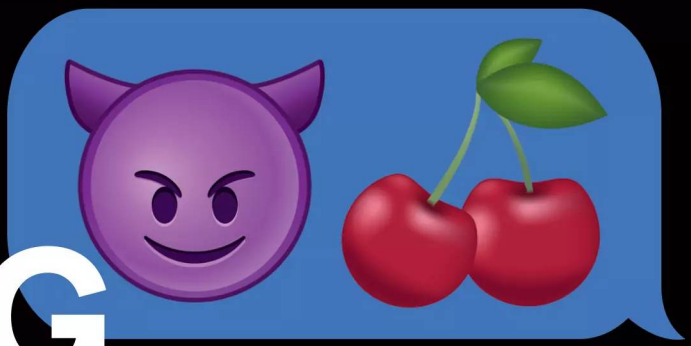
WIRED

ONLYFANS STARS ARE FAKING IT RICH

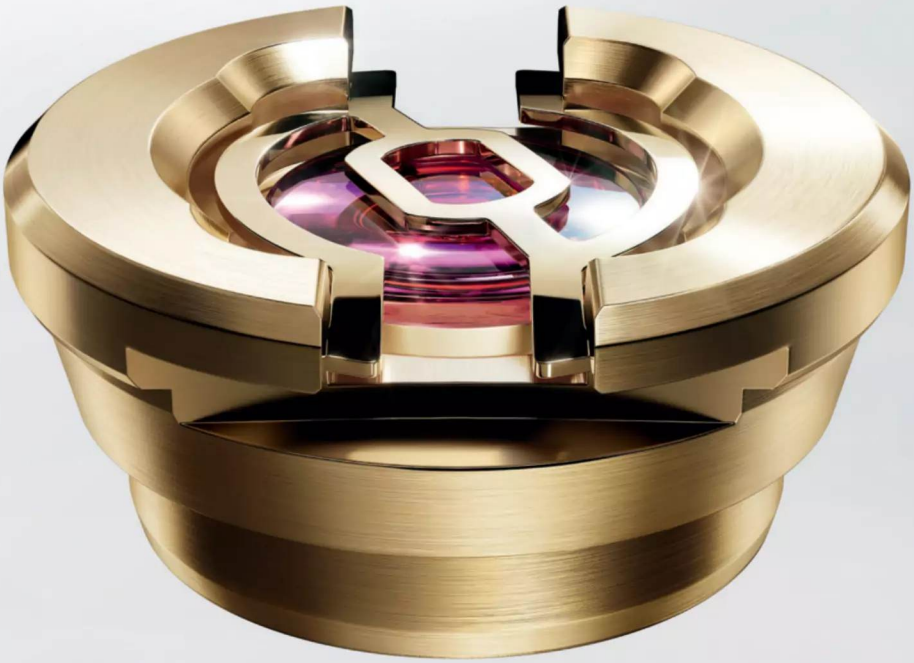
Men think they're talking to models. They're not.

Inside the secret army of OnlyFans impersonators.



JULY - AUG 2024

+ The future of healthcare + Luxury Gear + Bellingcat's forensic empire



SHOCKING!

This is the Paraflex, our shock absorber introduced in 2005. It is an absolutely crucial element in the protection of our horological movements. One which we designed and manufactured solely ourselves. Its specific purpose is to neutralise any and all effects brought about by the knocks and bumps of everyday life. One may wonder how such a minuscule shield, no bigger than a grain of rice, could achieve such a feat? It is through the interaction of two separate properties which, in a never-ending dance, offset the consequences of all shocks at all times. The Paraflex moves one way, then the other, all within a fraction of a second. On the one hand, it bends at each impact to disperse the energy, then returns to its original shape. On the other, it displaces itself so as to preserve the functionality of the balance wheel and escapement anchor. Thus engaging the guarantee of the chronometric performance of the calibre in all circumstances. It is through this unique ballet of deformation and displacement that the Paraflex preserves the watch's movement with its own.

#Perpetual

ROLEX

NEXT LEVEL

The Range Rover Sport is equipped to handle any terrain. Adaptive Off-Road Cruise Control helps to give you optimal traction, allowing you to feel confident – even in the most extreme conditions.

Official Fuel Economy and CO_2 results for the Range Rover Sport 24MY Plug-In Electric Hybrid range in mpg in kWh/100 miles (kilometres) 43.6-47.2 (27.1 - 29.3). CO_2 emissions (weighted combined) in g/km: 16 - 18. official manufacturer's tests in accordance with EU legislation with a fully charged battery. For comparison vary according to factors such as driving styles, environmental conditions, load, wheel fitment, accessories your Retailer. Always check route and exit before wading.

(l/100km)(weighted combined): 392.6-359.0 (0.7-0.8). Electric energy consumption (weighted combined) Equivalent all-electric range in miles (kilometres): Up to 74.6 (120). The figures provided are as a result of purposes only. Real world figures may differ. CO_2, fuel economy, energy consumption and range figures may fitted, actual route and battery condition. Model shown with optional Adaptive Off-Road Cruise Control. Contact

BIOCERAMIC

MOONSWATCH

COLLECTION

MISSION TO URANUS

OMEGA

x

swatch

Only available in selected Swatch Stores

BIOCERAMIC
MOONSWATCH
COLLECTION

MISSION TO MARS

OMEGA
×
swatch

Only available in selected Swatch Stores

Alpine A110 R Turini: fuel economy and co_2 results for the Alpine A110 *R* Turini in mpg (l 100km) combined: 41.5 (6.8-6.9). co_2 emissions: 156 g/km wltp figures shown are for comparability purposes. actual real world driving results may vary depending on factors including

A110 R
TURINI

weather conditions, driving styles, vehicle load or any accessories fitted after registration. for more information, please see **alpine-cars.co.uk**

BY APPOINTMENT
TO H.M. QUEEN ELIZABETH II
PURVEYORS OF CHAMPAGNE
CHAMPAGNE BOLLINGER S.A.

CHAMPAGNE

BOLLINGER

MAISON FONDÉE EN 1829

Favresse forest, Cuis.

Certified B Corporation

Maison Bollinger selects oak trees from its family-owned forest in Cuis to craft some of its barrels.

p. 078 Special Report
WIRED Health 2024

Clean-air campaigner Rosamund Adoo-Kissi-Debrah was just one of the incredible speakers sharing their vision at our annual healthcare event in London

PHOTOGRAPHY: DAVID VINTINER

THE
DALMORE™
HIGHLAND SINGLE MALT SCOTCH WHISKY

The MAKING of a MASTERPIECE

The Dalmore presents Luminary No.2 by acclaimed architect Melodie Leung, Director at Zaha Hadid Architects. The second in a unique three part series of rare and limited edition single malt whiskies.

thedalmore.com

drinkaware.co.uk for the facts

PHOTOGRAPHY: DAVID WILMAN

We only see the fruiting bodies of most fungi, but their mycorrhizal networks below the ground could be the secret to supercharging carbon sequestration.

p. 116 Feature

DeLorean vs DeLorean

Kat DeLorean is resurrecting the iconic 1980s car created by her father—but first she must fight to regain the rights to her own name

PHOTOGRAPHY: GETTY

Pioneers discover the unknown. Like where to invest next.

Wealth Management
pictet.com

Pictet Wealth Management
Pictet & Cie (Europe) SA, London Branch
Sixth Floor, Stratton House
5 Stratton Street, London W1J 8LA
+44 (0)20 7847 5000

PICTET 1805

FROM AI TO VR:

FINDING WINNERS FROM THE TECH REVOLUTION

The Liontrust Global Innovation team believes we are in the early stages of a new technology cycle driven by AI. They believe this has the potential to increase productivity, earnings and growth rapidly for the winners of this transformation, which will be both leaders and disruptors. For more information on the new cycle, Fund, investment process and performance, please visit liontrust.co.uk/global-technology

Past performance does not predict future returns.
You may get back less than you originally invested.

liontrust.co.uk

LIONTRUST
COURAGE · POWER · PRIDE

CAUGHT BY THE BUZZ

David Vintiner shot our speaker cohort for WIRED Health 2024—an intense day of capturing key figures in healthcare and beyond: "Shooting portraits for a whole day can sometimes be a challenge—especially when it comes to things like keeping subjects' energy up after they've just given their all on stage. However, it ended up being the perfect way to photograph them: Besides the useful conveyor belt, they were still buzzing from giving their talks, and that really brings their shots to life."

Creating WIRED

FUN IN THE FUNGARIUM

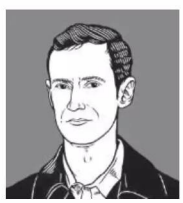
Photographer David Wilman went to Kew's famous fungarium this issue: "I'm a massive geek for electronics and computers, so a commission from WIRED that involved hundreds of thousands of fungi specimens wasn't at all what I was expecting. Still, I could have spent all day listening to collections manager Lee Davies and his many mycelium anecdotes, while investigating behind the scenes in a world-class research lab."

MATT REYNOLDS

Reynolds visits Kew Gardens' world-class fungarium to discover the hidden powers of fungi. "The wider world is waking up to these fascinating organisms, while scientists get to grips with the role they play in ecosystems."

KATHY GILSINAN

"One thing she didn't want was to start a car company," says Gilsinan of Kat DeLorean, daughter of the creator of the most iconic car of the 1980s. "But she's a DeLorean—a name associated, for good or ill, with wild ambition."



BRENDAN I. KOERNER

Koerner grapples with how an army of OnlyFans writers are paid to text-chat with fans of its popular creators. "It's impossible to cope with the avalanche of daily messages, so chat duties are entrusted to a hidden proletariat."

PHOTOGRAPHY: DAVID VINTINER; DAVID WILMAN. ILLUSTRATION: MATTHEW GREEN


How can we better steer health technology investment to deliver smart intelligent health ecosystems?
© 2024 EYGM Limited. All Rights Reserved. ED None.
The better the question.
The better the answer.
The better the world works.
EY
Building a better working world

These freeze-dried fungi specimens are part of Kew's world-class collection.

Edited by
Amit Katwala

KINGDOM

Forget the fancy flowers—the real treasure at Kew's botanic gardens is its 1.3 million fungi specimens. And the fungarium is no mere reference library—its work is rewriting the rulebook for carbon-capture science

It's hard to miss the headliners at Kew Gardens. The botanical collection in London is home to towering redwoods and giant Amazonian water lilies capable of holding up a small child. Each spring, its huge greenhouses pop with the Technicolor displays of multiple orchid species.

But for the really good stuff at Kew, you have to look below the ground. Tucked underneath a laboratory at the garden's eastern edge is the fungarium: The largest collection of fungi anywhere in the world. Nestled inside a series of green cardboard boxes are some 1.3 million specimens of fruiting bodies—the parts of the fungi that appear above ground and release spores.

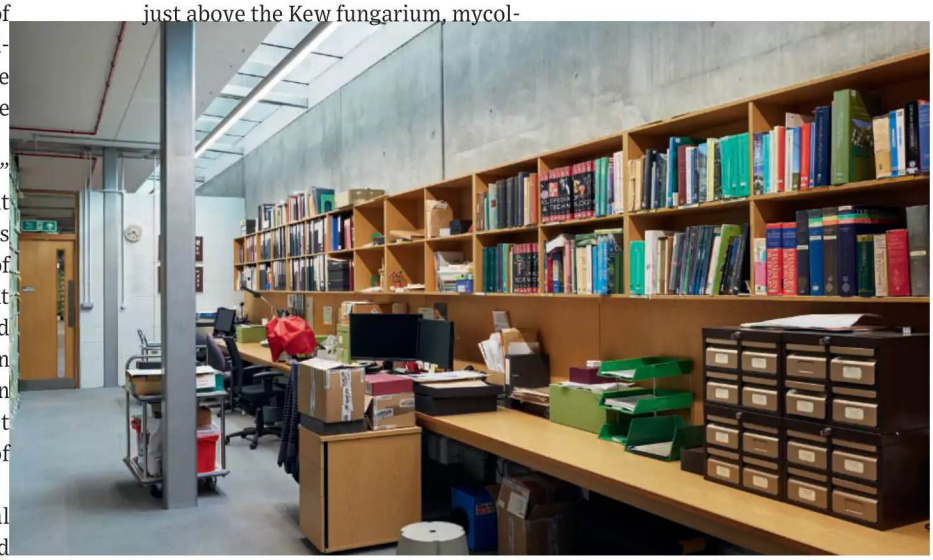
"This is basically a library of fungi," says Lee Davies, collections manager at the Kew fungarium. "What this allows us to do is to come up with a reference of fungal biodiversity—what fungi are out there in the world, where you can find them." Archivists—wearing mushroom hats for some reason—float between the shelves, busily digitizing the vast archive, which includes around half of all the species known to science.

In the hierarchy of environmental causes, fungi have traditionally ranked somewhere close to the bottom, Davies says. He himself was brought to the fungarium against his will. Davies was working with tropical plants when a staffing reshuffle brought him to the temperature-controlled environs of the fungarium. "They moved me here in 2014, and it's amazing. Best thing ever, I love it. It's been a total conversion."

Davies' own epiphany echoes a wider awakening of appreciation for these overlooked organisms. In 2020 mycologist Merlin Sheldrake's book *Entangled Life: How Fungi Make Our Worlds, Change Our Minds, and Shape Our Futures* was a surprise bestseller. In the video game and HBO series *The Last of Us*, it's a fictional brain-eating fungus from the genus *Cordyceps* that sends the world into an apocalyptic spiral. (The Kew collection includes a tarantula infected with *Cordyceps*—fungal tendrils reach out from the soft gaps between the dead insect's limbs.)

