

PLANES,



DRONES, AND

BY DEVIN LEONARD

AUTOMOBILES

FOR UPS AND FEDEX, AMAZON'S BEEN GREAT FOR BUSINESS. NOW IT'S TAKING BUSINESS AWAY FROM THEM

AND

SHIPS

AND BIKES

SELF-DRIVING

AND TRUCKS

AND SEAWAYS...

PHOTOGRAPHS
BY JAKE STANGEL

LAST LAST FALL

when he was running for mayor of Wilmington, Ohio, John Stanforth heard a rumor. A big company was testing an airfreight operation at the local airport, Wilmington Air Park. Whoever it was wanted to keep the project quiet. People who frequented the airport said the company was wrapping its packages in black plastic to obscure any lettering and referred to its experiment as Project Amelia. He wasn't sure which company it was, though some people were whispering it was Amazon.com.

Stanforth, 71, owns a storage business and looks a bit like the actor Jeffrey Tambor. In November he easily won the mayoral election. But even then he didn't ask too many questions about what was going on at the airport. He didn't want to jeopardize anything by being too nosy. "Guys, just bring me the jobs," he recalls thinking.

Wilmington is about 35 miles southeast of Dayton and has a population of about 12,000. Jobs used to be plentiful. The air park was a hub for Airborne Express and then DHL, the German shipping company, which bought Airborne Express in 2003. Thousands of people toiled at the airport, sorting packages that arrived and loading them onto outbound planes. It wasn't the most spiritually rewarding work, but it paid well, enabling package handlers to patronize the shops on Wilmington's Main Street, to get haircuts in the barbershop and body illustrations at the tattoo parlor. Even the local bookstore did great business, especially when Harry Potter novels came out. "They shut down the main street," Stanforth says wistfully, about the release party the store threw in 2007 for the seventh book in the Potter series. "There were people everywhere. Our

Rotary Club made \$1,000 selling shaved ice. A thousand bucks!"

In 2008, DHL shuttered its Wilmington operation, and almost everybody at the air park lost their jobs. "It was devastating," Stanforth says. "You can't lose that kind of an industry in a small community and not be hurt." The following year, the city was featured on a *60 Minutes* segment as a symbol of recession-ary America. "When President Obama spoke of 'the winter of our hardship' in his inaugural address, no one in America understood that better than the folks we met in Wilmington, Ohio," correspondent Scott Pelley said.

Starting in September 2015, people in the city noticed more planes flying in and out of the airport, loading and unloading those black-wrapped boxes. This March, Amazon announced that it was leasing 20 Boeing 767s from Air Transport Services Group, a cargo company that operates out of the air park. Amazon had also negotiated an option to buy nearly 20 percent of the company. "We're excited to supplement our existing delivery network with a great new provider, ATSG, by adding 20 planes to ensure air cargo capacity to support one- and two-day delivery," Dave Clark, Amazon's senior vice president for worldwide operations, said in a statement at the time. Amazon denies wrapping its boxes in black during the trial period.

Two weeks after Amazon's announcement, I meet with Stanforth in a conference room outside his office at the municipal building. He's joined by Marian Miller, his lively executive assistant, and Bret Dixon, Clinton County's economic development director. Amazon still hasn't said much about its plans for the air park, but Stanforth is hopeful there will be some jobs soon.

The mayor, who wears a green fleece jacket and confesses to being a little hard of hearing, lets his younger colleagues do most of the talking. "We don't know what it's going to do yet," Miller says, "but we're crossing our fingers. We have people that like slinging packages."

It's hard to tell who's more pro-Amazon, Miller or Dixon. "They're changing the face of e-commerce," Dixon says.

"They are a feel-good company," says Miller. "Who wouldn't want a feel-good company like Amazon? Look at the way they treat their customers and their employees!"

The conversation turns to those Harry Potter events. Stanforth perks up. "Well, we had a local bookstore that really

promoted it and took the initiative," he says. "Sad to say, it's closed up. Wonder who closed them up?"

