberty took his place at the podium in a crisp blue suit, white shirt and red tie. "We as Americans have a moral obligation to step up and do our part," he said in his Kennedy-like New England accent.

For Liberty, his part could easily handle $1 million. That year Mozido, his little-known Austin-based company, entered unicorn status, having finished raising $300 million, much of it at a valuation of $2.4 billion, from a diverse roster of glittery investors, including hedge fund legend Julian Robertson, Google billionaire Eric Schmidt's venture fund, MasterCard, an Abu Dhabi sheikh and well-regarded Wellington Management, which oversees billions for Vanguard and led the fundraising.

What were they buying into? On paper, the silver-tongued Liberty sold a vision of using mobile payments to "unlock financial freedom" for the roughly 2 billion people around the world with a cellphone but no bank account. Rather than offer a branded product, Mozido would focus on so-called white-label services to other companies.

How he would actually do that wasn't exactly clear. Mozido has had all sorts of fancy people on its board at various times, including Mark Zuckerberg's sister, Randi, and the former CEOs of Priceline, First Data, Interpublic and MasterCard. (Mozido issued a press release touting the addition of former Pakistani prime minister Shaukat Aziz; it now says he never joined.) But it initially didn't have much to talk about in terms of technology.

Instead, Liberty would take his newfound cash hoard—and the ability to issue shares at a now-lofty valuation—and buy his vision. Not unlike the blank-check companies (sell shares to the public, figure out what to do with the money later!) that were in vogue ahead of the global financial crisis, Mozido was essentially a blind bet on Liberty—one made even odder by the fact that he holds no executive title or even a board seat, even though he's the company's largest individual shareholder and put the enterprise in motion.

For a while it worked. In February 2015 Mozido paid $750 million for China's PayEase, a fast-growing Internet and mobile payments company. The preferred shares Mozido issued to finance the merger were priced highly, and Mozido was subsequently valued at $5.6 billion. Within months Robertson, Schmidt, et al., had seen their bet on Liberty, in theory, double. And FORBES estimates that Liberty's personal stake in Mozido made him, in theory, a billionaire. Mozido purchased or invested in eight other companies, mostly tiny startups operating around the world in areas ranging from loyalty marketing and mobile operator services to risk management.

But a funny thing has happened on the way to the exit. Mozido finds itself under siege from angry employees and disgruntled partners, while a former director has received subpoenas from the Department of Justice and the Securities & Exchange Commission seeking financial records related to Liberty and Mozido.

For all his charm and decades of dealmaking, the 56-year-old Liberty is an unknown character. When he recently met with FORBES, it was a rare interview with a national news organization. The circumstances provide a window into his situation. Liberty chose to appear in the conference room of a New York City law firm, flanked by three lawyers, two crisis public relations specialists and Mozido's CEO, Todd Bradley, who ran Hewlett-Packard's biggest unit. Liberty was, of course, still pitching: "We are the only

Following the Money

Mozido, founded by Michael Liberty in 2007, has raised about $300 million, and much of that cash has been used to go on a global buying binge.

January 2013
Purchases PagoVision, which provides check-cashing and payment services.

December 2013
Finishes raising $100 million from investors like Eric Schmidt's Tomorrow-Ventures.

March 2014
Acquires StickyStreet, a company specializing in loyalty rewards.

October 2014
Finishes raising $185 million from Wellington Management, MasterCard and an Emirati sheikh, Nahyan Bin Mubarak Al Nahyan.

November 2014
Loans $6.5 million to Appconomy, an Austin, Tex. software firm targeting China.

December 2014
Acquires a majority stake in CorFire, a mobile wallet development shop.

February 2015
Buys a majority stake in PayEase, a Chinese payment processor, for $750 million.

March 2015
Invests in mobile payments software firm SimplyTapp, based in Austin, Tex., and a Palo Alto risk-management company, IdentityMind.