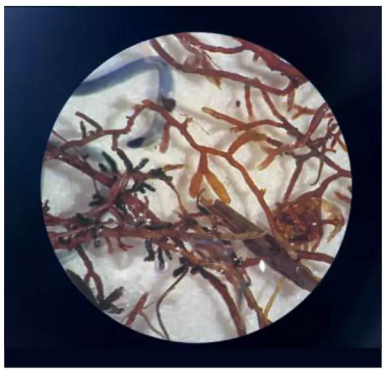
While the wider world is waking up to these fascinating organisms, scientists are getting to grips with the crucial role they play in ecosystems. In a laboratory just above the Kew fungarium, mycologist Laura Martinez-Suz studies how fungi help sequester carbon into the soil, and why some places seem much better at storing soil carbon than others.

Soil is a huge reservoir of carbon. There are around 1.5 trillion tons of organic carbon stored in soils across the world—about twice the amount of carbon in the atmosphere. Scientists used to think that most of this carbon entered the soil when dead leaves and plant matter decomposed, but it's now becoming clear that plant roots and fungi networks are a critical part of this process. One study of forested islands in Sweden found that the majority of carbon in the forest soil actually came from



↑ Researchers are halfway through digitizing the collection, which was founded in 1879.

→ Lee Davies, fungarium collections manager at the Royal Botanic Gardens, Kew, in London.



Ectomycorrhizal fungi on the roots of an oak tree, where it exists in a symbiotic relationship.

root-fungi networks, not plant matter fallen from above the ground.

Martinez-Suz's research focuses on mycorrhizal fungi—a large group of fungi that coexist with plant root systems. The mycorrhizal fungi form networks that can go around and sometimes inside plant roots, transferring nutrients and water to the plants in exchange for carbon. Around 90 percent of plant species are known to make these symbiotic trade networks with different species of fungi. "These plants are covered by these fungi. It's incredible. They are small but they are everywhere," says Martinez-Suz.

This has serious implications for tree-planting schemes. Planting new forests is a major hope for carbon sequestration, but there is increasing evidence that the mycorrhizal networks might be crucial to the success of these attempts. One replanting study found that a forest of birch and pine trees planted onto heath moorland in northern Scotland did not increase soil carbon stocks even after nearly 40 years in the ground. The researchers who carried out the study think that it might be because the influx of new trees upset the delicate moorland mycorrhizal networks already present.

"Replacing the complete set of fungi with other fungi has implications for long-term carbon sequestration in soil and biodiversity," says Martinez-Suz. Her current project involves comparing samples from forests in low-pollution sites like northern Finland with those in heavily-polluted regions like Belgium and the Netherlands. The fungi in polluted regions are less diverse, she says, and this might have a knock-on effect on how well those forests store carbon.

Specimen boxes containing dried examples of fungi gathered from all across the world.

The major culprit here is nitrogen pollution, which enters soils through burning fossil fuels for energy and transport, and through agriculture. An excess of nitrogen changes the composition of soil fungi, so that the fungi that are the best at retaining nutrients and pumping carbon into the soil decrease.

But there is some hope that forests can turn things around. One study in the Netherlands found that when nitrogen pollution reduced, beneficial fungi species started to return to the forests. The danger, Martinez-Suz says, is that if ecosystems are pushed too far then there might not be any fungal spores remaining to boost populations.

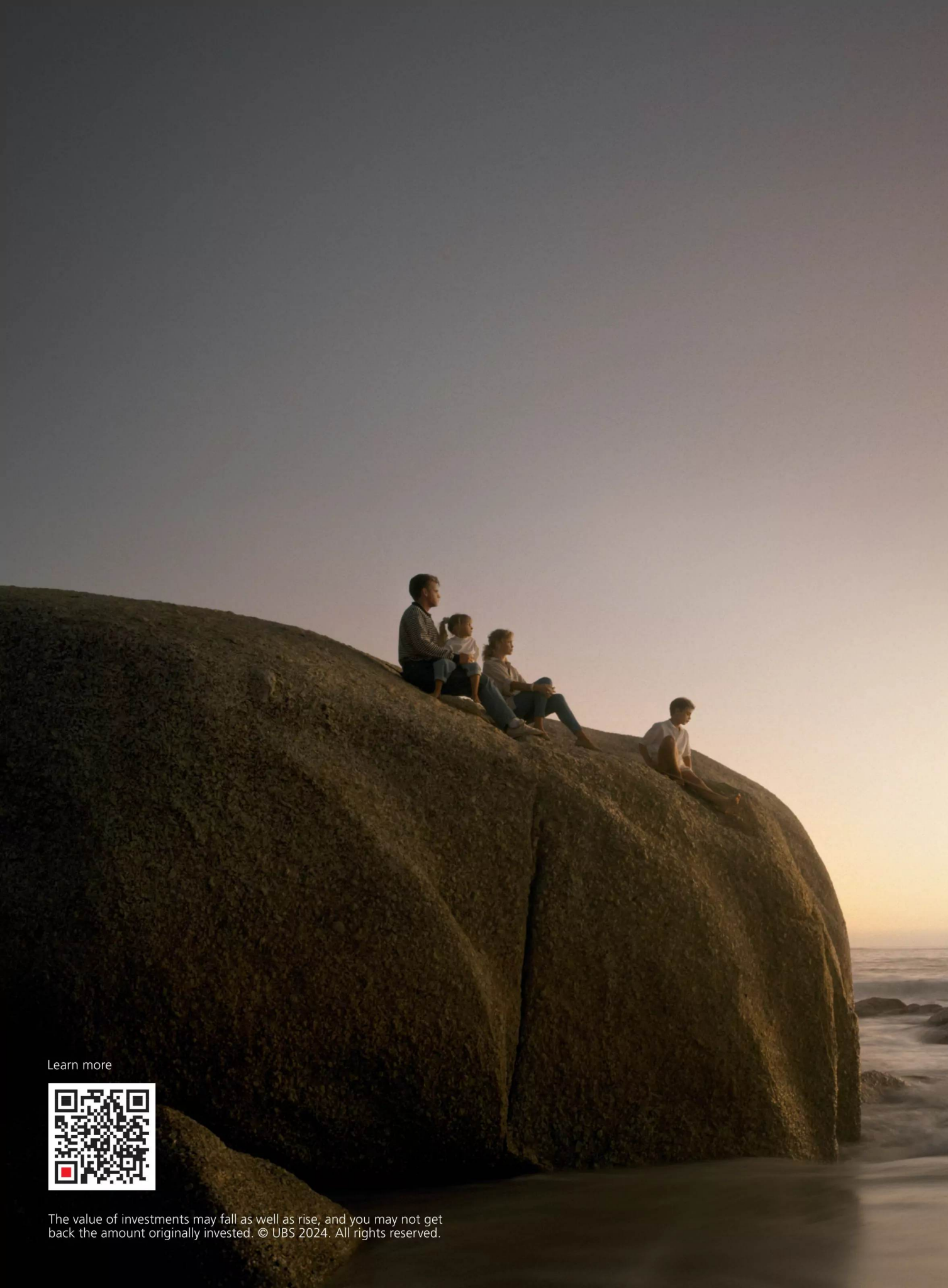
If we're to better understand how these fungi influence critical ecosystems, then we need to get to grips with all of these species. Mycologists think that nearly 90 percent of the world's fungi species are still to be discovered, and the archivists at Kew are only halfway through the long process of digitizing their collection so that researchers can easily know where and when a species was found.

Around 5,000 extra specimens enter the fungarium each year, and the shelves are crammed with samples waiting to be dehydrated and stored. Many of them, Davies says, are sent by amateur mycologists who are fascinated by the world of fungi. “People in academic institutions like this will send them stuff to work on and do identifications, because they are world experts even though they have no formal training. They’re just really obsessive. It’s so cool.”

MATT REYNOLDS *is a senior writer at* WIRED, *where he covers climate, food, and biodiversity.*

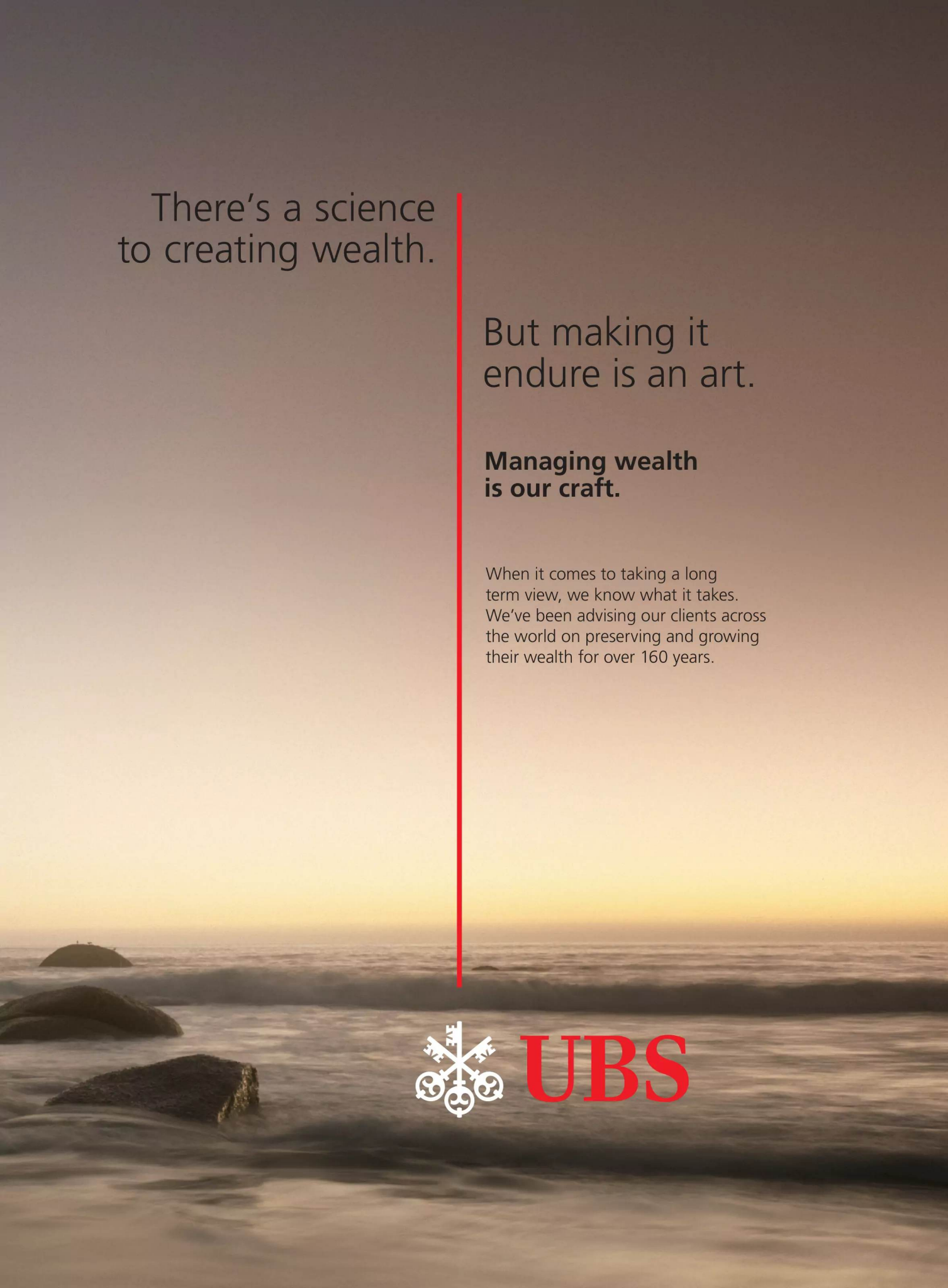
Emil Ghaffar, an MSc student, examining mycorrhizal fungi on plant roots under a microscope.

Drying specimens preserves them for long-term study. This one was dried and cataloged in 1960.