Miller gives him a look. "Don't say it." "Where does everybody get their books now?" Stanforth says, grinning.

"Don't say that," Miller warns him again.

"Amazon," Stanforth says.

"I knew you were going to say it," Dixon says, shaking his head.

Two months after the Ohio announcement, Amazon leased 20 more jets from Atlas Air, an air cargo company based in Purchase, N.Y. Amazon has also purchased 4,000 truck trailers. Meanwhile, a company subsidiary in China has obtained a freight-forwarding license that analysts say enables it to sell space on container ships traveling between Asia and the U.S. and Europe. In short, Amazon is becom-

ing a kind of e-commerce Walmart with a FedEx attached.

and it's building three tree-filled biospheres in the city that will allow workers to take contemplative breaks, like so many Ralph Waldo Emersons in Jetsonian luxury. The company is the fifth-most valuable in the world: Its market capitalization is about \$366 billion, which is roughly equal to the combined worth of Walmart, FedEx, and Boeing.

For years, Amazon lost money as Chief Executive Officer Jeff Bezos ignored Wall Street's concerns and poured billions into such initiatives as e-readers, robot-enhanced warehouses, smartphones, tablets, and television shows. Yet in July, the company posted its fifth straight quarterly profit. Amazon Web Services, its cloud computing division, alone had

Research Partners estimates that Amazon had 63 million Prime members as of late June—19 million more than the year before. Amazon keeps subscribers in the fold by lavishing them with perks such as free access to Amazon Video, the Kindle Owners' Lending Library, and trial subscriptions to the *Washington Post*, which Bezos, a billionaire many times over, purchased for \$250 million in cash three years ago. But more than anything, Prime members sign up for that fast shipping, which keeps getting faster. In many large cities, subscribers can now get free two-hour delivery on more than 25,000 items they might otherwise have bought at Walgreens or 7-Eleven. For an additional \$7.99,

says Gene Munster, an internet industry analyst at Piper Jaffray. "In 2020, which is only four years away, we expect them to sell 12.6 billion items."

In June, Deutsche Bank released a report predicting that Amazon will eventually have a global shipping operation capable of moving goods directly from factories in China to customers in the U.S. and Europe, using not just 767s and container ships, but also self-driving trucks and drones. The report also said Amazon has a patent for "anticipatory package shipping" technology, which is just what it sounds like: When some Prime subscriber buys more deodorant, Amazon already has the box standing by, ready to label and ship. "It's just one giant math exercise," Deutsche Bank wrote, adding that Amazon has "hundreds of Ph.D. mathematicians" who spend their days optimizing logistics.

Others believe that Amazon will make a business out of its delivery network, as it did with Amazon Web Services, thereby challenging the world's leading shipping companies. "I fully expect Amazon to build out a logistics supply chain that others can use," says John Rossman, a former Amazon executive who's now a managing director at the restructuring firm Alvarez & Marsal. "Over the next five years? I doubt it. Over 10 or 15 years? Oh yeah."

Amazon cooperated with this article, but barely. I had a friendly conversation in Seattle with Clark, the guy in charge of delivery. It lasted for 12 minutes. Amazon said Bezos wasn't available.

Bezos did, however, briefly discuss his plans for delivery in June, onstage at Recode's third annual Code Conference in Rancho Palos Verdes, Calif. He took a seat in a red leather chair beside Recode co-founder Walt Mossberg, who would be his amiable inquisitor. Bezos fielded questions about everything from Blue Origin, his space exploration venture, to the *Washington Post*, to Amazon's own physical bookstores, which are opening in cities such as Chicago, Seattle, and Portland, Ore. The one thing Mossberg didn't mention was Bezos's recent appearance in *Star Trek Beyond* as an alien with a long, dimpled head that looks like a giant pecan. But before Mossberg got to all that, he brought up the white trucks with Amazon's logo that he'd been seeing around his neighborhood.