July 2015
Purchases Nettcash, a mobile-wallet company in Zimbabwe.

pure-play mobile payments commerce and consumer engagement platform that is fully deployed and compliant. We are in China, we are in India, we are in Africa."

Meanwhile, back at Austin headquarters, executives were fretting over more mundane issues, like how to pay employees. Mozido has delayed making payroll five times since April—its June 15 payroll was made ten days late. Its renewal for employee medical insurance was two days late in June, payments to vendors are being stretched, and the company has yet to pay out end-of-year 2015 bonuses to employees.

Liberty shrugs off the cash flow issues, saying, "People who actually run businesses understand sometimes you have a delay." He maintains that the company is close to securing a credit line from Asia: "This is not any kind of chronic situation."

What about the Department of Justice subpoena? "Mozido has been told it is neither the subject or target of any DOJ investigation," a lawyer representing Mozido says. Neither Liberty nor Mozido will comment on the SEC subpoena.

Mozido has also turned to layoffs this year. "Those cuts are happening whether we had $1 billion in the bank or $1 million in the bank," Liberty says, referring to the normal restructuring that takes place after acquisitions.

As with Theranos, the poster child of exuberance in the era of unicorn startups, it would be easier to accept these explanations if he—or anyone—could point to exactly what Mozido has that's worth $5 billion. But even after talking with more than ten current and former employees, I found it hard to come up with anything beyond Liberty's platitudes. And it's easy to envision a scenario where yet another of the era's Icaruses, complete with its own blue-chip board of directors, plummets to earth.

IF THERANOS FOUNDER Elizabeth Holmes provided the perfect personal narrative for a 21st-century entrepreneur—a young Stanford dropout with a transformative idea and a penchant for dressing like Steve Jobs—Michael Liberty's Dickens-meets-Horatio-Alger tale feels more century or two ago. Most of his saga takes place around the town of Gray, Me., where he grew up poor, the son of a brickmaker. When he was 14, his half-brother died in a motorcycle accident, part of a chain of events, according to a local report, that resulted in his parents moving away from Maine, leaving Liberty to fend for himself. "My life was ruined at 14 years old," he says to an ex-colleague in a 2011 e-mail obtained by FORBES. "I've never fully emotionally recovered."

"I was the only kid I knew who had an entire house to himself," he recalled in 1989 to a local reporter. "After awhile I guess I went a little crazy. I thought about running away, even suicide." Instead, he embraced basketball and his Catholic faith, as he began his search for self-respect.

Liberty ultimately found salvation through entrepreneurship. He started with a sandwich shop, then in 1983 launched a dairy farm. But his main business became real estate, where he focused on federal- and state-subsidized housing, first in Maine and then other states, followed by a seemingly endless string of varied enterprises, from Maine shirtmaker C.F. Hathaway to Playboy Energy Drink to a series of low-budget Hollywood movies.

Even surrounded by lawyers in a conference room, the 6-foot-2 Liberty displays the kind of charm that can sell anything to anybody. Those who know him echo that idea: his big smile, his ability to connect with others and his connection to the struggling region where he got his hardscrabble start. "Michael is a collector of people," says Ken Robinson, executive chairman of Whitehorse Technologies, a cybersecurity company Liberty founded.

His collection goes way beyond the A-list investors and boards. As friends, he taps the likes of Wal-Mart heir Alice Walton and Marshall Field department store heir Frederick "Ted" Field, cofounder of Interscope Records. As a mentor, he cites former Maine senator and U.S. Defense Secretary William Cohen. For the godfather to his son, he tapped basketball legend Shaquille O'Neal, who helped promote one of Liberty's low-income housing deals in Colorado ("He's a sweetheart," Liberty says).