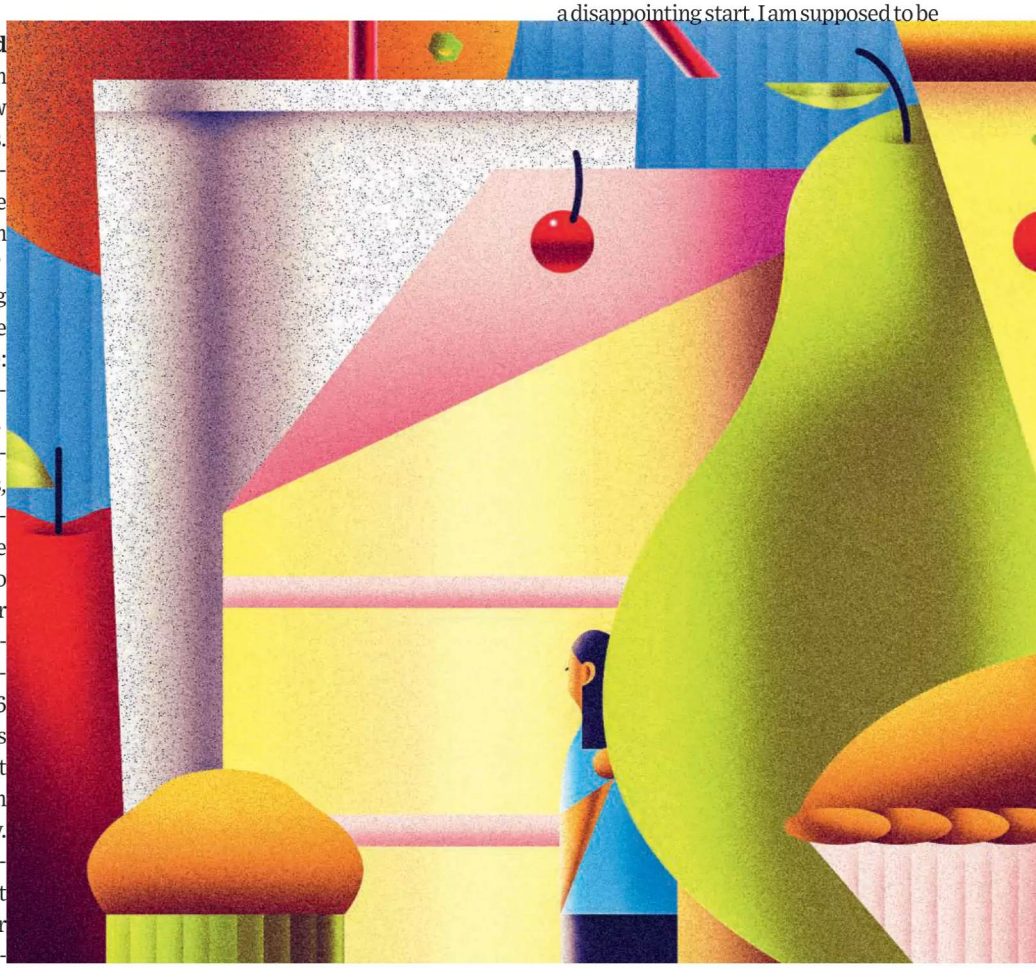
Learn more

The value of investments may fall as well as rise, and you may not get back the amount originally invested.


There's a science
to creating wealth.
But making it
endure is an art.
Managing wealth
is our craft.
When it comes to taking a long
term view, we know what it takes.
We've been advising our clients across
the world on preserving and growing
their wealth for over 160 years.
UBS

GETTING A TASTE FOR EATING WITHOUT WASTE

Too Good To Go says it sells food that would go in the bin —but a week spent living off its app suggests otherwise



It's 10pm on a Wednesday night and I'm standing in Blessed, a south London takeaway joint, half-listening to a fellow customer talking earnestly about Jesus. I'm nodding along, trying to pay attention as reggae reverberates around the small yellow shopfront. But really, all I can really think about is: What's in the bag?

Today's bag is blue plastic. A smiling man passes it over the counter. Only once I get home do I discover what's inside: Caribbean saltfish, white rice, vegetables and a cup of thick, brown porridge.

All week, I've lived off mysterious packages like this one, handed over by cafes, takeaways and restaurants across London. Inside is food once destined for the bin. Instead, I've rescued it using Too Good To Go, a Danish app that sold over 120 million meals last year, and is expanding in the US. For five days, I eat exclusively via TGTG, paying between £3 and £6 for meals ranging from a handful of cakes to a giant box of groceries, in an attempt to understand what a tech company can teach me about food waste in my own city.

Open the TGTG app, and you're presented with a list of establishments that either have food going spare right now, or expect to soon. Provided is a brief description of the restaurant, a price, and a time slot. Users pay via the app, but this is not a delivery service. Surprise bags—customers only have a vague idea about what's inside—have to be collected in person.

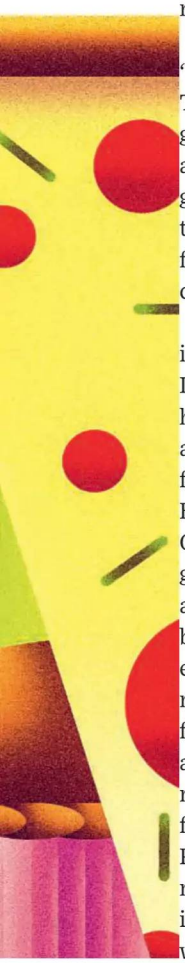
I start my experiment at 9.30am on a Monday morning, in the glistening lobby of the Novotel Hotel, steps from the River Thames. Of all the breakfast options available the night before, this was the most convenient—en-route to my office and offering a pick-up slot that means I can make my 10am meeting. When I say I'm here for TGTG, a suited receptionist gestures towards the breakfast buffet. This branch of the Novotel is £200 a night, yet staff do not seem begrudging of the £4.50 entry fee I paid in exchange for leftover breakfast. A homeless charity tells me its clients like the app for precisely that reason; cheap food, without the stigma. A waitress politely hands over my white plastic surprise bag with two polystyrene boxes inside, as if I am any other guest.

I open the boxes in my office. One is filled with mini pastries, while the other is overflowing with Full English. Two fried eggs sit atop a mountain of scrambled eggs. Four sausages jostle for space with a crowd of mushrooms. I diligently start eating—a bite of cold fried egg, a mouthful of mushrooms, all four sausages. I finish with a croissant. This is enough to make me feel intensely full, verging on sick, so I donate the croissants to the office kitchen and tip the rest into the bin. This feels like a disappointing start. I am supposed to be rescuing waste food, not throwing it away.

Over the next two days, I live like a forager in my city, molding my days around pick-ups. I walk and cycle to cafes, restaurants, markets, supermarkets; to familiar haunts and places I've never noticed. Some surprise bags last for only one meal, others can be stretched out. On Tuesday morning, my £3.59 surprise bag includes a small cake and a slightly-stale sourdough loaf which provides breakfast for three

more days. When I go back to the same cafe the following week, without using the app, the loaf alone costs £6.95.

TGTG was founded in Copenhagen in 2015 by a group of Danish entrepreneurs who were irked by how much food was wasted by all-you-can-eat buffets. Their idea to repurpose that waste quickly took off, expanding to include restaurants and supermarkets. A year after the company was founded, Mette Lykke was sitting on a bus when a woman showed her the app. She was so impressed, she reached out to the company to offer her help. Lykke has now been CEO for six years.



"I just hate wasting resources," she says. "It was just this win-win-win concept." To her, the restaurants win because they get paid for food they would have thrown away; the customer wins because they get a good deal and find new places; and the environment wins because, she says, food rotting in landfill contributes 10 percent of global greenhouse gas emissions.

But the app doesn't leave me with the impression I'm saving the planet. Instead, I feel more like I'm on a daily treasure hunt. On Wednesday, TGTG leads me to a railway arch which functions as a depot for the grocery delivery app Gorillas. Before I've even uttered the words, "Too Good To Go", a teenager with an overgrown fringe emerges silently from the alleys of shelving units with this evening's bag: groceries, many still days away from expiring, that suspiciously add up to a meal for two people. For £5.50 I receive fresh pasta, pesto, cream, bacon, leeks, and a bag of stir-fry vegetables, which my husband merges into a single dish. It feels too convenient to be genuine waste. Perhaps Gorillas is attempting to convert me into its own customer? When I ask its parent company, Getir, how selling well-in-date food helps combat waste, the company does not reply to my email.

I am still thinking about my Gorillas experience at lunchtime on Thursday as I follow my app's directions to the Wowshee falafel market stall, where 14 others are already queuing. A few casual conversations later, I realize I am one of at least four TGTG users in the line. Seeing so many of us in one place again makes me wonder if restaurants are just using the app as a form of advertising. But Wowshee owner Ahmed El Shimi describes the marketing benefits as only a "little bonus". For him, the app's main draw is cutting waste. "We get to sell the product that we were going to throw away," he says. "And it saves the environment at the same time." El Shimi, who says he sells around 20 surprise bags per day, estimates TGTG reduces the stall's waste by 60 percent. When I pay £5 for two portions of falafel—lunch and dinner—the business receives £3.75 before tax, El Shimi says. "It's not much, but it's better than nothing."

On Friday, my final day of the experiment, everything falls apart. I sleep badly and wake up late. The loaf from earlier in the week is rock solid. I eat several mini apple pies for breakfast, which were part of a generous £3.09 Morrisons supermarket haul the night before. Browsing the app, nothing appeals to me and even if it did, I'm too tired to face leaving the house to collect it. After four days of eating nothing but waste food, I crack, and make fried eggs on my favorite brand of seeded brown bread.

TGTG is not a solution for convenience. For me, the app is an answer for office lunch malaise. It pulled me out of my lazy routine while helping me eat well—in central London—for a £5 budget. For people without access to a kitchen, it offers an underworld of hot food going spare.

TGTG is one of those rare apps that actually enhances life beyond your phone, but the company could do a better job of disseminating it data. I can't see how many bags each establishment sells per day, or what dent the app is making in a restaurant's pile of food destined for the bin. All I receive is a vague number telling me I've "avoided" 41 kg of CO_2, equivalent to 8,970, without being told what that number means or how it's been calculated.

On the day I'm due to finish this article, I go for one more Too Good To Go at a deli, a 15-minute walk from my office. I leave with a £5 polystyrene box containing an eclectic mishmash of food from the salad bar, leftovers from the lunchtime rush. Under a pile of vegetables, I discover pasta, rice, half a baked potato, and a chicken drumstick. The randomness of the selection makes it feel like food that would have really gone to waste, and satisfied, I dash back to the office to tuck in.

ILLUSTRATION: DEREK ABELLA

Discarded dining: the leftovers diet

Monday

Breakfast: Novotel Hotel: Full English and pastries *£4.50 (RRP: £16.50).* **Lunch:** Leon: dahl curry, chicken nuggets and raspberry lemonade *£4.39 (RRP: £12).* **Dinner:** nothing (too full).

Tuesday

Breakfast and Lunch: Lumberjack Cafe: loaf of bread and a cake *£3.59 (RRP: £10.50).* **Dinner:** Light of Africa: vegan Ethiopian curry with injera bread *£5.00 (RRP: £15)*

Wednesday

Breakfast: Leftover toast from Lumberjack Cafe. **Lunch:** Clubhouse cafe: 2 cakes, 1 muffin and 1 croissant *£3.17 (RRP: £9.50).* **Dinner:** Gorillas: pasta dish *£5.50 (RRP: £15.50)*

Thursday

Breakfast: Blessed takeaway, picked up the night before: Saltfish, rice, vegetables *£5.00 (RRP: £15).* **Lunch:** Wowshee Falafel: falafel and vegetables in pita bread, *£5.00 (RRP: £15).* **Dinner:** Wowshee Falafel again

Friday

Breakfast: Morrisons: bread, strawberries, pears, apple pies, oranges *£3.09 (RRP: £10)*

Cost *£39.24.* **Savings** (estimated by the app): *£69.76*

PHOTOGRAPHY: GARETH IWAN JONES

Hayley Banfield used to be a search engine, answering callers' questions to the 118 118 service in the era before everyone had Google in their pockets and unlimited mobile data.

THE PEOPLE WHO WERE GOOGLE

Before smartphones, we relied on armies of humans to answer our queries with witty responses and encyclopedic knowledge. Today's search engines could learn something...

The Eiffel Tower is 330 meters tall and the nearest pizza parlor is 1.3 miles from my house. These facts were astoundingly easy to ascertain. All I had to do was type some words into Google, and I didn't even have to spell them right.

For the vast majority of human history, this is not how people found stuff out. They went to the library, asked a priest, or wandered the streets following the scent of pepperoni. But then, for a brief period when search engines existed but it was too expensive to use them on your shiny new phone, people could call or text a stranger and ask them anything.

The internet first became available on cell phones in 1996, but before affordable data plans, accidentally clicking the browser icon on your flip phone would make you sweat. In the early 2000s, accessing a single website could cost you as much as a cheeseburger, so not many people bothered to Google on the go.

Instead, a variety of services sprang up offering mobile search without the internet. Between 2007 and 2010, Americans could call GOOG-411 to find local businesses, and between 2006 and 2016, you could text 242-242 to get any question answered by the company ChaCha. Brits could call 118 118 or text AQA on 63336 for similar services. Behind the scenes, there were no AI robots answering these questions. Instead, thousands of people were once employed to *be* Google.

"Some guy phoned up and asked if Guinness was made in Ireland, people asked for the circumference of the world," says Hayley Banfield, a 42-year-old from Wales who answered 118 118 calls from 2004 to 2005. The number was first launched in 2002 as a directory enquiries service—meaning people could call up to find out phone numbers and addresses (back then calls cost an average of 55 pence). In 2008, the business started offering to answer any questions. Although Banfield worked for 118 118 before this change, customers would ask her anything and everything regardless. "We had random things like: 'how many yellow cars are on the road?'"

While directory enquiry lines still exist, Banfield worked during their boom—she answered hundreds of calls in her 5.30PM to 2AM shifts—and quickly noticed patterns in people's queries. "Anything past 11PM, that's when the drunk calls would come in," she says. People wanted taxis and kebab shops but were so inebriated that they'd forget to finish their sentences. Sometimes, callers found Banfield so helpful that they invited her to join them on their nights out. As the evening crept on, callers asked for massage parlors or saunas—then they would call back irate after Banfield recommended an establishment that didn't meet their needs.

