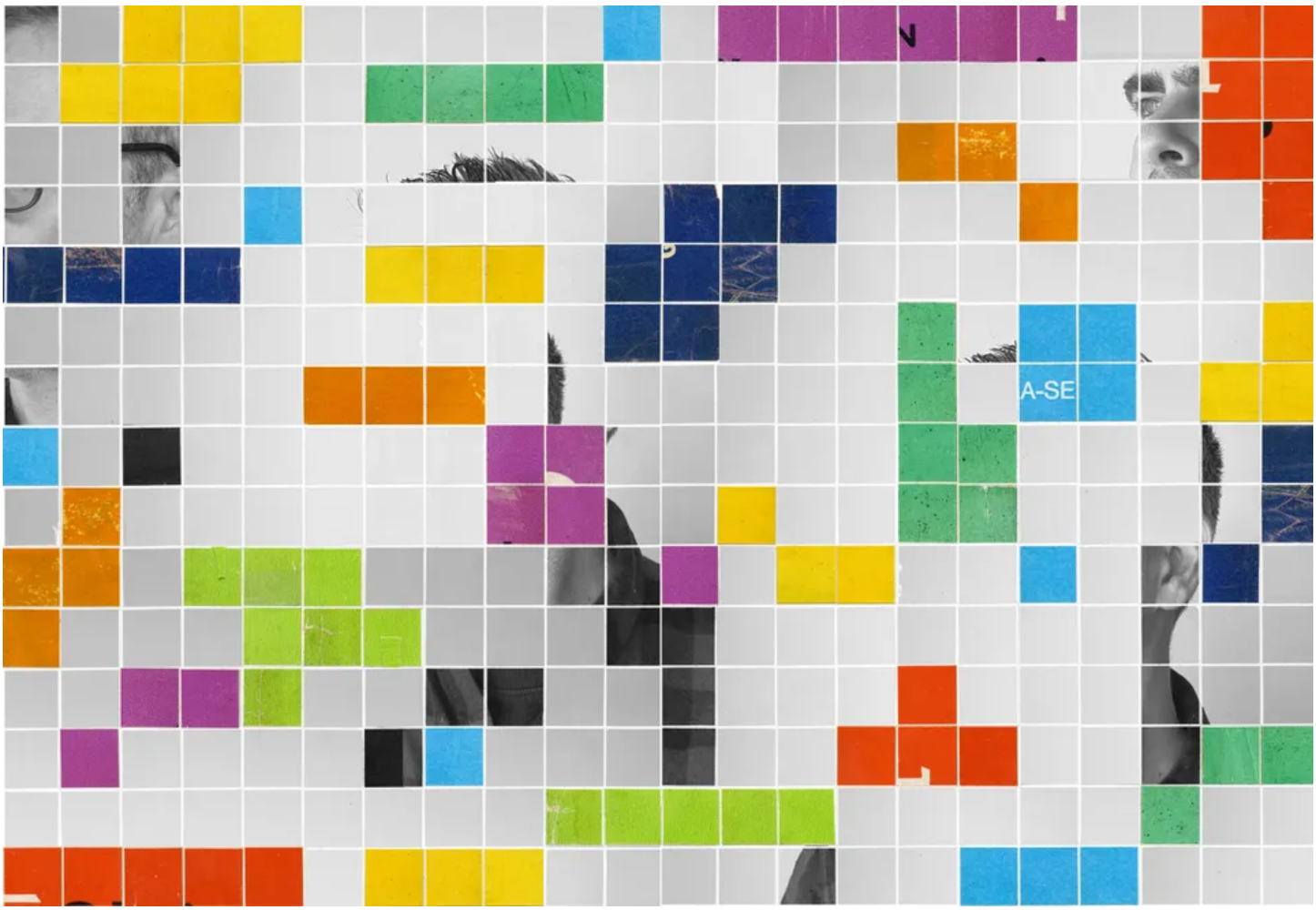

Collectors came up with creative uses for their CryptoPunks. They used them as profile pictures on Twitter and Discord, built digital identities around them, and created a rich web of communities. ILLUSTRATION: ANTHONY GERACE

SANDRA UPSON BACKCHANNEL 11.11.2021 06:00 AM

The 10,000 Faces That Launched an NFT Revolution

When two Canadian coders started an online project called CryptoPunks, they had no idea they'd spark a hyped-up, blockchain-fueled cultural juggernaut.

ON JUNE 11, 2017, in the late afternoon, Erick Calderon was in the back room of the tile-importing warehouse he owns, printing product stickers. The printer was slow, so he

padded across the blue-carpeted floor, past his cryptocurrency-mining rig, to his computer. He opened up Reddit and glanced at the latest posts. His eyes landed on one from a user named megamatt2000: "CryptoPunks: An experiment in digital collectibles on Ethereum." Calderon clicked and found himself staring at a grid of 10,000 tiny, pixelated faces.