Liberty began fixating on mobile payments in the late 1990s. He started with a wireless content company, Mobile Media, that in 2004 morphed into Affinity Mobile, which tried and failed to conduct an IPO. Around 2007 Affinity morphed again into Mozido and launched a prepaid mobile money-transfer product called Trumpet that targeted Hispanics and the unbanked. It was sold through RadioShack. Liberty claims Trumpet was the first mobile wallet in the U.S., filing a mobile-wallet patent around 2012.

Michael Liberty's backstory is part Charles Dickens, part Horatio Alger. A family tragedy hit him hard. "My life was ruined at 14 years old. I've never fully emotionally recovered."

"He has a natural sales ability, but it comes from his genuine conviction of this space," says pal Ted Field. "All he has done for the last years I have known him is evangelize" mobile payments.

But by 2008, court documents suggest, Liberty was claiming he was next to broke. In the late '90s two Liberty-controlled companies committed to invest $25 million in venture fund Keystone Venture V, which had raised $100 million, mostly from pension funds, for tech investments. Liberty never made significant investments, but he did hop on Keystone's advisory board, and the fund invested $27 million, some of which went to companies he owned or had invested in.

The SEC filed a complaint in 2006, accusing Liberty of working with one of the men who had set up the fund to improperly divert $9 million, with $4.5 million going to benefit Liberty directly. The remaining $18 million of the $27 million total investment was lost when the underlying companies failed, the SEC claimed. Liberty denied the charges but settled with the SEC in 2008, agreeing to pay $6 million. The SEC waived payment of $5.4 million based on the financial declaration of Liberty, who ended up paying only $600,000 over three years. "If a financial declaration was filed, inevitably this was a waiver for inability to pay," says Seth Taube, the head of securities litigation at law firm Baker Botts and a former SEC enforcement lawyer.

The SEC was not Liberty's only legal opponent in recent years. Liberty has battled James Stanley Jr., who worked for Liberty for 20 years and eventually served as CEO of Liberty Group. Liberty and Stanley ultimately had disputes over loans and benefits. Around 2013 an arbitrator found in favor of some of Stanley's claims and ordered Liberty to pay $1.8 million. Court records show the arbitrator also found that Stanley "occasionally assisted [Liberty and his corporate entities] in certain activities or was aware of actions . . . [that] could be said to mislead creditors, limited partners, other investors and regulators."

In another legal skirmish, Liberty sued Crystal and Jesse Biltz, Liberty's former partners in a preschool in Santa Monica, Calif. Cassidy Preschool opened its doors in 2009, with a Liberty entity as the majority owner. But by 2013 Crystal Biltz claimed the partnership no longer worked and then opened another preschool. Liberty sued the Biltzes for breach of contract. The Biltzes countersued Liberty. In February a jury found in favor of the Biltzes and awarded them $3.38 million. Liberty has since settled the case.

Liberty says that, given his 37-year career, he's been involved in relatively few lawsuits and that litigation is part of doing business. Given the current swirl around Mozido, which goes past lawsuits to cozy fees and a trajectory more notable for financial engineering than computer engineering, one could agree that for Liberty this *is* just business as usual.

Mozido has the potential to reach 1.5 billion people, Liberty says. But the startup won't say how many of those 1.5 billion actually use a Mozido-enabled mobile wallet.

AS WITH THERANOS, which has claimed to have a silver bullet in the area of blood testing but has never proved it, Liberty talks up Mozido's ability to provide payments services and products using its cloud-based technology with any mobile phone ever made to three kinds of clients: mobile network operators, retailers and banks.

Those clients, Mozido argues, will benefit from providing their customers with mobile payments services, including loyalty and engagement efforts. Mozido says it has already made more than 20 sales deals in July and has brought in $100 million in revenue in the past 12 months, a double-digit increase. But it declines to publicly name clients or point to specific accomplishments.

Liberty likes to tout Mozido's potential to reach 1.5 billion people because they're customers of phone carriers with which Mozido has partnered. That talking point comes largely from Mozido's acquisition of CorFire, which uses technology that allows a phone to conduct a transaction while close to a point-of-sale terminal. "We already have massive scale," Liberty says. "Nobody has the scale that we have."