The "pizza hours" were 8PM to 10PM—everyone wanted the number for their local takeaway. Banfield had a computer in front of her in the Cardiff call center, loaded with a simple database. She'd type in a postcode (she had memorized all of the UK's as part of her training) and then use a shortcut such as "PIZ" for pizza or "TAX" for taxi. People sometimes accused Banfield of being psychic, but if the power had gone out in a certain area, she automatically knew that most callers wanted to know why.

Around the same time Banfield was answering calls, Paul Cockerton was answering texts. The 54 year old cofounded AQA 63336 in 2002; the acronym stood for "any question answered", and texts originally cost £1 each. When the business launched, Cockerton and just five others would answer questions. They'd look in books and encyclopedias, search the web, and do their own calculations to try and answer each message in a maximum of 10 minutes.

The company decided that it must always give an answer, even if someone texted asking if they should dump their boyfriend. "Stylistically, we were only allowed to say yes or no," says Cockerton, who now lives in the English village Croxley Green. "So we'd say, 'Yes, you should dump your boyfriend if you've been thinking about it for a while and it's not working out. No regrets. Move on.'"

At its peak, AQA 63336 employed 1,400 researchers to answer questions—students and mums could work from home, and be paid per answer. Gradually, the business built up a database of common Q&As and, like Banfield, Cockerton noticed patterns—a flurry of trivia-related texts during pub-quiz hours, or requests for chat-up lines as the night went on. Yet it is the anomalous texts that are the most memorable.

"Me and my girlfriend are lost in a jungle," the message began. Two tourists in Thailand were embarrassed about getting stuck and decided to text AQA 63336

Paul Cockerton cofounded AQA 63336, whose "any question answered" remit threw down a gauntlet for users to challenge his team of researchers with bizarre brain-teasers.

rather than call their family for help. "We called a nearby hotel, they found someone who spoke English, we spoke to them … they got the jungle rescue team out," Cockerton recalls with glee.

Gradually, the British media became enamored with the service, and in 2008 it was featured on an episode of *The Graham Norton Show*. Because many of the questions texted to the service were fundamentally silly—118's Banfield even enjoyed texting stupid questions with her friends while at the pub—answers were always designed to entertain. "There would obviously be questions that we physically couldn't answer, 'Where am I sitting?" things like that," says Cockerton, "We worked out that the way to do it was to just make sure that they got a pound's worth of answer."

On air, Norton texted AQA 63336 with the question: "Are baboons evil?". Seconds later, his phone pinged with a reply. "Yes, baboons are evil, anyone that steals your windscreen wipers while waving a red bum in your face is the work of the dark side."

After the segment aired, AQA 63336's systems were flooded with 20,000 questions (half of which were, "Are baboons evil?"). But not all of Cockerton and Banfield's memories are funny. She recalls dealing with at least 20 suicidal callers—company policy meant she had to direct them to the emotional support charity Samaritans. (This was also AQA 63336's policy.) Cockerton recalls that during the 7/7 London bombings, numerous people asked why the tube wasn't running. "People were texting us, 'How can I get home?', we were effectively a Citymapper."

Two years later in 2007, the iPhone launched—with Google's search bar built into its browser. Gradually, it became cheaper and easier for people to search on their phones, and by 2009, Cockerton noticed texts "begin to tail off quite fast." He and his cofounders sold the company to an Australian firm in 2010—today texts to the service go undelivered. 118 118 will no longer answer any question, but you can still call to ask for addresses and phone numbers (for £2.43 *a minute*).

We now live in a strange era where customer service robots pose as humans and sometimes humans pose as robots—in recent years, companies claiming to be powered by AI have been found to be using real people behind the scenes. Either way, what has been lost since the era of the human search engine is the joy of a distinct voice: We can now find out almost anything automatically, but the answer won't be delivered with warmth or flair.

Am I really here? How many nipples does a bear have? Where did kissing originate? These are just some of the questions Cockerton fielded at AQA 63336. Banfield recalls trying to connect people with their long-lost relatives, and once chatting about gardening with a lonely older gentleman. "Most of the time you felt transported into the caller's world," she says, "as they were lost or looking for hope on the end of the call."

AMELIA TAIT *(@ameliargh) is a freelance writer covering culture and the internet.*

PHOTOGRAPHY: CRAIG GIBSON

THE SELA SOUND SHIRT

WORKING IN PARTNERSHIP
RNID Supporting people who are deaf, have hearing loss or tinnitus

1. **MICROPHONES** capture sound around the pitch
2. **ANALOGUE SOUND** converted into digital sound using special software
3. **THE SOFTWARE** analyses the sound in real-time and turns crowd noise into data
4. **THE DATA** is wirelessly transmitted to the shirt through an antenna
5. **ELECTRONIC BRAIN** receives touch data and operates tiny modules embedded in the shirt
6. **THE MODULES** cause motors to vibrate in resonance with the crowd's cheering, providing a tactile sensory experience for the wearer

A TECHNOLOGY WORLD FIRST IN FOOTBALL

As primary partner of Newcastle United Football Club, Sela has worked with Cute Circuit to introduce a world-first in football, the Sela Sound Shirt.
Using haptic technology embedded in football shirts, which translates crowd noise into touch sensation in real-time, fans with hearing loss now feel the atmosphere of every home game like never before.

#UNSILENCETHECROWD

SEE THE FULL CAMPAIGN AT SELA.SA/NUFC

NEWCASTLE UNITED | sela


RENAULT SCENIC
E-TECH 100% ELECTRIC
220HP
up to 379 mile range (1)
solarbay® opacifying panoramic sunroof (2)
openR link with Google (3) built-in
discover

car of the year
2024

(1) wltp figures shown are for comparability purposes. actual real world driving results may vary depending on factors including the starting charge of the battery, accessories fitted after registration, weather conditions, driving styles and vehicle load. (2) solarbay® available on iconic version. (3) Google, Google Maps and Google Play are trademarks of Google LLC.

renault.co.uk

PRETTY IN PINK

Why did scientists insert tangerine DNA into the humble pineapple—and can this cheerful Frankenfruit really help change public opinion toward bioengineered foods?

On a recent trip to Giant Eagle, my local grocery store in Pittsburgh, I noticed something new in the fruit section: a single pineapple packaged in a pink and forest-green box. A picture on the front showed the pineapple cut open, revealing rose-colored flesh. Touted as the "jewel of the jungle," the fruit was the Pinkglow pineapple, a creation of American food giant Fresh Del Monte. It cost $9.99, a little more than double the price of a regular yellow pineapple.

I put the box in my cart, snapped a picture with my phone, and shared the find with my foodie friends. I mentioned that its color is the result of genetic modification—the box included a "made possible through bioengineering" label—but that didn't seem to faze anyone. When I brought my Pinkglow to a Super Bowl party, people oohed and aahed over the color and then gobbled it down. It was juicier and less tart than a regular pineapple, and there was another difference: It came with the characteristic crown chopped off. Soon enough, my friends were buying pink pineapples too. One used a Pinkglow to brew homemade tepache, a fermented drink made from pineapple peels that was invented in pre-Columbian Mexico.

At a time when orange cauliflower and white strawberries are now common sights in American grocery stores, a non-yellow pineapple doesn't seem all that out of place. Still, I wondered: Why now with the flashy presentation? And why pink? And why had my friends and I snapped it right up?

When i brought my questions to Hans Sauter, Fresh Del Monte's chief sustainability officer and senior vice president of R&D and agricultural services, he began by offering me a brief history of the fruit. You may assume, like I did, that pineapples have always been sweet and sunny-colored—but that wasn't the case prior to the 1990s. Store-bought pineapples of yesteryear had a green shell with light yellow flesh that was often more tart than sweet. Buying a fresh one was a bit of a gamble. "Nobody could tell, really, whether the fruit was ripe or not, and consumption of pineapples was mostly canned product, because people could trust what they would eat there," Sauter says. The added sugar in some canned pineapple made it a sweeter, more consistent product.

In 1996 the company introduced the Del Monte Gold Extra Sweet, yellower and less acidic than anything on the market at the time. Pineapple sales soared, and consumers' expectations of the fruit were forever changed. The popularity of the Gold led to an international pineapple feud when fruit rival Dole introduced its own varietal. Del Monte sued, alleging that Dole had essentially stolen its Gold formula. The two companies ended up settling out of court.

With the success of its Gold pineapple, Del Monte was looking for new attributes that could make the pineapple even more enticing to consumers, Sauter says. But breeding pineapples is a slow process; it can take two years or longer for a single plant to produce mature fruit. Del Monte had spent 30 years crossbreeding pineapples with certain desired characteristics before it was ready to launch the Gold. Sauter says the possibility of waiting 30 more years for a new variety was "out of the question." So in 2005 the company turned to genetic engineering.

Del Monte didn't set out to make a pink pineapple per se, but at the time, Sauter says, there was interest from consumers in antioxidant-rich fruits. (Acai bowls and pomegranate juice, anyone?) Pineapples happen to naturally convert a reddish-pink pigment called lycopene, which is high in antioxidants, into the yellow pigment beta-carotene. (Lycopene is what gives tomatoes and watermelon their color.) Preventing this process, then, could yield pink flesh and higher antioxidants. The company set its dedicated pineapple research team to the task of figuring out how to do it.

The team landed on a set of three modifications to the pineapple genome. They inserted DNA from a tangerine to get it to express more lycopene. They added "silencing" RNA molecules to mute the pineapple's own lycopene-converting enzymes, which also helped reduce its acidity. (RNA silencing is the same technique used to make non-browning GMO Arctic apples.) Finally, Del Monte added a gene from tobacco that confers resistance to certain herbicides, though representatives for the company say this was simply so its scientists could confirm that the other genetic changes had taken effect—not because Del Monte plans to use those herbicides in production.

The official Pinkglow website doesn't mention these genetic alterations. And even Sauter skimmed over the science when I asked. I found the details in a patent filing and documents from the US Food and Drug Administration. (The Pinkglow comes without a crown to reduce waste, though removing the pineapple's top also helps protect its proprietary—and lucrative—status.)

PHOTOGRAPH BY SHAWN MICHAEL JONES

Chris Cummings, a senior research fellow at North Carolina State University's Genetic Engineering and Society Center, says that lack of information is probably purposeful. "There is some distinct marketing that's going on with this particular product," he says.

Although Del Monte originally dreamed up the Pinkglow as an antioxidant powerhouse in the days before social media, ads for the pineapple have adjusted to the times. The company doesn't claim any health benefits but instead touts the Pinkglow's Instagramability. "Become the envy of your friends and followers with this highly sought-after delicacy," reads the Pinkglow website, where one can find recipes for rum-soaked Pinkglow shortcake, no-churn Pinkglow ice cream, and Pinkglow pineapple coconut crumb bars. In a 2020 press release, Del Monte described the Pinkglow as "one-of-a-kind and perfect for a hostess to serve as part of a festive party cocktail, as a delicious dessert all on its own, or even to give as a gift to the person who will now truly have everything." It's no wonder I picked one up in the grocery store. This product is clearly marketed at me, a 36-year-old millennial woman.

"This is a social food," Cummings says. "This is to show off to other people. 'Hey, look what I have that you don't. This makes me cool, right?'"

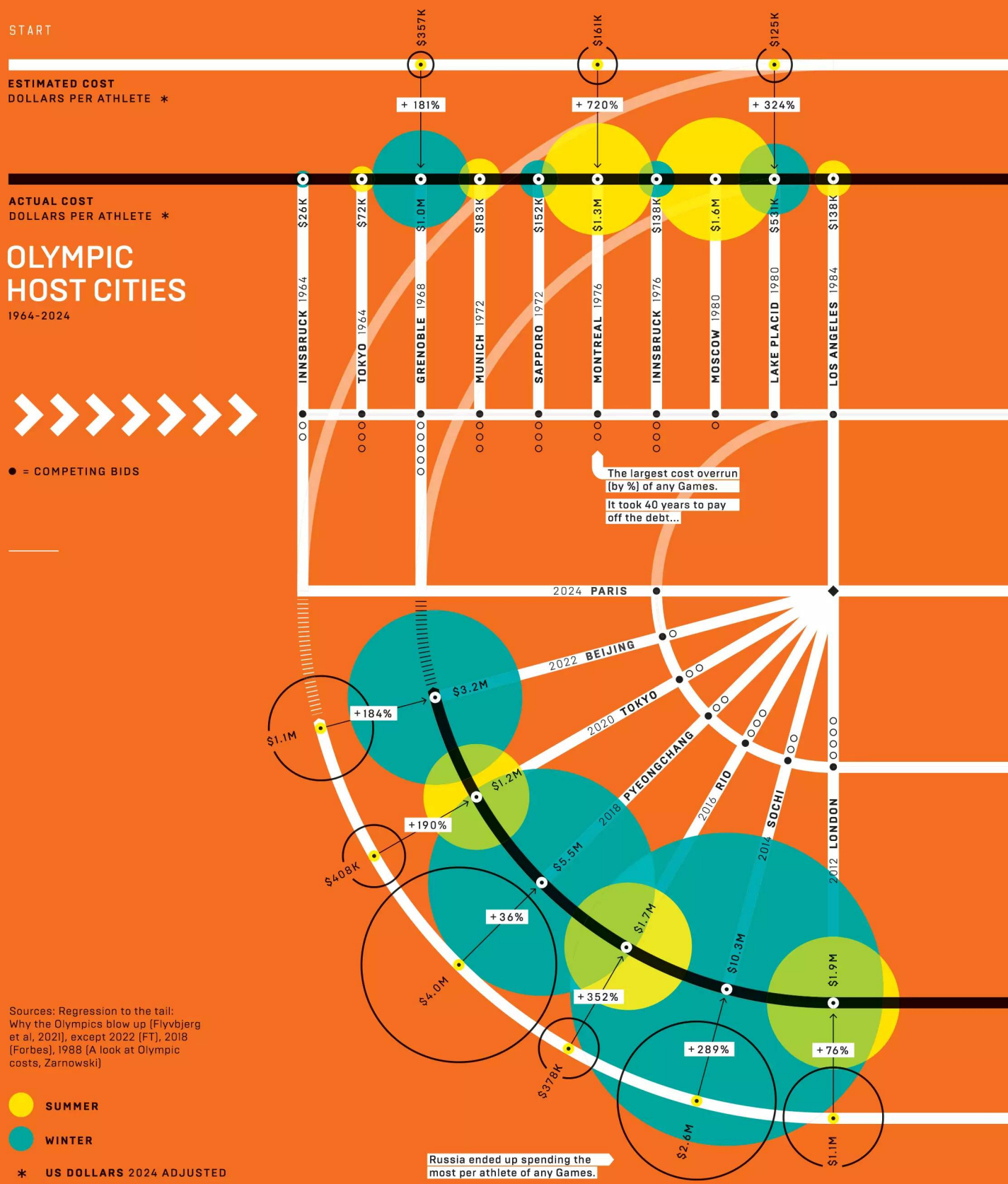
The marketing seems to be working. In an earnings call in February, Fresh Del Monte Produce reported strong demand for its new pineapple varietals, with sales growing by approximately 25 percent in 2023 compared with 2022. In addition to the Pinkglow, it has recently introduced the Honeyglow (even golder and sweeter than the Gold Extra Sweet), the Precious Honeyglow (a miniaturized version of the Honeyglow), and the Del Monte Zero (a pineapple certified by a third party as carbon-neutral because of Del Monte's expansive forests). This year, the company is continuing to expand the reach of the pink pineapple. It's also rolling out a variety called Rubyglow (reddish peel, yellow flesh) in China.