"Personally, I'm utterly astonished sometimes that this box

"THIS YEAR WE ESTIMATE AMAZON IS GOING TO SELL 7.2 BILLION ITEMS"

Amazon unveils its first Prime Air Boeing 767 in Seattle



ing a kind of e-commerce Walmart with a FedEx attached.

With any other company, an expansion like this would be preposterous. But Amazon's growth has been preposterous. In 2010 its annual revenue was \$34 billion; last year, \$107 billion. In 2010 the company employed 33,700 workers. By this June, it had 268,900. To have enough office space for its swelling headquarters staff, Amazon has swallowed Seattle's South Lake Union neighborhood,

sales of \$7.9 billion last year. "We could have stuck to the knitting," Bezos wrote in Amazon's most recent annual report. "I'm glad we didn't. Or did we?"

Amazon's ambitions depend on the continued success of its Prime service. For \$99 a year, Amazon Prime customers get two-day delivery at no extra charge. Those who sign up tend to spend almost three times as much as their non-Prime peers. The company zealously guards its numbers, but Consumer Intelligence

on shipping—nearly twice what it did two years ago. Along with leasing jets and buying trailers, Amazon has opened more than 28 sorting centers, 59 delivery stations that feed packages to local couriers, and more than 65 Prime Now hubs stocked with best-selling items that can be rushed to customers around the world, according to MWPVL International, a Montreal-based supply chain consultant. "This year we estimate Amazon is going to sell 7.2 billion items,"

orders arrive within an hour. Some company executives joked that the service should be called Amazon Magic; they went with Prime Now.

Providing near-instant gratification on Amazon's scale isn't cheap. Last year the company spent \$11.5 billion



shows up on Sunday, and I only bought it on Saturday at 7 o'clock," Mossberg said.

Like a lot of other people, he wanted to know what was going on. "Are you aiming to take over that last mile?" Mossberg asked.

Bezos shook his head. He said Amazon was creating a delivery network that added to—and didn't replace—those of FedEx, UPS, and the U.S. Postal Service. "It's not that we are trying to take over," he said.

"You're not trying to put FedEx out of business?" Mossberg prodded him.

"No," Bezos said.

"Or get better prices from them?"

"No, in fact what we want..." Then Bezos paused for a moment and smiled. "Well, we'd always like better prices," he said. "Yeah, feel free." The audience laughed, and Bezos completed his thought: "We will take all the capacity that the U.S. Postal Service can give us and that UPS can give us and we still need to supplement it. So we're not cutting back. We're growing our business with UPS. We're growing our business with the U.S. Postal Service."

Bezos has been consumed with delivery since he founded Amazon in 1994. After all, if he couldn't get orders to people fast enough, they'd just buy stuff in stores. Rossman, the former Amazon executive, says Bezos and his team also saw delivery as a way to fend off competitors who might have wanted to get into e-commerce—in particular Google, and later Facebook. "They've always thought one of their best defenses against Google and Facebook was that they don't understand logistics," Rossman says.

In 1999, Amazon invested \$60 million in Kozmo.com, a startup whose orange-suited bike messengers provided one-hour delivery of sundries in New York, San Francisco, and a few other cities. When Kozmo imploded in 2001, alongside many other companies from the first dot-com boom, it was widely ridiculed as one of the more misguided endeavors of the era, along with failed online super-market Webvan.

Amazon learned a different lesson. When it entered developing countries such as China and India, it used bike messengers to provide Kozmo-style delivery. Amazon also hired former executives from Webvan to launch AmazonFresh, a grocery delivery service that began in 2007. But what really pushed the company into building a much larger-scale delivery operation was Prime.

Following its 2005 introduction,



Keeping workers connected, and motivated, at a Seattle Prime Now hub

Prime attracted around 8 million members in five years, according to Deutsche Bank. To fulfill the promise of free two-day delivery, Amazon had to rush many of their orders using pricey expedited services at FedEx and UPS. By 2011, a former Amazon executive says, the company realized it would soon overwhelm FedEx and UPS during the holidays: "We were just going to blow them out of the water." So, he says, Amazon decided to create an alternative.