Tellingly, Mozido won't say how many of those 1.5 billion people actually use a Mozido-enabled mobile wallet. One of the few clients Mozido publicizes, Deutsche Telekom, told FORBES its mobile wallet has been used by between 10,000 and 99,999 of its 40 million mobile customers in Germany.

While Mozido says it can't name its retail clients, it has publicized its work on the mobile payments apps of Dairy Queen, Dunkin' Donuts and a platform for a bottler of Coca-Cola in southeast Mexico. Dairy Queen's website shows that only 200 of its 4,400 stores in the U.S. participate in the MyDQ mobile payments program that Mozido started working on in 2013. A Dairy Queen spokesperson says it is "primarily a loyalty app, payments are optional." Meanwhile, the Dunkin' Donuts payments app that Mozido acquired in the CorFire deal has 20 million downloads—but last year Dunkin' Donuts jumped to a competitor for its newest U.S. mobile-payments project. "In the months I was there, never having a product launch for a company that was an eight-year-old startup" was surprising, says an employee who quit Mozido this year.

Mozido's other big acquisition, PayEase, connects Chinese banks and card networks, processing billions of dollars in transactions, mostly in China. It has long been a payment processor for Apple and represented more than two-thirds of Mozido's revenue over the past year, says CEO Bradley.

The deal came with a questionable provenance. Liberty says Mozido was introduced to PayEase by Jack Grubman and that Grubman was paid a fee by PayEase in connection for his services. Yes, that Jack Grubman, the 1990s telecom analyst barred for life from the brokerage business after the SEC charged him with issuing misleading research. Didn't this violate the ban? Grubman says that he provided PayEase with management consulting services but that PayEase needed a liquidity event to pay him and that his two introductions between Mozido and PayEase were focused on a business relationship rather than the merger.


When I grow up,
I want to be a
Teacher!
Last year, Sam was too sick to dream.
He has Primary Immunodeficiency or PI.
Thanks to the Jeffrey Modell Foundation,
he has been properly diagnosed and treated.
Now he's head of the class.
jm Jeffrey Modell Foundation
helping children reach for their dreams
info4pi.org
Because of the
Jeffrey Modell Foundation
I have a Chance!

According to the SEC, an individual seeking buyers for a company is soliciting buyers for a security, but Columbia University law professor John Coffee says that if the individual does it only once, that person would likely not be seen as being in the brokerage business. "I am not stupid," Grubman says. "I am more careful than you would believe."

Regardless, the $750 million deal—$135 million in cash, the rest in preferred shares at a hefty valuation—sapped Mozido's reserves, especially since some of its other deals have not worked at all. The company says it loaned $6.5 million to Appconomy, a mobile software company in Austin, Tex., but Mozido sued Appconomy in June, claiming the loan was in default and Appconomy had swindled Mozido to get it. In a statement, Appconomy denied the charges and said Mozido "appears to be a failing, would-be unicorn, in which huge amounts of investor capital have been consumed with little to nothing substantively to show for it."

Mozido executives say they are excited about turning banks on to mobile payments, citing JPMorgan Chase's Chase Pay. Liberty says Mozido just won a deal to provide services to a 27-bank consortium in Taiwan.

But Mozido will have to continue competing for business with big digital security companies that have long relationships in the banking sector, like Gemalto and Oberthur Technologies. "At Mozido there were a lot of starts along the way and nothing ever completed," says Ted Fifelski, president of SimplyTapp, a mobile payments software company that Mozido invested in last year. "Can you point to anything they have completed beside using their investors' money to buy other stuff?"

Even though Liberty's stake is putatively worth over $1 billion, his role in the company he founded remains enigmatic, though it's clear he pulls a lot of strings.