The site offered a simple description of the collectibles. "Most are punky-looking guys and girls," the text read, "but there are a few rarer types mixed in: apes, zombies, and even the odd alien." Calderon started clicking on Punks. Every face led him to a new page listing its attributes, including what accessories it wore and how many other Punks had them. A Punk with a police cap (a relatively rare trait), a cigarette (a common one), and an eye patch (less so) gave off a Village People vibe. A woman with a bright red mohawk (rare!) and matching lipstick (so-so) looked ready to kick you in the shins. The Punks with "wild hair" somewhat resembled Calderon himself, with his mop of unruly dark curls. He had happened on a two-day-old project by a small tech consultancy called Larva Labs. He clicked and clicked—and kept clicking.

Calderon, who runs his tile business in his hometown of Houston, is also an artist who uses algorithms. So when he saw the 10,000 CryptoPunks, he immediately understood the project: This was generative art, a style that dates back to at least the 1960s and mainframe computers. Early practitioners used large, shared machines at research labs to write simple programs that produced geometric drawings, often executed on paper by pen plotters. The artists wrote randomness into their algorithms to push past the limits of their own creativity.

The Punks didn't look like those earlier works. They were charismatic. But they too were composed by a piece of software using algorithmic dice rolls. Made up of a tiny number of pixels—four for an eye, roughly the same number for a mouth—the faces make efficient use of their screen space. Calderon was struck by their larger-than-life magnetism, with some seeming to smirk and others shooting a side-eye. "Pure genius," he remembers thinking. Text on the Larva Labs website invited people to claim a Punk as their own, for free. All you needed was a cryptocurrency wallet on the Ethereum blockchain with enough money in it to cover a roughly 11-cent transaction fee.

Calderon knew his way around that blockchain. He had recently, on a lark, taught himself how to write an Ethereum smart contract. Typically, such programs let you subject money

to certain rules. His first attempt was a gift for his best friend's new baby: He created a smart contract for her, transferred 10 ether (then about $130) into it, and wrote a few lines of code that would prevent her from gaining access for close to 550 million seconds—the length of time until she turned 18. The experience had been eye-opening. "The fact that I, as a fairly novice developer, could make money smart—my mind exploded," he says. He started wondering whether smart contracts could add complexity to other kinds of assets.

As Calderon dug deeper into the CryptoPunks site, he says, he almost started to panic. "Oh my God, this is it," he realized. "All my little thoughts I'd been thinking, they're doing it, and it's live now!" This project wasn't anything akin to putting a countdown timer on a safety deposit box, like the gift he had made. It was more like opening a bazaar in cyberspace. A piece of software had generated digital works of art, and the accompanying smart contract provided the infrastructure for people to buy and sell them. The CryptoPunks were non-fungible tokens—unique digital assets—on the blockchain long before *NFT* became a household term.

Calderon was eager to claim some Punks, and he had a little ether in his wallet. He rushed home and scrambled to set up his laptop on his kitchen island. His wife tried to ask him questions, but he barely heard her. "Can't talk right now!" he said as he waited for the wallet to load.

The Cryptopunks: 1. Punk 5124: She is one of 147 Punks who have a blond bob and one of 332 wearing a VR headset. **2.** Punk 5224: His luxurious beard can be found on 286 Punks, while 414 have finger-in-socket red hair. This Punk sold in April for $66,664. **3.** Punk 1478: One of 88 zombies, this bearded, wild-haired Punk is Erick Calderon's avatar on Discord and Twitter. **4.** Punk 4344: She is one of 382 with green clown-eye makeup; 696 have red lipstick. Her creators call her coif "frumpy hair.

5. Punk 3435: She rocks a sporty headband (406) and has purple lips (655). Serena Williams owns a nearly identical Punk. **6.** Punk 7804: Only nine aliens exist. The cofounder of the startup Figma, Dylan Field, sold this one in March for $7.57 million. **7.** Punk 1629: Claire Silver's avatar is set apart by her black lipstick (617) and the rare "pink with hat" trait (95). **8.** Punk 5724: This woman is one of 461 Punks with an eye patch and one of 447 with wild hair. COURTESY OF LARVA LABS

The rarest Punks—the aliens and apes—had already disappeared, their backgrounds changed from blue to green. Calderon decided to go after the zombies, of which there were only 88 in the whole set. Whenever he saw a Punk with bloodshot eyes and putrid green skin, he made note of its corresponding number and executed the smart contract command to claim it. By the time he ran out of ether, he had grabbed 34 zombies, a Punk that reminded him of his wife, and another that he thought resembled a friend. "I felt a little foolish," he says, "but it felt right."

The initial buzz carried over to the secondhand market. Collectors began meeting on the Discord platform to boast and gawk and talk about sales. They honed their collections using marketplace commands in the Larva Labs smart contract, such as offerPunkForSale() and buyPunk(). Prices rose quickly, from $3 to $100 to $300. On July 1—when the CryptoPunks project was all of three weeks old—an alien sold for $2,680. That September, Jonathan Mann, a musician who has written a song every day for a decade and now sells them as NFTs, wrote about the Punks. One line went, "A crypto fever dream, tell me, what does it mean?"

Two months later, a Canadian venture firm called Axiom Zen used elements of the CryptoPunks smart contract to launch its own line of NFTs, the CryptoKitties. Collectors could breed colorful, bug-eyed cats to produce new creatures, which could in turn be sold and bred. With its gamelike nature and its promise of profit, CryptoKitties drove the fever up and up. Within days, the price of rare CryptoKitties soared to more than $100,000.