The company tried the United Kingdom first. "We've created our own fast, last-mile delivery network in the U.K., where commercial carriers couldn't support our peak volumes," Bezos said in his 2013 annual letter to shareholders. "There's more innovation to come." The timing couldn't have been worse for the Royal Mail, which had gone public that same year. The service had seen its letter volume decline, but predicted that package delivery would make up the difference. After Amazon started delivering many of its own boxes, the Royal Mail's package volume in the U.K. all but flatlined. "That growth has now completely disappeared because of Amazon," says David Kerstens, a European transportation analyst at Jefferies International in London. The Royal Mail disputes Bezos's contention that it couldn't handle all of Amazon's packages. It declined to comment further.

At home, Amazon cozied up to the U.S. Postal Service in an attempt to reduce its dependence on UPS and FedEx. In November 2013 the Postal Service announced it would deliver Amazon packages on Sunday. Amazon also began building a chain of sorting centers that used machine learning to



One of many corporate mantras on display for workers at the facility

separate boxes by ZIP code and hurry them directly to the proper post offices for home delivery.

None of these efforts were enough to avert the Great Failure of 2013. That November, I happened to be at the UPS Global Operations Center in Louisville, working on a piece about an executive named Scott Abell, who was known at the company as Mr. Peak because he spent his entire year planning for the Christmas rush. Abell was cordial, but his mind was clearly elsewhere as he chatted in his division's cubicle farm. He was frustrated by what he described as a large customer's decision to radically increase the number of packages it wanted UPS to process on the weekend before Christmas.

Because of this surge, Abell said, he'd just spent five days coming up with a plan that called for more planes, extra package handlers, and double shifts at UPS's gargantuan Worldport sorting center in Louisville. Abell wouldn't name the vexing customer. But Jay Dennis, communications director for Teamsters Local 89, which represents Worldport workers, later told me it was Amazon. Even so, in December, UPS was swamped with Amazon packages and struggled to meet its deadlines. So was FedEx. Amazon made no secret of its displeasure. "Amazon fulfillment centers processed and tendered customer orders to delivery carriers in

FEDEX CEO
SMITH

CALLS THE IDEA OF AMAZON

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time for holiday delivery," an Amazon spokeswoman said at the time.

"People blamed UPS," says Robert Lieb, a professor of supply chain management at Northeastern University. "But the reality of the situation was Amazon dumped significantly more volume on UPS on Dec. 23 than they had agreed to give them. I mean, you can't go out and lease

more planes the day before Christmas, and you can't put additional workers on." Amazon and UPS prefer not to discuss the incident, but Steve Gaut, a UPS spokesman, says his company worked out a system so that it has more "visibility" into its customers' holiday loads.

Either way, Amazon accelerated its effort to avoid any more holiday snafus. By the end of 2014, it had 23 sorting centers in the U.S. "A blitz is the way to describe it," says Ben Conwell, a former Amazon real estate executive involved in the construction spree. "Those buildings couldn't open fast enough." The same year, Amazon launched Prime Now in New York, with couriers who drove cars, rode bikes, and took public transportation. "They have people riding the subway in New York with carts loaded up with Amazon boxes," says Marc Wulfraat, founder of MWPVL, the supply chain consultant. "They use students, hustlers, people who are just trying to make a buck." Amazon has since extended Prime Now to more than 40 cities. The service's most popular items are bottled water and toilet paper, though the company also recently said it had delivered 300,000 condoms since Prime Now's debut. Try calling FedEx next time your bedside drawer is empty.

Last September, Amazon introduced an on-demand delivery program called Amazon Flex. With Flex, people with transportation and some time on their hands log in to an app, indicate their availability, and then pick up and deliver Prime Now packages, much as Uber drivers do with people. Amazon Flex deliveries come in handy when there's an unexpected surge in Prime Now orders, such as before a blizzard on the East Coast when the entire island

of Manhattan is stocking up on canned soup. In the early hours of July 31, it was Flex couriers who transported copies of *Harry Potter and the Cursed Child* to Prime Now customers.