A FEW DAYS AFTER Mozido delayed payroll for the first time in April, its senior executives organized a meeting to calm employees, some of whom were heading for the exits. Bradley, the CEO, said there was an effort to raise new equity and debt financing. Before payroll was delayed again in the middle of May, employees were notified that a term sheet had been signed and a debt refinancing would close in three weeks. "To the victor goes the spoils," Bradley would later tell employees. That financing has not yet happened, but Liberty says the "recapitalization is in process literally as we speak."

Liberty's role in the company continues to be enigmatic—and self-serving. The largest shareholder putatively has no official role—not even a board seat—yet those familiar with Mozido say he clearly pulls a lot of strings, especially when it comes to financing and deals, and sometimes he reaps money for himself when he does.

It was Liberty who got Nicholas Adams, a partner at Wellington Management, to make its big anchor investment in Mozido, a person familiar with the matter told FORBES. Wellington also made the biggest investment in Powa, a U.K. mobile-payments unicorn that collapsed in February, as well as investing in another company Liberty founded, DaVincian Healthcare, which is based in the same Austin office building as Mozido. (Interestingly, Wellington does not have a Mozido board seat, despite its large investment.)

Liberty was paid a $1.25 million fee for his services in putting together a now-defunct joint venture with Mara Group, Ashish Thakkar's high-profile African conglomerate. The details of the arrangement were filed in New York State court by Derek Rundell and Gary "Court" Coursey, who have worked together at TomorrowVentures, Eric Schmidt's venture fund that invested in Mozido. Coursey and Rundell entered into a deal on behalf of themselves to put together the Mara joint venture with Mozido for a $2.5 million fee that would be financed by Wellington. Liberty, who claims to have worked "hundreds, if not thousands," of hours on the effort, struck a separate deal to get half of the fee, which Mozido claims was paid by Mara Group.

Liberty had another agreement with Coursey and Rundell that contemplated sharing other $2.5 million fees for additional Mozido joint ventures in India and the Middle East, but those deals never happened. "I don't draw any salary from the company, but if I bring an opportunity to the company and the company deems it appropriate, they can pay a compensation," Liberty says.

In November Liberty filed a defamation lawsuit that claimed Coursey, Rundell and former Mozido director Phil Geier were extorting Liberty and Mozido. All three deny wrongdoing. Coursey, Rundell and Geier claim that Mozido and Liberty cheated them out of equity stakes in the company, which Mozido denies. Geier and his family had earlier sued Mozido and Liberty in Delaware and Florida.

To some it might be unclear what all these guys are fighting over. The company, which loses money, still hasn't stemmed its cash-flow concerns. All those blue-chip directors are no longer on the board. Between those SEC and Justice Department subpoenas, the feds are clearly fishing for something, though it's unclear what or whether they'll find anything. And it's still not apparent how Mozido can justify its unicorn status. "In order to opine on the technology, one has to know 'what is behind the curtain,'" says a Mozido spokesman. "Those who know the details and the specifics are confident that the technology is next-generation state of the art."

In other words, trust us.

TRAGEDY WASN'T THE ONLY THING BORN ON 9/11. HOPE WAS BORN TOO.

9/11

TOMORROW TOGETHER

THIS 9/11 DAY, LET'S CREATE A BETTER TOMORROW. TOGETHER.
ALL IT TAKES IS ONE GOOD DEED.