Fever dreams are a classic symptom of capitalism, familiar to anyone who has hit it big or lost it all in the past 400 years. At their core is a belief in the value of an asset. For this crypto dream to work, people have to take it on faith that when you link a digital file to a blockchain, you're able to make an infinitely copyable object unique. It's still a niche conviction, but people seem to come to it in waves, like congregants to a summertime tent revival. The lulls in between are known as crypto winters. If you're strong and lucky, you get through winter and ride the next wave to a payout.

In the spring of 2020, Calderon sold off five zombies for about $15,000 each. He and his wife used the money to build a second home made of shipping containers on land they owned in the arty enclave of Marfa, Texas. He nicknamed it the Zombie House. Later that year, as prices skyrocketed again, he launched an NFT sales platform of his own.

But the Punks' power has gone well beyond funding one family's desert retreat. They have created whole new communities. They have infiltrated fine art auction houses; in one wild moment in June, an auctioneer at Sotheby's banged his gavel at $11.75 million for an alien wearing a surgical mask. The total value of CryptoPunk sales—all the money people have spent on Punks to date—has surpassed $1.5 billion. They have driven both Jay-Z and Snoop

to adopt look-alike Punks as their Twitter avatars. They have thrown into question the nature and value of art. But can they answer the question in Mann's song? Can they explain how a group of people came to believe that a bunch of images and a rough-edged technology could be worth such staggering sums?

John Watkinson, who has a PhD in electrical engineering, was the driver of the Punks'

look, adding wacky hair, pipes, and hats. He figured the aesthetic would resonate with crypto enthusiasts. PHOTOGRAPH: JOHN WATKINSON

JOHN WATKINSON AND Matt Hall, the two-man team at Larva Labs, stumbled on the idea for CryptoPunks while talking about their childhoods. They didn't know each other as kids, but they might as well have: They both grew up in Ontario, both collected hockey cards and Magic: The Gathering cards. They both got hooked on computers early—Hall after discovering a friend's Atari and Watkinson after playing games on a friend's Commodore 64. "I just loved that this was the ultimate creative tool," Watkinson says.

Both were also lanky, T-shirt-and-jeans-wearing computer science majors at the University of Toronto. They became friendly while working on a class project, but they didn't start hanging out until after graduation. One day they ran into each other on the street and ended up talking about their shared love of creative programming. "It was almost like asking each other out on a date," Watkinson remembers. "Like, do you like to work on weird projects with computers?" They started meeting every Tuesday night at Hall's apartment to code for fun.

When it came time to find a cool tech job in Toronto, they both felt stuck. "I thought I was going to be at a job at an insurance company, writing insurance software," Hall says. In 1999, the friends independently decided to move to New York to search for something better. When they realized they had drafted the same plan, they figured they should just become roommates. They both bounced from job to job but kept up their habit of coding together at night and on weekends. A few years later, as smartphones were emerging, they found a niche developing apps for an early handset, the T-Mobile Sidekick, and committed to their creative partnership full-time. They gave themselves the name Larva Labs. In 2011 they coded an app for Google called Androidify, which let people customize the company's green Android mascot into a personal avatar by selecting its skin tone, clothing, and accessories. The app was a surprise hit, and for a while fans of Google's operating system used the avatars as their profile pictures on Twitter. Through that app and others, Watkinson and Hall developed a nostalgic look, rooted in the limited graphics of the computers they grew up with—simple, cartoonish shapes with clean lines and bright colors that seem to belong nowhere more than on a screen.

Despite their successes, though, the duo felt like they weren't living up to their potential as

a team. At one point they tried to launch a legal-documents startup, but they failed to raise the needed money. They worried they were swerving from project to project without real direction.

> Within 24 hours, all the Punks were gone; one man who saw the post amassed 758 of them.

One day in the spring of 2017, the two men were talking about Watkinson's nieces; the girls had started collecting different kinds of toys with an enthusiasm that reminded them of their own youthful hobbies. Watkinson wondered what it would take for someone to feel as excited about collecting digital trading cards. The main problem, of course, was that because any digital good can exist in limitless, identical copies, no single instance of it is special. To be collectible, the two knew, an object had to be scarce. The toy company Ty started selling Beanie Babies in 1993, but the collecting craze didn't begin until the maker stopped producing some of its original designs.

So how do you make a digital object seem hard to get? Hall, who had been reading about Bitcoin, thought a blockchain, with its time-ordered record of transactions, might be useful. People put a certain price on bitcoins because everyone agrees on how many of them exist. "That's digital rarity," he figured.

Hall poked around online and discovered that another developer, Joe Looney, had used the Bitcoin blockchain to trade digital images of Pepe, the cartoon frog co-opted by the Trumpist right. That project relied on an extra technological layer Hall didn't understand, and he couldn't figure out how to procure a Pepe.

He kept researching and soon decided that Ethereum was a better starting point. In a 2013 white paper, the cryptocurrency's founder, Vitalik Buterin, had pitched a blockchain that, unlike Bitcoin's, came with its own fully functional programming language. The language could be used to write small programs—smart contracts—that would allow people to do more than just exchange money. People could record property ownership, offer insurance, start a decentralized corporation—or trade digital assets.