There's a downside to all of this, of course. Wherever Amazon directs its accelerating river of cardboard boxes, there's a good chance that local resistance will arise. City officials in Hamburg say Amazon withdrew its plan to put a distribution center near a senior center

and a kindergarten after residents, politicians, and even local police objected. "Amazon didn't feel the need to get in touch with us, even after local media picked up on it," says Michael Osterburg, a local Green Party leader. In June, Anne Hidalgo, mayor of Paris, protested the arrival of Prime Now in her city, warning that it would foul the air, snarl traffic, and damage local businesses. "This operation may seriously destabilize the Parisian trade balances," Hidalgo said. "This large American company did not see fit to inform Paris until a few days before the launch."

UPS and FedEx have shrugged off Amazon's threat to their business, in public anyway. On a conference call in February, UPS CEO David Abney was diplomatic: "Amazon's a good customer of ours. We have a mutually beneficial relationship." In an investor call the following month, FedEx CEO Fred Smith scoffed at the notion that Amazon might challenge his company, calling it "fantastical." Lieb, the Northeastern professor, who's been talking to CEOs in the shipping industry for 23 years, says they're less confident in private. "When Amazon was talking about same-day delivery, people said, 'Who cares? We don't want that business anyway,'" Lieb says. But once Amazon began leasing planes, they started to worry. "Amazon's market entry strategy has pretty much been 'I'm going to come in and I'm going to beat you to death with low prices,'" he says. "If Amazon follows that tactic, they would destabilize this industry rather quickly."

The fear has spread to Wall Street, where analysts say investors worry about what Amazon's strategy means for the shipping industry. "The natural

inclination among any observers of the market when they see Amazon is to be scared," says David Vernon, a Sanford C. Bernstein analyst who tracks the shipping market. "Amazon is the epitome of a zero-sum game."

"Please, no social media," says an Amazon press relations person who, with his shaved head, looks a bit like Bezos. "I know it's tempting, but you must respect the embargo."

It's a fine Thursday morning in Seattle. Amazon has shepherded more than a dozen journalists in a white bus to the private unveiling of its first Prime Air plane at a Boeing hangar on the city's south side. A Boeing 767 is positioned to show off the Prime Air logo, painted in a friendly shade of light blue on the white fuselage. The tail is adorned with Amazon's familiar swish—"the Amazon smile," as a press handler helpfully points out. The next day the plane, which is called Amazon One, will make its public debut at the summer Seafair festival, flying over Seattle before a performance by the famous Blue Angels.

Clark, Amazon's worldwide operations chief, walks up to a podium flanked by stacks of shipping boxes. With his plaid sport coat, blue shirt, boot-cut jeans, and slight paunch, Clark doesn't look like an executive at a company that terrifies whole industries. He looks more like a junior high school band director, which he was before getting his MBA in supply chain management at the University of Tennessee at Knoxville and joining Amazon 17 years ago. "It's really kind of a surreal day," he says. "I have to tell you, it's hard to not be a little bit giddy. This is the first time I've actually seen the plane in person."

Clark spends the next half-hour chatting amiably to reporters about what he calls "the beautiful plane." He's cagey about the ocean freight-forwarding license, but he confirms that Amazon has one, and that it's mulling how to use it. "Our China team is a very creative group," he says.

What about the mayor of Paris, who doesn't relish Amazon's delivery people racing through her city's streets carrying toilet paper and condoms? Clark smiles and says, "The team is working closely there to make sure everybody is happy."

Then Clark is done. He needs to leave to prepare for another "surreal" day tomorrow at Seafair. "I have two little boys," he says. "At least for this weekend, I get to be a very, very cool dad." —With Spencer Soper, Nicholas Brautlecht, Richard Weiss, and Carol Matlack