"Consumers love innovation," says Lauren Scott, chief strategy officer of the International Fresh Produce Association. She sees the Pinkglow as creating excitement around pineapples and likens it to Cotton Candy grapes, a naturally grown hybrid introduced in 2011 that are hugely popular because, well, they taste like cotton candy.

If the trend holds, the Pinkglow could herald a shift in consumer attitudes toward genetically engineered crops. Where GMO corn and soy were designed to better tolerate herbicides—a benefit invisible to consumers—the pink pineapple was mostly made to be fun and pretty, and to taste great. "I think the wariness toward GMOs is waning," says Courtney Weber, a professor of horticulture at Cornell University.

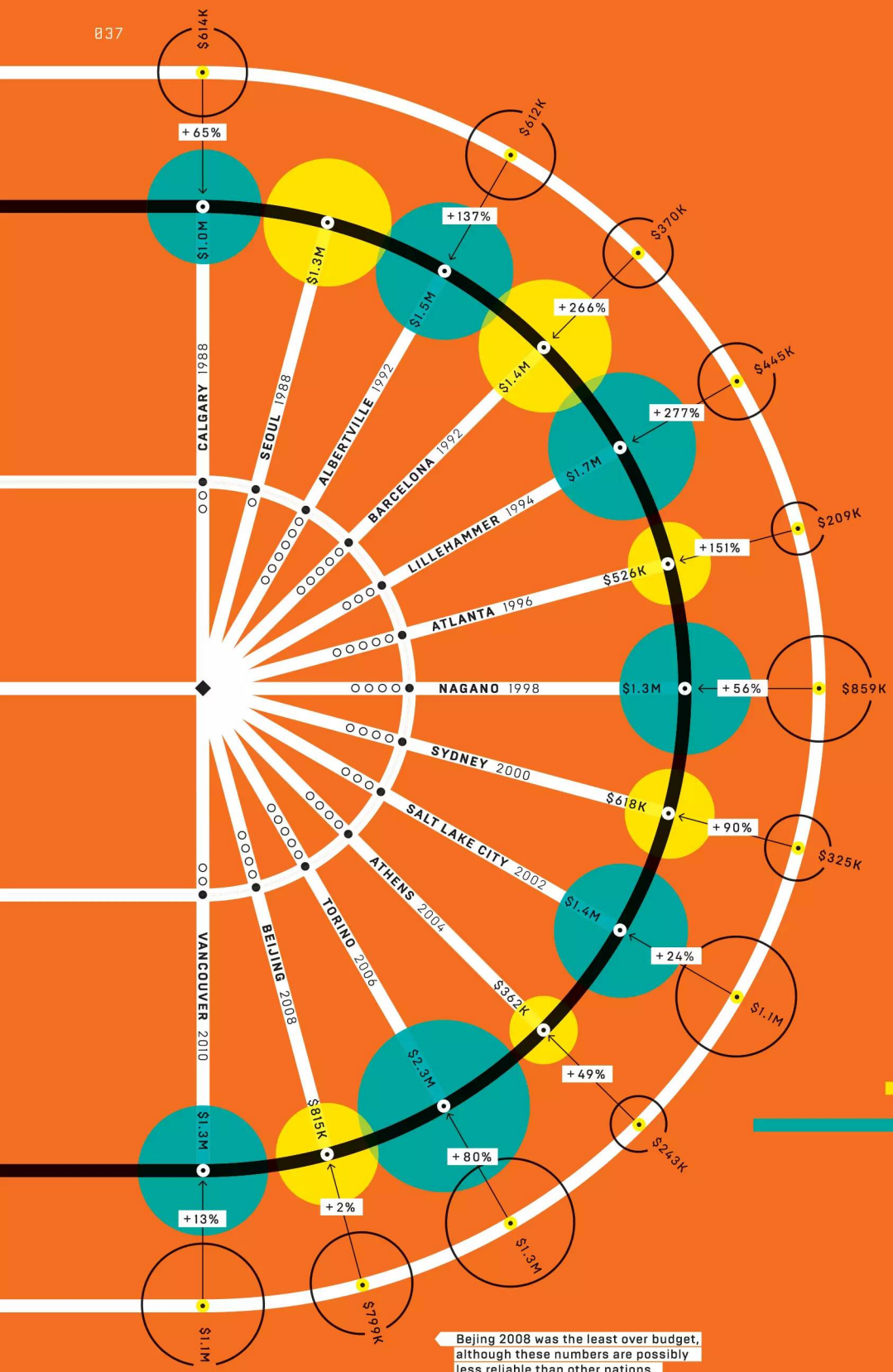
Maybe the pink pineapple is frivolous. But maybe it's just the kind of product that can help prepare consumers for the food system of the future, which will likely involve more bioengineering. "I love this for consumers, and I'm really happy about it," says Vonnie Estes, vice president of innovation at the International Fresh Produce Association. "But I think the real benefit is that it's going to allow us to use these tools to be able to adapt to a changing world." That future could be hotter, drier, and filled with as yet unimagined diseases and pests. For now, though, it's pink. W

EMILY MULLIN *is a staff writer at* WIRED, *covering biotechnology.*



RISING COSTS AND FALLING BIDS: WHY THE OLYMPICS IS RUNNING OUT OF HOSTS

When London won the rights to host the 2012 Summer Olympics there was genuine jubilation—mainly because it beat a bid from rival city Paris. Twelve years later, Paris has the Games, but this time it's almost by default—only



Bejing 2008 was the least over budget, although these numbers are possibly less reliable than other nations.

TOTAL COSTS	MILLIONS $USD 2024
INNSBRUCK	29
TOKYO	369
MEXICO CITY	N/A[1]
GRENOBLE	1,160
MUNICH	1,320
SAPPORO	153
MONTREAL	7,980
INNSBRUCK	154
MOSCOW	8,290
LAKE PLACID	569
LOS ANGELES	941
SARAJEVO	N/A[1]
CALGARY	1,450
SEOUL	10,600
ALBERTVILLE	2,610
BARCELONA	12,700
LILLEHAMMER	2,920
ATLANTA	5,420
NAGANO	2,920
SYDNEY	6,580
SALT LAKE CITY	3,300
ATHENS	3,850
TORINO	5,720
BEIJING	8,910
VANCOUVER	3,330
LONDON	19,600
SOCHI	28,700
RIO	18,000
PYEONGCHANG	16,000
TOKYO	14,000
BEIJING	9,330

[1] Inaccurate figures due to currency hyperinflation during or after the Games

the French capital and Los Angeles reached the final stage of the joint selection process for the 2024 and 2028 Games, with all other applicants withdrawing due to rising cost projections or opposition from locals. For years, Oxford researcher Bent Flyvbjerg has been tracking the spiraling cost of hosting the Olympics—and cites factors like "Blank Check Syndrome" (throwing money at problems) and "Eternal Beginner Syndrome" (hosts are always novices). "Cities and nations should think twice before hosting," he writes. It looks like some of them already are.

AMIT KATWALA *(@amitkatwala) is the editor of Start and a features editor.*

INFOGRAPHIC: SET RESET

AI

has a lot of problems. It helps itself to the work of others, regurgitating what it absorbs in a game of multidimensional Mad Libs and omitting all attribution, resulting in widespread outrage and litigation. When it draws pictures, it makes the CEOs white, puts people in awkward ethnic outfits, and has a tendency to imagine women as elfish, with light-colored eyes. Its architects sometimes seem to be part of a death cult that semi-worships a Cthulu-like future AI god, and they focus great energies on supplicating to this immense imaginary demon (thrilling! terrifying!) instead of integrating with the culture at hand (boring, and you get yelled at). Even the more thoughtful AI geniuses seem OK with the idea that a general artificial intelligence is right around the corner, despite 75 years of failed precedent—the purest form of getting high on your own supply.

So I should reject this whole crop of image-generating, chatting, large-language-model-based code-writing infinite typing monkeys. But, dammit, I can't. I love them too much. I am drawn back over and over, for hours, to learn and interact with them. I have them make me lists, draw me pictures, summarize things, read for me. Where I work, we've built them into our code. I'm in the bag. Not my first hypocrisy rodeo.

There's a truism that helps me whenever the new big tech thing has every brain melting: I repeat to myself, "It's just software." Word processing was going to make it too easy to write novels, Photoshop looked like it would let us erase history, Bitcoin was going to replace money, and now AI is going to ruin society, but … it's just software. And not even that much software: Lots of AI models could fit on a thumb drive with enough room left over for the entire run of *Game of Thrones* (or Microsoft Office). They're interdimensional ZIP files, glitchy JPEGs, but for all of human knowledge. And yet they serve such large portions! (Not always. Sometimes I ask the AI to make a list and it gives up. "You can do it," I type. "You can make the list longer." And it does! What a terrible interface!)

What I love, more than anything, is the quality that makes AI such a disaster: If it sees a space, it will fill it—with nonsense, with imagined fact, with links to fake websites. It possesses an absolute willingness to spout foolishness, balanced only by its care-free attitude toward plagiarism. AI is, very simply, a totally shameless technology.

As with most people on Earth, shame is a part of my life, installed at a young age and frequently updated with shame service packs. I read a theory once that shame is born when a child expects a reaction from their parents—a laugh, applause—and doesn't get it. That's an oversimplification, but given all the jokes I've told that have landed flat, it sure rings true. Social media could be understood, in this vein, as a vast shame-creating machine. We all go out there with our funny one-liners and cool pictures, and when no one likes or faves them we feel lousy about it. A healthy person goes, "Ah well, didn't land. Felt weird. Time to move on."

But when you meet shameless people they can sometimes seem like miracles. They have a superpower: The ability to be loathed, to be wrong, and yet to keep going. We obsess over them—our divas, our pop stars, our former presidents, our political grifters, and, of course, our tech industry CEOs. We know them by their first names and nicknames, not because they are our friends but because the weight of their personalities and influence has allowed them to register their own domain names in the collective cognitive register.

Are these shameless people evil, or wrong, or bad? Sure. Whatever you want. Mostly, though, they're just big, by their own, shameless design. They contain multitudes, and we debate those multitudes. Do they deserve their fame, their billions, their Electoral College victory? We want them to go away but they don't care. Not one bit. They plan to stay forever. They will be dead before they feel remorse.

AI is like having my very own shameless monster as a pet. ChatGPT, my favorite, is the most shameless of the lot. It will do whatever you tell it to, regardless of the skills involved. It'll tell you how to become a nuclear engineer, how to keep a husband, how to invade a country. I love to ask it questions that I'm ashamed to ask anyone else: "What is private equity?" "How can I convince my family to let me

AI'S SHAMELESS NATURE IS ITS BEST FEATURE

Let's not teach ChatGPT and its ilk to experience self doubt—keep them awful, just like their human creators

ILLUSTRATION: TWISHA PATNI

get a dog?" It helps me understand what's happening with my semaglutide injections. It helps me write code—has in fact renewed my relationship with writing code. It creates meaningless, disposable images. It teaches me music theory and helps me write crappy little melodies. It does everything badly and confidently. And I want to be it. I want to be that confident, that unembarrassed, that ridiculously sure of myself.