Hall and Watkinson started to learn one of the Ethereum programming languages, Solidity,

and dug into writing their own smart contract. They discovered they could create things called tokens to represent any digital asset. When a person bought some, the smart contract would store the balance and link it to the buyer's identifying address.

For Hall and Watkinson, though, the idea was only a partial solution. The Ethereum tokens were all interchangeable, but for a set of digital collectibles they needed to track the identity of individual tokens. After a bit of tinkering, they discovered they could get the blockchain to associate a person's address with a token's identifying number. With that small insight, the two had found a way to make fungible tokens non-fungible.

Watkinson had been working on designing a set of digital cards that were compelling enough to be worth collecting. He made some basic heads, along with accessories to layer over them, and then worked away at a piece of software—the "generator" in the generative art—that could compose thousands of unique but plausible faces. Loosely inspired by his experience with Androidify, Watkinson played around with the characters' looks, adding hair styles, pipes, hats. He zeroed in on a punky look, which he felt resonated with crypto enthusiasts' defiant bent. "I liked that it was very counterculture and sort of funky and kind of flying in the face of the establishment," Watkinson says.

When the generator was nearly finished, Watkinson joined Hall in figuring out how to write the basics of a marketplace into their smart contract, so that people could buy and sell Punks.

The biggest issue was getting their wares onto the Ethereum blockchain. If they uploaded each face individually, the transaction fees would be far too high. This was a problem. If the images weren't themselves on the blockchain, would anyone believe they owned a CryptoPunk? Watkinson and Hall decided to go with an imperfect solution: a hash. They fed a composite image of all the Punks—the grid of 10,000 faces—into a hashing algorithm called SHA-256, which cranked out a 64-digit signature. Hall tucked the number into their smart contract. If anyone tried to tamper with the master image (by, say, transforming the pyrite of a stringy-haired goatee guy into the gold of an alien), a skeptic could double-check the image by running it through that algorithm. Only the original image, with every pixel precisely intact, would generate the signature.

In their smart contract, they reserved the first 1,000 Punks for themselves. Hall published the contract to the blockchain and posted a link to their website on Twitter and Reddit.

They were met, mostly, with silence. In the first five days, a handful of people, Calderon among them, found the project and snapped up the rarest Punks. "We were feeling sort of silly," Watkinson says, when only a few dozen of them had been claimed. Then, on June 16, the tech site Mashable published a post with an eye-catching headline: "This Ethereum-Based Project Could Change How We Think About Digital Art."

Within 24 hours, all the Punks were gone; one man who saw the post amassed 758 of them.

Within days, collectors started to buy and sell—but right away, they ran into trouble. When someone tried to buy a Punk, a horrific bug in the smart contract caused the payment to travel not from the buyer to the seller—but to go straight back to the buyer. The lucky buyer ended up with both the Punk *and* the money being offered, and the seller got nothing. Roughly a dozen people were burned, and Hall felt terrible. "That was a complete disaster," Watkinson says. "It's like, well, our marketplace is toast." They posted urgent updates on their website and Twitter telling people to stop trading. Then they wrote a new smart contract in which they undid all the trades, and, several days later, they rolled it out.

Now that the marketplace was working, Larva Labs created the Discord channel where collectors such as Calderon reveled in the Punks' details, dreamed up personalities for their purchases, and brainstormed other projects involving digital collectibles. Watkinson and Hall's passion project had kicked off a buzzing community, and they were thrilled. They figured their work was basically done.

THE FIRST TIME that Anne Bracegirdle heard Watkinson speak about the CryptoPunks, at a blockchain art meetup in downtown Manhattan in early 2018, she became determined to meet the pair. Bracegirdle was a photography specialist at Christie's at the time. In her nearly 10 years at the auction house, she had seen how hard it was to verify the provenance of a work. And assuring potential buyers of the rarity of a photograph was a challenge when, for example, a living photographer could on a whim decide to issue more prints. The Punks and the blockchain presented an exciting solution to both problems.

Right away, Bracegirdle saw a parallel in Hall and Watkinson's work: "It immediately became clear to me they were like Andy Warhol," she says. Hall and Watkinson were "critiquing and exploring the way we consume now," she says, just as Warhol did with his *Campbell's Soup Cans*. Bracegirdle invited the two to a blockchain-themed event she was planning to hold at Christie's in London. Just like that, they were catapulted into the rarefied world of fine art.

That July, Watkinson and Hall flew to London. At the auction house, they paused to take pictures of themselves under a Christie's sign. About 350 people in pressed shirts and jackets gathered in the building. Contemporary works from an upcoming auction were installed throughout. On one wall was *Yellow Lambo*, a 10-foot-long yellow neon sign composed of 42 digits, the smart contract address for a cryptocurrency of the same name. The work was by Kevin Abosch, an artist who once sold a picture of a potato for $1 million.

Three hours in, Hall, wearing a dark blazer over his usual T-shirt, climbed onto the stage for a panel on crypto art. The moderator, a generative art buff named Jason Bailey, turned to him with a deceptively simple question: What do people own when they buy a CryptoPunk?