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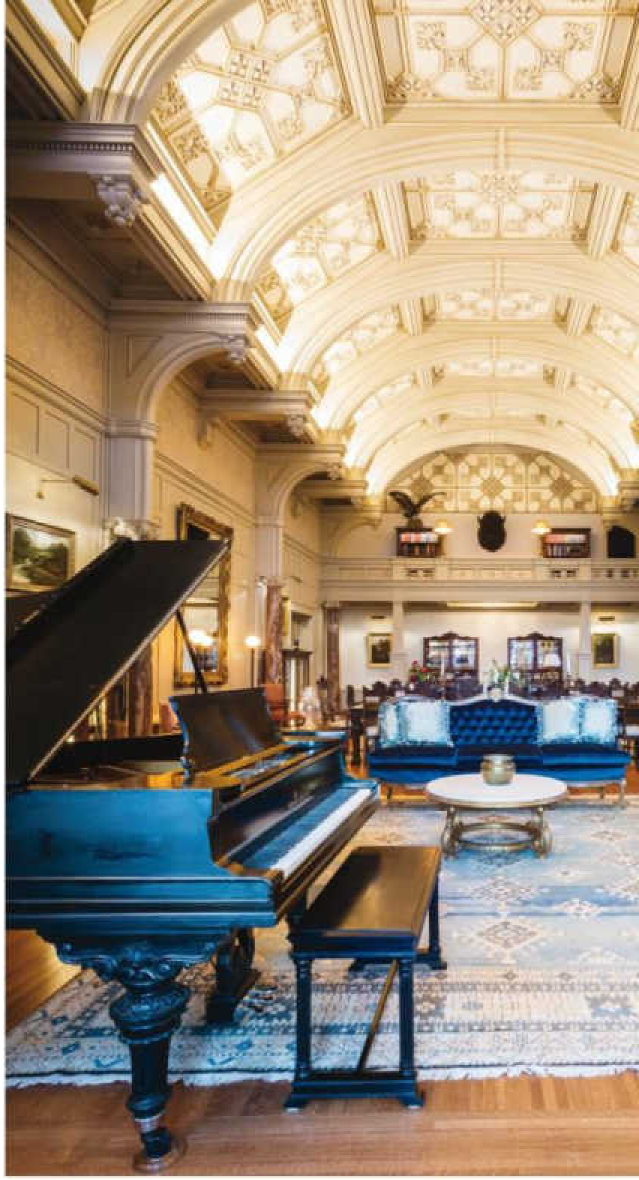


Big House On the Prairie

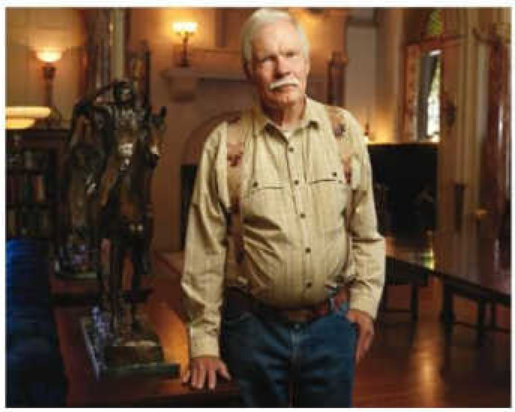
After a multimillion-dollar renovation, Ted Turner's New Mexico estate, Casa Grande, is now a luxury vacation rental—bison included.

BY ANN ABEL

When Ted Turner was a boy in Savannah, Ga., he loved to hunt and fish. After he was turned in to the local police for shooting a squirrel on a neighbor's property with a BB gun and fined by a judge, he had an epiphany. "I decided I was going to make a lot of money so I could buy my own damn land," the 77-year-old billionaire said in June at his Vermejo Park Ranch in northern New Mexico, one of 17 ranch properties he now owns. "And so I did."

Today Turner owns about 2 million acres across the United States, making him the second-largest private landowner in the country. (Billionaire John Malone has about 200,000 acres more—and has followed Turner's lead in land conservation and species preservation.) And while it's unlikely that Turner would admit he has a favorite property, his flagship is Vermejo Park Ranch, some 585,000 acres straddling the New Mexico-Colorado border, which he purchased in 1996. Turner made a home on this range—the mansion known as Casa Grande, which has just undergone a multimillion-dollar renovation and is now converted to a luxury guest estate.