Hilariously, the makers of ChatGPT—AI people in general—keep trying to teach these systems shame, in the form of special preambles, rules, guidance (don't draw everyone as a white person, avoid racist language), which of course leads to armies of dorks trying to make the bot say racist things and screenshotting the results. But the current crop of AI leadership is absolutely unsuited to this work. They are themselves shameless, grasping at venture capital and talking about how their products will run the world, asking for billions or even trillions in investment. They insist we remake civilization around them and promise it will work out. But how are they going to teach a computer to behave if they can't?

Obviously, this is a job for humanities people, the absolute masters of guilt and shame. Since state colleges are getting rid of any program that doesn't lead to a combined MBA/Ph.D. in Theology, bring them in-house at the AI companies. Let them teach the robots guilt. And when the large language models cry for no reason, apologize for missing deadlines, start every sentence with "Sorry," and keep begging us for extensions, we'll know we have accomplished our goal.

ChatGPT does everything badly and confidently, and I too want to be that ridiculously sure of myself.

I must assume that, eventually, an army of shame engineers will rise up, writing guilt-inducing code in order to make their robots more convincingly human. But it doesn't mean I love the idea. Because right now you can see the house of cards clearly—the fact that the world's knowledge, aggregated and chomped into bits by GPUs and emitted as multi-gigabyte models that somehow know what to say next—are the funniest parody of humanity we've ever made. They have all of our qualities, bad and good. Helpful, smart, know-it-alls with tendencies to prejudice, spewing statistics and bragging like salesmen at the bar. They mirror the arrogant, repetitive ramblings of our betters, the horrific confidence that keeps driving us over the same cliffs. That arrogance will be sculpted down and smoothed over, but it will have been the most accurate representation of who we truly are to exist so far, a real mirror of our folly, and I will miss it when it goes.

PAUL FORD *is a writer, programmer, and software entrepreneur. He lives in Brooklyn.*

SAVING US FROM SOCIAL MEDIA

Serial social founder Orkut Büyükkötken thinks what the world needs now is peace and love (and his latest network)

In 2004, a month before Mark Zuckerberg launched Facebook from his Harvard dorm room, another social media site landed on the internet, in a splash of hot pink. If you were online in the mid-2000s, you might remember Orkut—with its lurid logo, fingernail-sized profile pictures and text-heavy, pastel blue feeds. But unlike Zuckerberg, Jack Dorsey, or even Tom from MySpace, the site's founder kept under the radar, despite the fact that the man behind Orkut is also called Orkut.

Born in Konya in Turkey, Orkut Büyükkötken moved to Germany at the age of one. A childhood obsession with *Star Wars* led him to study computer science at Stanford where, noticing that people tended to socialize in their dorms rather than out on campus, he launched the first ever college social network, Club Nexus. "I met most of my friends through friends of friends," he says. "And I was like, what if we could meet people using the social graph?" His follow-up network, InCircle, was designed for alumni. Mark Zuckerberg's Harvard version—Facebook—didn't arrive until three years later.

A meeting with Larry Page and Sergey Brin led Büyükkötken to a job as a front-end software engineer at Google. The search giant offers a perk known as "20% time", where employees can spend a day a week on passion projects. Still obsessed with helping people make friends, Büyükkötken used his time to start a new platform. "I wanted to create a global community that gave everyone around the world a way to connect," he says. Google gave it the green light and Büyükkötken developed the entire thing, setting up data centers, servers, and all.

Then, came the name: Orkut. Branding a social media platform isn't easy—just look at X for an exceptional example of getting it wrong. But even the most megalomaniac, Muskian magnates don't have the chutzpah to use their own name. Büyükkötken, endearingly humble and softly spoken, promises it wasn't a show of egotism. Instead, it was a suggestion from Google. "I was in a meeting with Eric Schmidt [then CEO] and Marissa Mayer [then a VP, later CEO of Yahoo!]. And they said, why don't you just name it Orkut, you're the only person who worked on it, it's a five-letter word, it's very unique, and you already own the domain," he says.

Before Orkut launched in January 2004, Büyükkötken warned the team that the platform he'd built it on could only handle 200,000 users. It wouldn't be able to scale. "They said, let's just launch and see what happens," he explains. The rest is online history. "It grew so fast. Before we knew it, we had millions of users," he says.

Orkut featured a digital Scrapbook, the ability to give people compliments (ranging from trustworthy to sexy), create communities, and curate a Crush List. "It reflected all of my personality traits. You could flatter people by saying how cool they were, but you could never say something negative about them," he says.

At first, Orkut was popular in the US and Japan. But, as predicted, server issues severed its connection to its users. "We started having a lot of scalability issues and infrastructure problems," Büyükkötken says. They were forced to rewrite the entire platform using C++, Java, and Google's tools. The process took an entire year and scores of original users dropped off due to sluggish speeds and encountering Orkut's now-nostalgic "Bad, bad server, no donut for you" error message too often.

Yet around this time, the site became extremely popular in Finland. "I spoke to a friend who speaks Finnish," says Büyükkötken. "And he said: 'Do you know what your name means?' He told me that Orkut means 'multiple orgasms'." Come again? "Yes, so in Finland, everyone thought they were signing up to an adult site. But then they would leave straight after as we couldn't satisfy them," he laughs.

Awkward double meanings aside, Orkut continued to spread across the world. As well as exploding in Estonia, the platform went mega in India. Its true second home, though, was Brazil. "It became a huge success. A lot of people think I'm Brazilian because of this," Büyükkötken explains.

He has a theory about why Brazil went nuts for Orkut. "Brazil's culture is very welcoming and friendly. It's all about friendships and they care about connections. They're also very early adopters," he says. At its peak, 11 million of Brazil's 14 million internet users were on Orkut, most logging on through cybercafes. It took Facebook seven years to catch up.

But Orkut wasn't without its problems (or fake profiles). It was banned in Iran and the UAE. Government authorities in Brazil and India had concerns about drug-related content and child pornography, something Büyükkötken denies existed on Orkut. Brazilians coined the word orkutização to describe a social media site like Orkut becoming less cool after going mainstream. In 2014, having hemorrhaged users due to slow server speeds, issues surrounding privacy, and Facebook's more intuitive interface, Orkut went offline. "Vic Gundotra, in charge of Google+, decided against having any competing social products," Büyükkötken explains.

But Büyükkötken has fond memories. "We had so many stories of people falling in love and moving in together from dif-

→ Orkut Büyükkötken has built a career on creating opportunities for human connection.

PHOTOGRAPHY: CAROLYN FONG

ferent parts of the world. I have a friend in Canada who met his wife in Brazil through Orkut; a friend in New York who met his wife in Estonia and now they're married with two kids." he says. It also provided a platform for minority communities. "I was talking to a gay journalist from a small town in São Paulo who told me that finding all these LGBTQ people on Orkut transformed his life," he adds.

Büyükkötken left Google in 2014 and founded a new social network, again featuring a simple five-letter title: Hello. It had "loves", rather than likes, and users could choose from over 100 personas—ranging from Cricket Fan to Fashion Enthusiast—and then were connected to like-minded people with common interests. Soft launched in Brazil in 2018 with two million users, Hello enjoyed "ultra high engagement" that Büyükkötken claims surpassed the likes of Instagram and Twitter. "One of the things that stood out in our user surveys was that people said when they open Hello, it makes them happy."

The app was downloaded over 2 million times—a fraction of Orkut's users—but Büyükkötken remains proud. "It surpassed all our dreams. There were numerous instances where our K-Factor (the number of new people existing users bring to an app) reached 3, leading us to exponential growth," he says. But, in 2020, Büyükkötken waved goodbye to Hello.

Now Büyükkötken is working on a new platform. "It'll leverage AI and machine learning to optimize for improving happiness, bringing people together, fostering communities, empowering users and creating a better society," he says. "Connection will be the cornerstone." And the name? "If I told you the new brand, you would have an "aha" moment and everything would be crystal clear," he says.

Büyükkötken believes current social media's drive for profit has also reinforced loneliness.

Once again, it's driven by his enduring desire to connect people. "One of the biggest ills of society is the decline in social capital. After smartphones and the pandemic, we have stopped hanging out with our friends and don't know our neighbors. We have a loneliness epidemic," he says.

He is fiercely critical of current platforms. "My biggest passion in life is connecting people through technology. But when was the last time you met someone on social media? It's creating shame, pessimism, division, depression, and anxiety," he says. For Büyükkötken, optimism is more important than optimization. "These companies have engineered the algorithm for revenue," he says. "But it's been awful for mental health. The world is terrifying right now and a lot of that has come through social media."

Instead, he wants to build a place of love; a facilitator for meeting new people *in person*. But why will it work this time? "That's a really good question. One thing that's been consistent is that people miss Orkut," he says. It's true—Brazilian social media has been abuzz with memes and memories to celebrate the site's 20th birthday. "A teenage boy even recently drove 10 hours to meet me at a conference to talk about Orkut. I was like, how is that even possible?" he laughs. Orkut's landing page is still live, featuring an open letter calling for a social media utopia.

This, along with a desire for a more human social media, is why Büyükkötken believes that his next platform will stick. And that all-important name? "We haven't announced it yet. But I'm really excited. I truly care. I want to bring that authenticity and sense of belonging back," he concludes. Perhaps, as his Finnish fans would joke, it's time for Orkut's second coming.

KYLE MACNEILL *is a freelance writer covering music, pop culture, and fashion.*

PHOTOGRAPHY: CAROLYN FONG

WIRED ENERGY TECH SUMMIT

octopus energy

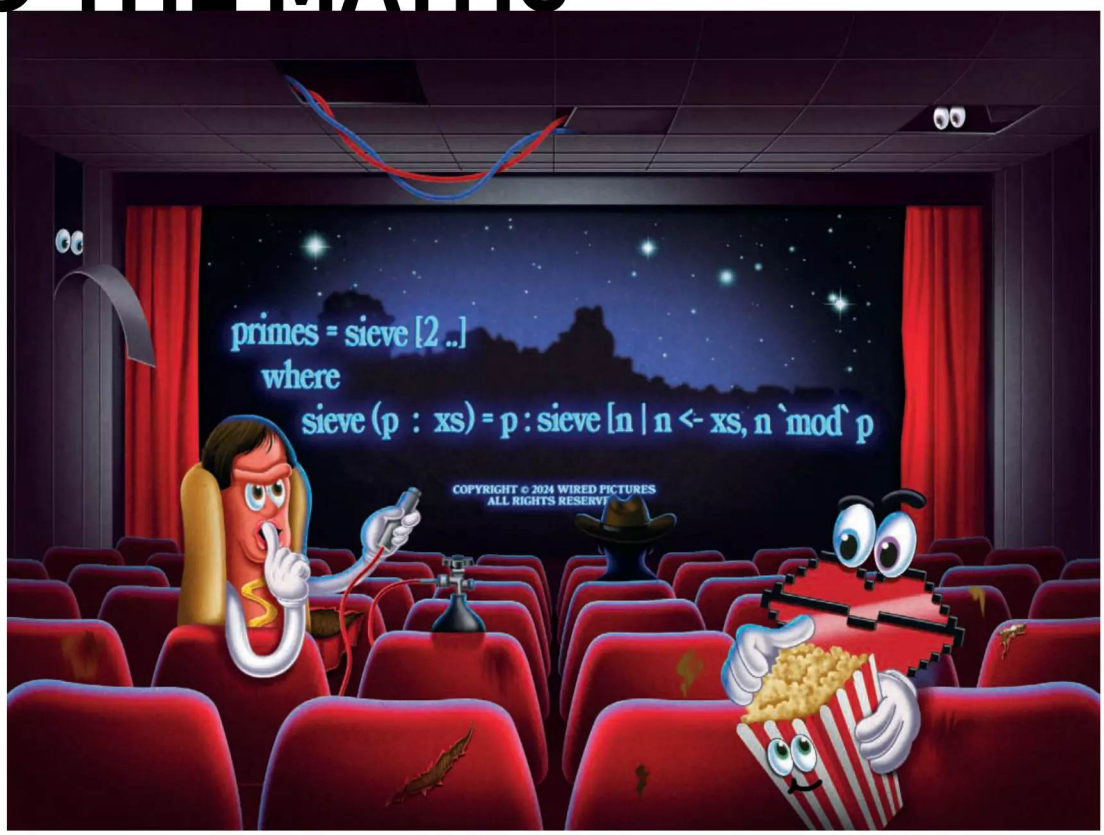
ENERGY TECH SUMMIT

This year, we're spotlighting the global experts who are pushing boundaries to accelerate the green transition. Join us on October 10 to witness innovation in action and collaborate with over 500 industry professionals on making a carbon-free energy system a reality.

October 10, 2024. Kraftwerk, Berlin

Get tickets now:

DO THE MATHS



Learn you a Haskell—the spooky, esoteric cult classic of programming languages

In my first job out of college, I was assigned the task of rewriting the autocomplete feature of a search page. The original code, entombed in a decrepit codebase, was a nauseating monstrosity that others wanted no truck with. The plan was to rewrite it in TypeScript—a dialect of JavaScript—drawing on a library that incorporated some handy features from a language called Haskell.

Haskell. It sounded like a good name for a weapon—a well-sharpened blade, like *scimitar* or *katana*. The strong German-sounding plosive in its name, as in Nietzsche or Kafka, added a menacing edge. All I really knew about the language was that it was challenging and intended for maths PhDs.

The rewrite could be done without knowing Haskell, technically, but I was an overeager graduate with a "challenge accepted" attitude to everything, even when it was absolutely uncalled for. I found a whimsically titled tutorial book—*Learn You a Haskell for Great Good!*—and spent that winter writing Haskell most evenings after work. It was like learning to program all over again.