Bailey was alluding to the issue of whether the image itself was on the blockchain. Hall replied that his answer had a way of making people mad. "You own something on the blockchain—you own a record that you own it," he said. "You own the right to sell it in the

future." He didn't explicitly say, however, that Larva Labs retained the copyright, so it wasn't even obvious if owners could reproduce their Punks. Their project was so new and complicated that the details got thorny fast.

After the panel, a curator named Georg Bak cornered Hall and Watkinson to ask if he could exhibit their work in a gallery in Zurich. "Guys, what you did is art history," he remembers saying. "I have to show it." Bak was organizing a blockchain-themed art show that included Abosch and Ai Weiwei; he thought Larva Labs belonged there too. For Hall and Watkinson, the whole trip had been surreal, so why not throw in a gallery show in Switzerland? They said yes.

"I'm not sure they were aware they were artists," Bak says now.

After almost a week in London, Hall and Watkinson flew home to New York and faced, with some queasiness, the question of what to exhibit. Bak didn't give them much direction, but they worked in a shared office space alongside designers and artists. The duo peppered their neighbors with questions. They settled on producing prints of some of the Punks they owned, which they would sell with an envelope containing an Ethereum passphrase—the access code for the wallet in which the digital Punk resides. They then designed a custom seal featuring a CryptoPunk, and practiced melting sticks of red wax over a candle. With their officemates' help, they produced prints of 12 of their Punks, rolled them up into a mailer tube, built a big protective box for the envelopes and their fragile seals, and shipped it off to Switzerland.

At the converted-loft gallery in Zurich, art handlers framed the prints and hung nine of them side by side on a raw concrete wall. Then they tucked three into storage.

Watkinson flew in for the show, and Bak invited him to talk about the CryptoPunks at a dinner for crypto finance people. As soon as the event ended, Bak was bombarded with interest from buyers. By the time the exhibit opened, he had sold most of the Punks. On the day of the opening, Bak says, "one guy was running to the gallery, just straight away came to me and says he wants to buy one." Bak dug the last print out of storage for him. A few days later, Watkinson flew home, and he and Hall painstakingly printed and shipped 12 more CryptoPunks. Those sold out too.

Navigating the art world, facing questions about what—and where—the art was, got Hall

and Watkinson thinking: Could they make the link between an artwork and the blockchain stronger and more straightforward? In the fall of 2018, the two went to a digital art show at the Whitney Museum of American Art in New York, where they saw one of the American artist Sol LeWitt's many wall drawings. For the series, LeWitt left a set of instructions—often with ample room for interpretation—for assistants, who in turn execute them on a wall. Watkinson and Hall started wondering what it might look like if a blockchain issued drawing instructions to a computer.

Just as they got going on the project, though, invitations to cool art world events petered out, and interest in the CryptoPunks slowed to a crawl. Crypto winter had set in. But Bak was organizing another show and urging them to produce new work, so they pushed through.

In April 2019, Watkinson and Hall released Autoglyphs, a reimagining of LeWitt's wall drawings for the Ethereum age. It was a generative art project, but this time the generator itself was in the smart contract. When a person bought a work, the accompanying blockchain transaction triggered the generator to crank out a unique drawing.

Their stripped-down piece of software was set up to produce 512 works consisting of black-and-white lines and circles arranged in a square, like an arty QR code or an abstract snowflake. No faces, no personalities. Just shapes. They decided to charge each claimer a fee of 0.2 ether (at the time about $35). A few lines in their smart contract would send the fee directly to the wallet address of a climate-change nonprofit, as a donation. But they weren't feeling optimistic. "I don't even know if anyone cares anymore about NFTs," Watkinson remembers thinking.

The Autoglyphs / When the Larva Labs guys created their second blockchain art project, the code to create the pieces was, as their website says, “tiny and optimized to run efficiently on Ethereum nodes.” COURTESY OF LARVA LABS

A core community of CryptoPunk fans still revered their work. The pieces sold out in hours. This time, however, the rest of the world didn’t pay much attention. At Bak’s new show, only one of the Autoglyph prints sold. When Hall went to update the Larva Labs website to include media coverage of the project, he realized there was almost nothing to post. “It was like, hmm, update complete,” he says.

What they couldn't see was that the season of crypto was turning. Within a few months, the CryptoPunks began changing hands more often. "It started to get a pulse," Watkinson says. "It found another little gear." Soon, Autoglyph sales perked up too. Cryptocurrency prices were on the rise, and fast. NFTs were ready for their breakout.

CLAIRE SILVER, AN artist who lives in the Midwest, had kind of forgotten about her Punks. Unemployed, living with a debilitating illness and prone to bouts of depression, Silver (her pseudonym) had spent the previous five years dabbling in cryptocurrencies. In 2017 she befriended a security professional in a crypto chat room. He happened to be the person who'd claimed 758 Punks, and they bonded over a shared sense that the blockchain would revolutionize art. In June, he gave her three Punks. He was convinced that they belonged in New York's Museum of Modern Art, and he and Silver vowed that, no matter how high prices might climb, they wouldn't sell until mainstream arbiters of culture caught up to them. He gave away several more Punks and started going by the name Mr703.