"We've been told that it's the largest piece of contiguous private land in the United States under one ownership," he says. With Vermejo and his properties in southern New Mexico, the Armendaris and Ladder ranches, he owns about 1.1 million acres of the state. That's slightly bigger than Rhode Island, which has a population greater than one million.



TED TURNER: MARTIN SCHOELLER FOR FORBES; INTERIOR: JEN JUDGE

Ted's excellent adventure: Turner started buying land because of his love of hunting and fishing. Today Casa Grande sits on nearly 600,000 acres in New Mexico.

Turner started buying his land in the West

for hunting and fishing, but he's always seen animals as more than simply targets. His Turner Endangered Species Fund protects a variety of creatures, and his Turner Foundation aims to prevent environmental damage. He plans to place much of his land under conservation easement, to stave off future development, and has a particular fascination with bison, which were nearly extinct before he set about bringing them back. Turner started his bison herd some 35 years ago with 3 and now maintains about 52,000—they reproduce quickly and are a sustainable food source, he notes excitedly.

"I grew up in Georgia, so I never saw a mountain until I was an adult man," Turner says. Because he loves fly-fishing, he started buying remote land in Montana, widely regarded as prime wild-trout territory. But soon he wanted to expand. "I enjoyed my experience in Montana so much after all my life in the Southeast that I thought, well, I'd seen New Mexico in Western movies, so why don't I see what the Southwest is like? It's totally different. And when I got out here, I loved it, too. So here I am, with a million acres of the state." He adds that his ranches have an extraordinary diversity of flora and fauna, and notes that people on the coasts don't touch down here too frequently.

Turner is particularly proud of and sentimental about Casa Grande. It was built by wealthy industrialist William H. Bartlett at the turn of the 20th century (its architect was a mentor of Frank Lloyd Wright) and became something of a clubhouse for silent-film stars. After Turner purchased the ranch, the 25,000-square-foot house became his family's refuge. And after deciding to open it to paying guests—"I have too many properties to enjoy them all myself," he says—he committed to a four-year, $4.5 million renovation.

The result is stunning, with the Italianate mosaic floors revealed, a 1905 Steinway refurbished and eight bedrooms updated to 21st-century standards. (Rates start at $850 a night, double occupancy, and include meals and nonguided activities.) It's a luxurious upgrade over the simpler accommodations in the aptly named Casa Minor, right next to the main lodge (home to the dining room and bar) and in the newer, pretty Costilla Lodge, 25 miles away in the high country. Asked whether he hopes Casa Grande will pay for his investment, Turner notes that he already owns the land outright and it brings in profits from hunting, fishing and bison meat, so "if I do pick up any income, it will be found income. I don't need to make a lot of money. I'd like to make a little."

The new Casa Grande is also in line with Turner's plan to open his ranches to a broader swath of nature lovers—the luxury-seeking kind who would never stay at a typical hunting lodge. The aim is to re-create the national park experience on private, virtually uninhabited land. At Vermejo, unlike at, say, Yellowstone, you won't find 30 cars stopped with 100 people photographing one bison, he notes. You'll find just one car by a herd: yours.

Last year he started Ted Turner Expeditions at his three New Mexico ranches, with a mission to prove that the economically successful and the environmentally sustainable are not mutually exclusive. His TTX team added adventure and conservation-minded activities such as hiking, horseback riding and wildlife spotting with naturalist guides. Hunting and fishing remain the big draws, but the staff at Vermejo are enthusiastic and knowledgeable whether toting a fishing rod or a camera.

If all goes well in New Mexico (and at two other Turner properties, including an island off the coast of South Carolina), TTX will run operations at more of Turner's ranches. "Ecotourism is on the rise all over the world," he says. "Everybody is interested in the planet. It's the most interesting thing we experience in our lifetime. We don't know if there's life on any other planet. If there is, we're not going to see it in my lifetime. This is all we've got. We might as well enjoy it." *

FINAL THOUGHT

* *"Life is a great adventure ... accept it in such a spirit."* **—TEDDY ROOSEVELT**

TRENDING

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PERSON

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The 82-year-old fashion icon, whose first hotel is set to open in 2017, will design the lobbies of the Estates at Acqualina, Miami's new luxury residence.