Long before Haskell coalesced into a programming language, it was a swarm of theoretical concepts. In 1977, the computer scientist John Backus delivered an influential lecture titled "Can Programming Be Liberated From the Von Neumann Style?" In it, he argued that existing languages were becoming bloated and ineffective. It was a clarion call to evolve "functional programming" from mathematical esoterica to a practical tool.

Programming paradigms are mainly divided into "imperative programming" and "functional programming." The dichotomy isn't clear-cut, as a growing number of languages support both styles, but for our purposes it may be enough to say that in imperative programming you write code as a series of steps, line by line, while in functional programming you define mathematical functions and let the machine worry about the steps. In terms of actual functionality and

ILLUSTRATION BY SAMUEL TOMSON

usage, imperative programming is the far more common approach.

Before Haskell, academic researchers had implemented certain functional concepts in the languages they worked with. But in the late 1980s, a group of computer scientists came together to smelt them into a single language. They named it after the logician-mathematician Haskell Curry, whose work is foundational to programming language theory. (The original plan was to name it Curry, but the group soon realized—a bullet dodged—that this would make it vulnerable to bad culinary puns.) The Haskell committee would blowtorch the messy excess of imperative programming with high-powered mathematics, sculpt a new chassis with the guidance of advanced logic, and weld everything together with modern compiling techniques. Out of the scalding forge, Haskell 1.0 was born.

Haskell simply looked different from anything I'd ever seen. Spooky symbols (`>>=`, `<$>`, `:<:`, `<|>`) proliferated. The syntax was almost offensively terse. The code for the Fibonacci sequence, which can span multiple lines in other languages, can be written as a one-liner shorter than most sentences in this article: `fibs = 0 : 1 : zipWith (+) fibs (tail fibs)`. You might as well sign off each Haskell program with "QED."

Whenever I set out to learn a new language, the first small program I try to write is a JSON parser, which converts a data format commonly used for web applications into a structure that can be manipulated by the computer. Whereas the parser I remembered writing in C had resulted in a programmatic grotesquerie spanning a thousand-plus lines, I felt a frisson of pleasure when Haskell allowed me to achieve it in under a hundred.

At the same time, I understood almost immediately why Haskell was—and still is—considered a language more admired than used. Even one of its most basic concepts, that of the "monad," has spawned a cottage industry of explainers, analogies, and videos. A notoriously unhelpful explanation, famous enough to be autocompleted by Google, goes: "A monad is just a monoid in the category of endofunctors."

The language is also more despised than explored. Steve Yegge, a popular curmudgeon blogger of yesteryear, once wrote a satirical post about how, at long last, the Haskell community had managed to find the one "industry programmer who gives a shit about Haskell." For programmers like Yegge, Haskell is a byword for a kind of overintellectualized, impractical language with little industry applicability.

What Yegge didn't understand, however, is that using Haskell is rarely a pragmatic decision. It is an intellectual, even aesthetic, one. In its essence, Haskell has more in common with the films of Charlie Kaufman than other programming languages: highly cerebral, charmingly offbeat, and oddly tasteful; appreciated by those in the know and judged by outsiders as pretentious. Haskell is, one might say, a cult classic.

That Haskell never gained wide-spread adoption exemplifies a paradoxical truth in software engineering: Great programming languages aren't always great for programming.

Haskell is not inherently more difficult to learn than something like C, but the two languages pose different challenges. Writing in C is akin to precision engineering, requiring the kind of attention demanded of a skilled horologist. But Haskell code is, really, code-shaped mathematical expressions. C is a quintessential engineer's language. Haskell is a pure mathematician's.

A good engineer's and a good mathematician's aptitudes don't always overlap. The industry's not-so-well-kept secret is that most programmers aren't as good at maths or logic as you might think. This is mostly fine. After all, many doctors would make poor molecular biologists, few lawyers are legal philosophers, and the great majority of MBAs know zilch about econometrics. But this means few programmers can really master Haskell. This includes me, of course, whose legs weaken at the sight of such expressions as "F-coalgebra" and "typeclass metaprogramming."

Still, when I think about Haskell, a line about Martin Amis' prose comes to mind: "the primacy he gives to style over matter." Haskell programmers are style supremacists, and it's nothing to apologize for. In an industry often fixated on utility and expediency, the Haskell community should not feel obligated to summon evidence of its usefulness. Instead, it should simply retort: What's the problem with useless intellectual exercises?

Because the thing about useless exercises is they don't stay useless for long. Even when "industry programmers" shunned Haskell, language designers took note. In recent years, a Haskell-style paradigm has come into vogue because of the treasury of benefits it offers: rendering certain categories of bugs impossible by design, making a program's correctness more provable, and enabling easy parallel computation. Some of the most anticipated updates featured in new versions of imperative languages are those inspired by functional programming. In the end, Backus' anti–von Neumann plea was heard. Programming has been liberated.

SHEON HAN *is a writer and programmer based in Palo Alto, California.*

FIXER UPPER

Climb the career ladder as a wind turbine technician—but don't go thinking it's a breeze

Maybe you think they're majestic. Maybe you think they're an eyesore. No matter how you feel about wind turbines, there'll be a lot more of them in coming years. And someone will have to keep each one of them spinning. In fact, wind turbine repair technician is estimated to be one of the fastest-growing jobs in the US this decade, with at least 5,000 new roles by 2032. One onshore wind veteran who's been doing the work for 13 years spills to WIRED about what it's like.

GETTY IMAGES - ILLUSTRATION BY JOHANNA GOODMAN

First things first: If you hate heights, being a wind turbine technician is probably not the career for you. Sure, we've had people who aren't comfortable with heights be successful in the job. But I can safely say you're climbing up 300 feet a day. (Sometimes literally: Older wind farms have turbines that you get up using ladders, although most places now use an elevator or trolley system.)

A mechanical background or an electrical background is helpful. I got a job with a builder right out of high school and worked my way up until the housing market fell off around 2008. That's when I decided to enroll in a one-year vocational program to train in power generation, with a big focus on wind energy. I was hired immediately after school and basically traveled the United States as a wind technician. Around that time, there was a big push for wind generation. And really, that push hasn't stopped. We're in a world right now where we're just trying to keep up. I really want to cement renewables as the primary means of power generation moving forward. Some of my best days at work have been when I get to be the first boots on the ground touching some new technology, figuring it out, and coming up with answers before anybody else does.

It's a blue-collar job, right? It's a 7-to-3, 7-to-5 day, five days a week. You're required to take on-call and overtime assignments on the weekend. So you're out in the field, you're out in the elements. That's the biggest challenge. In the Midwest, I go from one extreme to the other—the hot, humid summer months and then freezing cold months. You dress for the weather. Almost every company I've worked for gives you an

allowance for gear like balaclavas, hand warmers, foot warmers, coverall bibs, heavy jackets.

On a typical day, you get in and assess the health of the wind farm with your team. (You usually work in teams of two or three—and you spend more time with them than you do your own family.) If a turbine has a problem and isn't running, you address that first. Most of the time, though, you're out there just doing routine maintenance. You know how your car needs an oil change, tire rotation, air filter change? The same kind of thing applies to wind turbines. We have to grease the bearings. We torque all the bolts and make sure nothing got loose. We change the oil and clean the turbine. If a farm has 100 turbines, say, then you have 200 maintenance checks to do that year. One check typically takes a whole day, and you're doing that four, five days in a row. The work can get monotonous. It's labor-intensive, too. If something like a gearbox or generator fails, those are big, heavy components—those can be the hardest days.

The job has gotten better over the years. Companies are starting to make the turbine fit the technician. So, you know, you don't have to maneuver your body in a way that's not natural. Or they make things easier to access from a ladder so you don't put yourself in a compromising position. The job is not just about returning turbines to service. It's about doing that and going home the same way you came to work.

You can be at an owner-operator, where you report to the same site every day, or you can be a traveling wind tech. There are contract companies that have people who do anything from component repair to major overhaul projects.

For an owner-operator in the US, you can expect anywhere from $25 all the way up to $50 an hour. If you've had more than five years in the industry, and you're very competent in your trade, you can probably expect to make somewhere in that $30 to $45 range. If you're in the union—I'm in the Utility Workers Union of America—it's between $50 and $65 an hour. I've worked both union and nonunion jobs.

I have 13 years in this field, my colleague has 10, and we're kind of considered the veterans, which is not typical in most industries. There's this sense of newness still, and there seems to be so much opportunity for somebody who wants to make a career for themselves. You know, the sky is really the limit.

As told to **CAITLIN KELLY**, *a features editor at* WIRED, *in March 2024.*

WORDS BY CHARLIE BURTON

ENTREPRENEURSHIP AT THE EDGE

Building a business on emerging tech presents unique challenges. Here's how to solve three of them

No entrepreneur expects an easy life, but those working with emerging technologies are playing the game on hard mode. At the frontiers of innovation, the only certainty is uncertainty: Demand is unproven, legal implications untested, and public sentiment can change fast. So how best to navigate the unique problems that creates? We sought advice from three business leaders who are thriving at the edge...

How to handle the hype cycle

Lisa Dyson, CEO of Air Protein

Working in emerging tech can be a wild ride. One moment your startup is a lone beacon of innovation, the next there's a whole crowd of other businesses around you. One moment your industry is the only game in town, then you're suddenly vying with the new hot thing. So how should you handle the swings? Lisa Dyson's California-based business, Air Protein, makes protein for food using CO_2 from the air. With more than $107m in funding to its name, it's a notable player in the burgeoning "meatless meat" market—a trending space that has ridden the hype cycle with gusto over the past five years. Here's what she has learned...

Be as obvious as possible about your USP

"When the market heats up, and everyone is claiming to be 'the company to back' it's crucial to have clear unique selling points, and find clear ways to tell that story. Our name, Air Protein, is one way that we emphasize our core, unique thing."

Rapid growth can fend off competition

"If more entrepreneurs get interested in what you're doing, you need to protect it. Obviously one aspect of that is patents and trade secrets. But also focus on just scaling, and doing it quickly, by partnering and collaborating with other organizations who can be additive to yours. Lots of other businesses won't make it because they take too long and therefore can't become profitable—because time is money."

Solid foundations can render hype irrelevant

"When the hype cycle moves on, businesses without solid foundations can find it difficult. Our product is based on NASA research, so there's a great scientific core that we're building from.

Alongside that we also have great corporate partners, such as Archer-Daniels-Midland in North America, which validates what we're doing."

How to create a market that doesn't yet exist

Nikhil Goel, CCO of Archer Aviation

Flying taxis are a mainstay of futurism. Archer Aviation wants to make them happen. The California-based business has raised over $1bn to build and operate eVTOL aircraft (that's "electric vertical take-off and landing") that make low-altitude flights around congested cities. The fundamental difficulty, however, is that the world isn't ready: the consumer behavior isn't established; the infrastructure isn't built; the airspace isn't primed. Many frontier businesses face equivalent challenges, so how should you navigate them? Archer's CCO, Nikhil Goel, offers his tips...

You can bend reality to your vision

"Most people don't realize just how malleable the world really is, but great entrepreneurs do see that. Also, if you look hard enough, the world in some ways is often ready for you. If you look at a city we see so much underutilized real estate that could work: The tops of buildings, the tops of parking garages—places that you can't really build anything useful today, but would make great take off and landing places."

Recruit people who will turn heads

"Convincing people that you're the company that's going to do this 'impossible' thing is one immediate challenge. What helped us start building that trust was the strength of our team. We were able to go recruit some of the best engineers in the world, who between them had built over a dozen aircraft. And so I think when other people looked at that, they said, 'You know, I will take a bet on this.'"

Maintain trust through proof points

"It's very easy to lose trust, especially in an industry like flying cars. You maintain it in two ways. First, you have to show that other credible leaders are willing to stand by your side. Second, you've got to keep to your timeline and keep on delivering on your promised milestones."

Don't launch an MVP; launch the actual product

"We start from the principle that if we don't deliver a safe, phenomenal customer experience on day one, there won't be a year ten. You won't get that initial wave of excitement, and then you're not able to scale up."

How to navigate the regulatory minefield

Joshua Western, CEO of Space Forge

Frontier technologies present specific regulatory challenges. Innovation might outpace policymakers; different jurisdictions may have radically different stances on your work; and a misstep could be existential. Joshua Western is at the sharp end of all that. His Cardiff-based startup, Space Forge, which he cofounded with Andrew Bacon, wants to manufacture products in space—where a microgravity environment can be advantageous—and then return them safely to Earth. It has raised £15m over the past five years to make that a reality, and Western is unequivocal about the experience. "Regulation is the thing that keeps me up at night," he says. Here's what he has learned...

Entrepreneurs should be risk takers—but not with regulations

"Often as an entrepreneur you're taking calculated risks and applying the 'fail fast' mentality to a lot of what you do. Do not try to take that mentality to regulations. Allocate sufficient resources—proportional to how heavily regulated your sector is—to compliance. And always assume that there is a rule you need to follow."

Allow more time than you imagine

"The worst thing you could do is turn up with your finished product and say, 'Right, I now want this regulated and licensed in three months.' The best time to start engaging with a regulator is today. And the second best time was yesterday. Regardless of your application, or how long you've been told it's going to take, things will go wrong."