Crypto winter had been difficult for Silver; seeing her savings tank demoralized her, and she withdrew from her chat rooms. She and Mr703 fell out of touch. She turned back to her own art. She bought a secondhand iPad on Craigslist and spent $10 for an app called ProCreate. She used it to make collages with photographs of her earlier work, public-domain images, and her doodles.

She starting thinking about artificial intelligence and whether it might help people like her, people with disabilities, in the future. If AI could augment a person's abilities, would it alleviate their suffering? On the other hand, would the loss of pain diminish their depth of spirit? Her curiosity sent her in search of ways to experiment with AI in her art. She found a tool called Ganbreeder that allowed her to train a machine-learning algorithm on images of her choice and to produce new ones. She selected some of these generated images and incorporated them into larger works.

In January 2021, Silver noticed on Twitter that people kept mentioning the CryptoPunks and that people were buying NFTs for heaps of money. She found a pair of platforms, Rarible and OpenSea, where she could create NFTs of her own work and put them up them for sale. She minted her first work on January 9, paid the $50 Ethereum transaction fee, and listed it for 0.5 ether (about $630).

Nothing happened.

Discouraged, she thought about her Punks. She'd noticed that people who used one as an avatar seemed to get clout in online discussions, as if owning a Punk was evidence of wisdom or investment prowess.

In late February, Silver changed her Twitter profile picture from one of her own works to Punk No. 1629, a pink-haired girl with a black hat. "I started getting a thousand followers a month, and a ton of engagement, and a ton of DMs for opportunities," Silver says. An artist embodying a CryptoPunk and making her own NFTs was a delicious clash of memes, just the sort of thing the internet rewards.

A birder and NFT enthusiast named Tom Marsan-Ryan became the first person to buy one of Silver's pieces—an image of a crow seeming to perch on a branch made of flowers. Then Mr703 bought 12 moody portraits of figures in the palette of the old masters—all made with AI. The roughly $6,000 worth of ether that landed in her crypto wallet from these sales was enough to cover half a year of rent and groceries.

Silver's life, in a rural town surrounded by cornfields, was changed. When she was a child, she says, her family relied on food donated by a local church, and as an adult she steered herself to the middle aisles of Walmart's food section, where the cheapest groceries are kept. The store had always been a place that pummeled her with reminders of things she couldn't afford. Now, with a few thousand dollars' worth of ether in her crypto wallet, she felt light-headed when she drifted down the aisles.

Silver realized that Twitter and Discord were her conduits to a better life. One day a photographer named Justin Aversano, who cofounded a nonprofit that uses empty billboards and other advertising space to promote art, sent her a message asking her if he could use Punk No. 1629. She agreed. In May, on 55th Street in Manhattan, just three blocks from MoMA, the pink-haired Punk appeared on a screen atop a public Wi-Fi kiosk. It was *almost* as if Mr703's prediction had come true. "Surreal doesn't begin to cover it," she tweeted after seeing a photo of the installation.

Silver wanted to see 1629's pixels in the flesh, so she shoved a futon into the back of her Dodge Grand Caravan and set off from her sleepy town on a three-day drive to New York. Each night as it got dark, she navigated to a Walmart parking lot and bunked down in the back of her car. In the morning she headed to the store's restroom, then hit the road again.

Under a blanket of clouds that threatened rain, she piloted her minivan down Manhattan's packed avenues and parked a few blocks away from MoMA. She pulled a black hat over her hair and walked fast to 1629. She felt like she was staring at her reflection. Silver pulled out a scrap of paper, scribbled the name "Claire" on it, and drew a tiny flower next to her name. She held it up in front of the digital billboard and snapped a photo. Only the black cuff of her sleeve and her flawless black press-on nails, which she'd coordinated with her Punk's black hat, appear in the image. She posted the shot on Twitter. It was the first time she'd shown her followers any part of her physical self.

"Lifetime highlight reel unlocked," she tweeted as the likes and replies poured in. Then, nervous about the pandemic, she got back in her car and drove to the Connecticut coast to treat herself to a lobster roll.

As the summer wore on, Silver's popularity online kept growing, but sales of her NFTs were spotty. Sometimes she went weeks with no income. During one dry stretch, her mother was due for a surgery, and Silver wanted to rent an Airbnb so she could be nearby. She decided it was time to sell a Punk—a woman with a shock of red hair and pink eyeshadow that Silver had nicknamed Strawberry Marla. A first-time Punk collector picked it up for about $63,000. Silver booked the Airbnb. She also bought NFTs by a woman artist in the Philippines whom she admired. Not long after, she sold another of her own works for $18,000.

Silver's burgeoning career and social life now seemed on solid ground. They were also inextricably tied to her online image; in fact, her sense of self was fusing with 1629. When she tried to paint a self-portrait, 1629 kept materializing on the canvas. She cut her hair into a bob with bangs, just like her Punk's. "I sort of feel like I live in the metaverse now, and the physical world is slowing me down," she says. There, she has to break to eat, sleep, and take medicine. She gets extremely tired. She mostly stays inside her apartment. She doesn't have many real-world companions. Online she counts a lot of people, mostly other Punk owners, as true friends. For years now, the physical world hadn't measured up.