COMPANY

PACK UP + GO

The travel startup, founded last year by 23-year-old Lillian Rafson, promises adventures for the truly brave: Vacationers don't know where they're going until they arrive at the airport.

IDEA

BULLETPROOF CLOTHING

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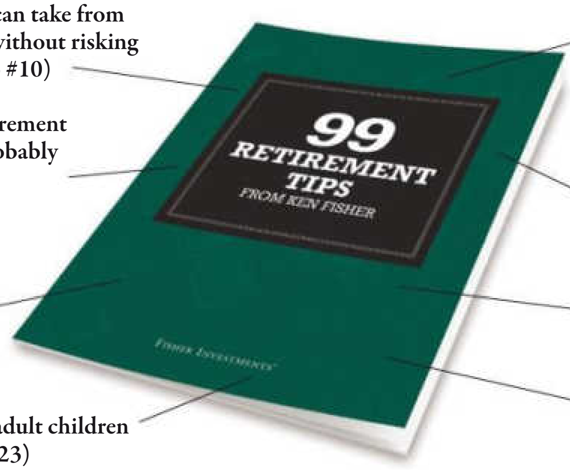

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On Education

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—MARSHALL MCLUHAN

"The truth of it is, learning makes a silly man 10,000 times more insufferable."

—JOSEPH ADDISON

"A professor is one who talks in someone else's sleep."

—W.H. AUDEN

"Bryn Mawr had done what a four-year dose of liberal education was designed to do: unfit her for 80% of useful work of the world."

—TONI MORRISON

"He knows the world and does not know himself."

—JEAN DE LA FONTAINE

"Education is simply the soul of a society as it passes from one generation to another."

—G.K. CHESTERTON

"TOO MANY COLLEGE RADICALS ARE TWO-TIMING PUNKS. THE ONLY REASON YOU SHOULD BE IN COLLEGE IS TO DESTROY IT."

—ABBIE HOFFMAN

"TIME IS A GREAT TEACHER, BUT UNFORTUNATELY IT KILLS ALL ITS PUPILS."

—HECTOR BERLIOZ

"We teachers can only help the work going on, as servants wait upon a master."

—MARIA MONTESSORI

"Learning: The kind of ignorance distinguishing the studious."

—AMBROSE BIERCE

"In the schoolroom more than any other place does the difference of sex, if there is any, need to be forgotten."

—SUSAN B. ANTHONY

"FOR IN MUCH WISDOM IS MUCH GRIEF, AND HE THAT INCREASETH KNOWLEDGE INCREASETH SORROW."

—ECCLESIASTES 1:18

"UNIVERSITIES ARE THE CATHEDRALS OF THE MODERN AGE. THEY SHOULDN'T HAVE TO JUSTIFY THEIR EXISTENCE BY UTILITARIAN CRITERIA."

—DAVID LODGE

FINAL THOUGHT

"An observation that in Boston is an accepted truth: If you're from Harvard, you can't count; if from MIT, you can't read."

—MALCOLM FORBES

SOURCES: SONG OF SOLOMON, BY TONI MORRISON; THE MAN OF THE TOWN, BY JOSEPH ADDISON; THE TIMES BOOK OF QUOTATIONS; THE DEVIL'S DICTIONARY, BY AMBROSE BIERCE; ELIZABETH CADY STANTON, EDITED BY THEODORE STANTON AND HARRIET STANTON BLATCH; NICE WORK, BY DAVID LODGE; THE ABSORBENT MIND, BY MARIA MONTESSORI; FABLES, BY JEAN DE LA FONTAINE; STEAL THIS BOOK, BY ABBIE HOFFMAN.


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