Silver even started to feel as if her physical body wasn't her anymore. She considered dyeing her hair but settled on a pink wig instead, which she often wears. "I've had a lot of other Punks say similar things, that you slowly turn into your digital identity," she says. She hadn't expected it to happen to her; she worried that transforming into her Punk was a

pathetic thing to do. Finally, she decided she didn't care. This Punk had launched her art career. It had given her a community.

IN ANOTHER CORNER of the Punkiverse, Erick Calderon, the zombie tycoon, had spent four years collecting Punks and Autoglyphs and dreaming about starting his own blockchain-based generative art shop. In 2018 he sold off several zombies to hire developers, who helped him start to code his dream into existence. In late November 2020, Calderon launched Art Blocks. The idea was to have a place where lots of generative artists could sell their works. It quickly became much more.

Every few days or weeks, Art Blocks released a generative art project very much in the vein of Autoglyphs. In effect, each project is a vending machine set by an artist to crank out between 500 and 1,000 works. As with Autoglyphs, when a person spends some ether to buy a work, that blockchain transaction triggers the artist's algorithm to create a new, random work, which lands as a surprise in the buyer's crypto wallet. But unlike Autoglyphs, which is written in Solidity and *runs* on the blockchain, this code is written in JavaScript and is only stored there. These algorithms run in your browser, a distinction that allows them to be more visually rich and more computationally demanding than Larva Labs' project.

For the first eight months of the company's existence, Calderon priced the mints at no more than $1,000 each, so that more people might find them affordable. But every time a new project launched, eager buyers swarmed to his company's Discord, flooded the blockchain, and grabbed all the available works within minutes. The Discord server was bustling even between drops, with collectors gathering after a sale to suss out the pieces they scored and to see what others had gotten. And they kept chatting for weeks and months after a purchase.

Calderon realized that the social validation collectors found in chat rooms was as important as the art—that the conversation was a huge part of what made Art Blocks addictive. As special as the generative art might be, "we wouldn't be here without Discord," he says.

To offer up more projects, he added sections to the Art Blocks site: one where projects were more heavily curated and two less restrictive areas. They sold out too. Thousands of new people joined the Art Blocks Discord each month, drawn by the alchemical mix of

affordable-ish art, the thrill of the hunt, and a ready-made social environment in which to hash out the experience.

But it wasn't just the buzz that made Art Blocks an overnight sensation. It was the promise of a swift profit. Calderon estimates about half of Art Blocks' buyers immediately flip their works on OpenSea, where the cheapest curated pieces go for about $3,000. Calderon was happy that artists were benefiting from the speculation (the Art Blocks smart contract gives a 5 percent cut of secondary sales to the artist), but he didn't love that by keeping prices low, he'd created a way for people to make a quick buck. Worse, the big gap in original and resale prices had attracted a handful of buyers with armies of bots at their disposal that could beat out regular humans when a project went on sale. Calderon worried that these bot-wielding speculators would suck the joy out of the art-loving community he'd spun into existence.

So he changed the pricing structure. In August, Art Blocks started selling pieces using a Dutch auction format, where the prices start sky-high and then fall in increments until all the works are claimed. "Now you're not guaranteed a profit," he says. "If the Dutch auction is working, there's less speculation, people settle down a bit, and it leaves room for others." The change didn't fully solve the bot problem, but it did make it more difficult for them to game a sale.

On September 3, Art Blocks dropped a project called Trossets, by Anna Carreras, an artist who teaches creative coding in Barcelona. The Dutch auction began slowly, as it should, starting at 15 ether (about $60,000). Carreras wasn't too well known, and with only one work minted at the outset—a grid of green circles and squiggly lines—it was impossible for collectors to imagine what compositions might appear. But then a few people bought in. Their pieces showed up on the Art Blocks website and on Discord, and the shape of Trossets slowly emerged.

> "For a decade," Punk6529 trumpeted on Twitter, "our enemies have turned tulips against us. Today we reclaim the tulip for crypto."

Colorful and dynamic, the images resembled a reimagined game of Chutes and Ladders. Now and then a surprising arrangement of swoops and dots would pop up like an Easter

egg. In a channel devoted to Carreras on the Art Blocks Discord, people commented on the pieces they liked best and sent shout-outs to the artist: “Congrats on the awesome art!” and “What a beautiful project.”

Once the price got down to 5 ether ($19,800), the bidding picked up and turned into a frenzy, and soon all 1,000 works sold out. The project netted about $10 million. Subtracting the 10 percent that went to Art Blocks and two charitable donations chosen by the artist totaling about $2 million, Carreras had the equivalent of $7 million in ether before taxes.

Three weeks later, Trossets collectors stumbled on a surprise. On September 23, they were sharing the images they owned in Carreras’ channel on the Art Blocks Discord when a person who went by noonatnite wrote, “I see uve found the rubber duckies.”

In one Trosset, negative space around green snakelike tubes and a smattering of dots looked like several chubby little bath ducks. Carreras jumped in: “Yyeeesss, you saw them,” she typed. “Some duckies and birds are hidden in Trossets. You are the 1st one to mention it!” That sent others hunting through their Trossets. One person spotted two ducks kissing. A few days later someone posted that, after staring at a single work for hours, they had spotted a dragon, birds, elephants, paw prints, and Mickey Mouse. Another piece hosted an armada of alien spaceships. Carreras pointed out to one person that their piece contained a butterfly. “Ooohh. Now I see it,” they replied. “Thank you. Love your work.”

Matt Hall loves to hang out in Minecraft. Earlier this year he helped create a set of 3D

avatars for similar virtual worlds. The Meebits, 20,000 streetwear-rocking characters, became Larva Labs' third blockchain project. PHOTOGRAPH: MATT HALL

Similar moments had propelled a handful of Art Blocks images to the top of the NFT rankings, alongside the CryptoPunks' aliens, apes, and zombies. One of the currently most prized pieces comes from the artist and coder Dmitri Cherniak's Ringers, a project where a generator produced 1,000 variations of a string wrapped around a random arrangement of pegs. Shortly after the pieces were all minted, collectors in Cherniak's Art Blocks Discord channel noticed that one Ringer stood out: It evoked a white-necked bird stretching its yellow wings. Cherniak and other enthusiasts immediately started calling it *The Goose*. On August 27, *The Goose* sold for $5.8 million, and it soon went on display in a real-world gallery in Hong Kong.

Tyler Hobbs' Fidenza, a series where ribbons of varying colors and scales flow across a digital canvas, produced another standout. In one, bars of color arc into the organic shape of petals; it is known as *The Tulip*. A collector who uses a Punk as their digital identity —@Punk6529 on Twitter—bought it for $3.3 million and announced he'd never sell it. In a tweet, he reminded people of the many times crypto culture has been compared to the famous spike in tulip bulb prices in the 1630s, considered the first speculative bubble in history. "For a decade," Punk6529 trumpeted on Twitter, "our enemies have turned tulips against us. Today we reclaim the tulip for crypto, with one of the most remarkable pieces of art ever recorded on the blockchain."

If spending this kind of money on something as flimsy as a JPEG seems absurd, recall that collectors have bought empty space, a closed gallery, and a duct-taped banana. The fine art

what made the piece. "They buy an idea, they buy a certificate," he told her. A Ringer, a Fidenza, a CryptoPunk: an idea and a certificate, and instant membership in a new community.

IN THE FALL, Jonathan Mann—Mr. Fever Dream—was busy cranking out songs and videos about NFTs. "GM!" he sang in one of them. "GM GM GM GM GM!" He meant *good morning*,

one of the many bits of NFT vernacular that fill up Twitter and Discord. "Am I," he asked over the jaunty strums of a guitar, "GMI?" Was he *going to make it*? He looked up to the sky with angst in his eyes. "NGMI!" replied a demonic version of his face surrounded by flames. "No," Mann retorted. "What?" said the demon. "GMI!" Mann hollered.

Four years along, Mann was deep into NFTs, slinging lingo and lightly critiquing it in verse. His supporters—his fans and the people who buy his songs as NFTs—all get it. The words are part of the glue holding this corner of the internet together. Just as they'd decided that digital collectibles were worth owning, and they'd decided to use this language, they decided their NFTs were Going to Make It.

That faith, of course, is a social construct. The worth of art is too: It's how the artist Yves Klein, who considered reality his medium, could sell eight editions of *Zone of Immaterial Pictorial Sensibility*, his work made up of empty space. Value is forged in the messy crucible of human interaction.

In October, over Zoom, Hall talked about his surprise that the CryptoPunks had spawned a social network and kicked a subculture into a higher gear. Spontaneous communities pop up with ease in the NFT world's fertile soil, he said: "It's not an app you download, like, 'Here's the NFT social network app.' It's more, 'I use my avatar here, and I say these words, and I'm in the inside group.'" On the internet as on the playground, people see others having fun and want to be included. That's what fuels the fever dream.

Nowadays, NFT enthusiasts consider CryptoPunks to be digital antiques, the Fabergé eggs of an emergent culture. Not quite so edgy anymore. Miami's Institute of Contemporary Art acquired one. Even Visa, the multinational finance conglomerate, bought a Punk.

All the mainstream attention got some members of the CryptoPunk community dwelling on the one major weakness in the project's design: that the images themselves weren't on the blockchain—only their hash was. Whenever an outsider discovered the CryptoPunks, they would almost certainly end up puzzling over those same old questions of where and what the art was. Shouldn't the preeminent NFT images have some kind of long-term storage plan?

A few months ago, Calderon and a friend approached Watkinson and Hall with a proposal for just that. The Punks' faces had a lot of redundant features and pixels, they noted. A

compression algorithm could make good use of that fact. They showed Watkinson and Hall their code for shrinking the CryptoPunks' image grid and a small program that could expand the image back to its original size. The idea involved some clever engineering, and Watkinson and Hall loved it. With their community's help, they were finally able to settle old, unfinished business.

The pair made some tweaks to the code, wrote up a smart contract, and published it. Just like that, the Punks landed on the blockchain. This time, for real.

Updated 11/13/2021 2:00PM ET: This story has been updated to clarify that Pepe the cartoon frog is not merely an icon of the Trumpist right.

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