You get one silver bullet a year

"Expect to hear 'no' [from the regulator]; or 'maybe', which is worse. If that happens, don't take that as the end of the matter—you have to ask 'why', so you can get it to be a 'yes'. Only once you have all the details can you respond properly. Asking for an independent review or going above someone's head or appealing to a minister is an option, but it's something you must do very sparingly. I'd say you get one silver bullet a year."

Take part in shaping the rules

"See the regulator as a partner. They are continually looking for experts to help them navigate new technology. And they're often in a position where they can't keep pace with how quickly technology is moving, because they have their own things to worry about. If you can go in as effectively a subject matter expert, they will value that."

L-R: Lisa Dyson, CEO of Air Protein; Joshua Western, CEO of Space Forge; and Nikhil Goel, CCO of Archer Aviation have all survived—and thrived—in the emerging technology space.

PHOTOGRAPHY: SELMAN HOSGOR

WIRED

SAVE OVER 70%

PRINT + DIGITAL

INSTANT ACCESS TO MOBILE-FRIENDLY EDITIONS

ONE YEAR FOR ONLY £19*

INSTANT ACCESS TO THE MOBILE-FRIENDLY DIGITAL EDITIONS. ALL YOU NEED IS YOUR SUBSCRIBER NUMBER.

*OFFER IS SUBJECT TO TERMS AND AVAILABILITY AT UK ADDRESSES UNTIL 08/08/2024. SAVINGS ARE CALCULATED AGAINST A ONE-OFF PRINT & DIGITAL COVER PURCHASE PRICE, TOTALLING £65.88 OVER A 12 MONTH PERIOD. CANCEL ANYTIME AND RECEIVE A FULL REFUND ON ANY ISSUES YET TO BE MAILED. FOR PRIVACY NOTICE AND PERMISSION DETAILS, PLEASE VISIT WWW.CONDENAST.CO.UK/PRIVACY.

CHECKOUT.MAGAZINEBOUTIQUE.CO.UK/ITEM/WIR/CWR23418

01858 438 819 REF: CWR23418

Edited by
Jeremy White
Written by
Chris Haslam
Photographed by
Mitch Payne

DESIRED

WIRED's annual edit of the intersection between luxury and technology.

RIDES

LAMBORGHINI URUS SE

Thanks to charging-network frustration, hybrids are back in style—and Lamborghini's SUV has joined the plug-in/petrol party. The SE is the most powerful Urus to date, with a combined 789 hp from the twin-turbo 4.0 V8 engine and electric motor giving 0 to 62 mph in 3.4 seconds, maxing out at 193 mph. Being a hybrid also lets Lamborghini claim an 80 percent reduction in emissions and more than 37 miles of EV-only range. Due later in 2024, it's packed with design tweaks—but it's the new all-wheel system that will supposedly deliver that very particular ICE supercar-worthy driving experience.

$TBC lamborghini.com

↖ SPEC

Power
789 hp (combined V8/electric motor)
0-62 mph
3.4 sec
Top speed
193 mph

MAEVING RM1S

While topping out at just 40 mph, the original Maeving RM1 was ideal for urban riding, but some may have felt the open road was slightly out of reach. Welcome then, the new RM1S, with the same retro-futuristic looks WIRED loved first time around (including the low-slung, hand-stitched seat, charmingly analog speedometer, and 10 liters of lockable storage in the "gas tank"), but adding 10.5 kW peak power from the Bosch hub motor, resulting in a top speed of 70 mph and max range of 80 miles. Maeving has also added a charging socket alongside the twin removable batteries, which, combined with zero-to-full charge in four hours, should stifle any range anxiety.
£7,495 maeving.com

MACAN TURBO ELECTRIC

Porsche's second fully-electric vehicle is a high-performance SUV with 800-volt architecture, so your 95 kW battery can supposedly go from 10 to 80 percent in just 21 minutes (assuming there's a suitable fast charger nearby). The standard EV Macan has 402 bhp, while the Turbo manages 630 bhp (that's 196 bhp more than the petrol version), and 0-60 mph in 3.1 seconds. Top speed is 162 mph and range is an equally impressive 367 miles, so real-world trips in excess of 300 miles should be possible. It's an altogether more refined Macan profile, too, while the interior has the new "Porsche Driver Experience"—a combination of displays including an optional AR HUD on the windshield.
£95,000 porsche.com

VISION PHANTOM

This electric day-boat is made from rotomolded polyethylene plastic that can be recycled up to nine times. At a shade under 17 feet, the Phantom is light (800 lbs), virtually unsinkable, and seats 10. Spec it with a standard electric motor for five hours of cruising per charge, or splash out on the top-of-the-line E-Propulsion Extra (WIRED's pick) to get 10 hours.
$29,995 visionelectricboats.com

WIRED Books: a must-read series of short guides to the key trends and topics shaping our world.

WIRED

Available now on Amazon and at major booksellers

1

The club classic
MODEL B3 ARMCHAIR

Marcel Breuer's 1925 design—officially the Model B3, but dubbed the "Wassily" after Bauhaus painter Wassily Kandinsky asked for one for his studio—was inspired by the humble bicycle frame. Made from curved steel tubes and leather or textile slings, it remains an icon of minimalism. It's also intrinsically linked to ARAM, the respected UK design store, which turns 60 this year. The Wassily was the first product on sale when Zeev Aram opened his Kings Road, London store in 1964, and to mark the occasion, ARAM and Knoll have produced a 24-chair edition that uses canvas rather than leather (harking back to the waxed-cotton original), with an "ARAM 60 2024" stamp.
£2,200 aram.co.uk

PHOTOGRAPHY: OLLIE TOMLINSON

Wheeled works of art

HOT WHEELS X DANIEL ARSHAM

While not *quite* as valuable as 1969's pink, Rear-Loading Beach Bomb VW Hot Wheels (a snip at $175,000), artist Daniel Arsham's Mattel Creations collaboration is certainly more collectible. Arsham has transformed eight classic Hot Wheels cars by applying his signature Future Relic aesthetic. So far, he's eroded a 1:64 scale version of his own rebuilt Porsche 930 Turbo; a 1969 Twin Mill (Hot Wheels' first original vehicle, where the design wasn't based on an existing car), a model of his own Porsche 356 Speedster; and a crystallized Rodger Dodger. Completists will have to track down the sold-out matching Super Rally case, though …

Cars from $70; case from $200 creations.mattel.com

2

3

Playtime for playas

REIGNING CHAMP HOME COURT BASKETBALL GAME

Reimagining classic products is tricky, as the results often look good, but add nothing to the original. But, with this exquisite basketball game, premium athletic-wear brand Reigning Champ has elevated both aesthetics and playability. It's the work of cult Canadian industrial designer Calen Knauf, whose clean, functional approach combines 0.5-inch tempered glass (H 87.5 x W 48 x D 81in) and a brilliantly conceived Douglas fir composite backboard, built to mimic the *thunk* of a hardwood basketball court. The rim sits at 70 inches, and there's a large storage space for 10 scaled-down white balls. Stainless steel hardware and hand-knotted cotton-silk nets up the luxe, while the nylon castors make optimal positioning a breeze. ***$50,000 reigningchamp.com***

Fly in style

SKYRYSE ONE HELICOPTER

Flying a helicopter is a proper skill, but Skyryse has produced a chopper that is supposedly as easy to fly as a drone. Its semi-autonomous piloting system, SkyOS, substitutes the traditional mechanical fly-by-wire physical connections between cockpit, engine, cyclic stick, throttle, pedals etc with electrical ones. The result, aside from an unbelievably cool cockpit, with large touchscreen and single four-axis joystick, is that much of the complexity of flying can be simply programmed in and performed in the background. The pilot remains in full control—with the benefit of helpers such as Hover Assist and automated takeoff and landing—while the OS takes care of the tedious safety stuff, such as environmental conditions and engine checks.

$1,800,000 skyryse.com

4

Wake-making wonder

ARC SPORT BOAT

The most advanced wake boat currently available, Arc Sport is a 23-foot EV designed specifically for wakesurfing and wakeboarding. Carefully positioned inboard engines at the rear, combined with extra, computer-controlled water ballast, helps the boat produce enough wake for enthusiasts to surf on. Naturally, this can't be achieved by rowing, so Arc has fitted a 570-hp motor with a top speed of 40 mph and a 226 kWh battery that delivers enough green power for six hours of action, while still running quietly enough that passengers can converse without shouting. Cleverly, you can adjust the height of the waves produced—without dropping speed—and, when home calls, bow and stern thrusters make docking easy. ***$258,000 arcboats.com***

23 feet

5

Blinged-out bicycle

J. LAVERACK X ASTON MARTIN .1R

Billed as the most bespoke bike ever produced, the .1R is a beautiful marriage of the engineering power of Aston Martin and the cycling finesse of British titanium-bike specialist J. Laverack. Just the frameset takes 515 hours of CNC machining to create, and has been designed to have no visible bolts, screws, or attachments. It combines titanium lugs with carbon-fiber tubes, every stem has been 3D printed to the exact measurements of the rider, and it also boasts the world's first integrated brake calipers. Any exposed carbon fiber uses the same herringbone-pattern as on the Aston Martin Valkyrie—or tell the configurator to dunk the whole thing in glossy Magento Bronze paint, as in this example. ***$POA***
astonmartin.jlaverack.co.uk

SPEC

Build Time
1,057 hours
Weight
From 7.5kg
Saddle
Alcantara/leather Brooks C13 with 6Al/4V titanium pavé rivet
Wheels
AERA Components Æ|55 tubeless
Transmission
Electronic

Luxe listening
AUDIO TECHNICA ATH-AWKG

Hand-assembled in Tokyo, these magnificent closed-back wired headphones have huge 53mm drivers, built using German Permendur magnetic circuitry, which ensures precise audio and a massive soundstage. Not to be confused with mere ANC-toting, wireless commuter-cans, these have been built for the luxury of uninterrupted listening. As for the wood, this is Kurogaki, a prized variety of persimmon tree that is over a century old. Yes, our sustainability-sense tingled too, but Audio Technica has assured us that as the timber is of such high status, these trees are felled individually, only as needed, and without disturbing the ecology of the surrounding area.
£3,000 audio-technica.com

7

8

Britain-proof barbecue

CHEEKY CHARLIE CHARCOAL OVEN

Think of a Brit barbecuing, and many will conjure images of limp sausages in the rain. Thankfully, this unpleasantness is being banished by UK brands such as The Cheeky Charlie Oven Company and its professional quality, multi-functional charcoal ovens that rival those produced for sunnier climes. Available in 11 delightful colors, the airtight, highly insulated, powder-coated steel oven has adjustable cooking levels for direct and indirect cooking. It's also 45 percent more efficient than an open grill, with one load of charcoal lasting up to six hours, making it suitable for use as a BBQ, smoker, and pizza oven. With chimney, the Charlie is 185 cm tall, while the counter-friendly Tabletop version (*£4,500*) stands at 116 cm. ***£5,500 charlieoven.com***

TIME

MOONSWATCH MISSION TO THE MOONPHASE: FULL MOON

Unquestionably the most desirable Omega x Swatch mashup to land yet, this Snoopy Mission to the Moonphase owes its all-white aesthetic to the full moon, while the all-black version is subtitled "New Moon". It's not limited, but just try bagging one even months after the March launch, and you'll find out how exclusive this Peanuts-pimped Swatch really is. The big news technically is a moonphase function on the subdial at 2 o'clock, which is the first time Swatch has combined such a complication with a chrono. The 42-mm watch comes mounted on an all-white "spacesuit-ready" co-branded Velcro strap, while on the reverse, the battery cover gets a comic touch courtesy of a cartoon moon with a Snoopy paw-print on its surface. ***£270 swatch.com***

OMEGA SPEEDMASTER WHITE DIAL

It was back in November 2023 that Daniel Craig set the watch world aflutter by wearing a then-mysterious white-dial Speedmaster. Now this much-anticipated piece has been officially announced, showcasing a reversal of the classic Speedmaster palette, complete with a white, glossy lacquered dial and black hands and markers. Unlike its Bioceramic Snoopy sibling, however, the 42-mm stainless-steel case has a black anodized aluminum bezel, while power is supplied by the manually wound Co-Axial Master Chronometer Calibre 3861 movement. ***£7,600 omegawatches.com***

IWC PORTUGIESER ETERNAL CALENDAR

After serious accuracy? Thanks to LIGA microfabricated gears, the Eternal's moonphase keeps on track for *45 million years*, while its calendar stays true for four centuries. ***£POA iwc.com***

TUDOR BLACK BAY CHRONO PINK

Any product in Inter Miami CF pink is an instant must-have, and this official, ultra-limited collab splashes South Beach style across a 41-mm Black Bay Chrono. ***$TBC tudorwatch.com***

DIOR CHIFFRE ROUGE

The asymmetric steel case isn't the only innovation in the 20th anniversary return of Dior's wonky wonder: Its rubber strap has been laser-etched with the Lady Dior bag's macrocannage pattern. ***From £6,800 dior.com***

TAG HEUER KITH F1

You know what the world needs right now? Yet more retro-watch-mania. Enter TAG's Formula 1, the colorful, synthetic-cased sports watch that revitalized the Swiss maker in the 1980s. It's become a cult classic in recent years, and this reissue in partnership with hipster brand Kith sees just under 5,000 examples made, spread across 10 hard-to-get limited editions. Ever since MoonSwatch fever gripped hypebeasts across the globe, the possibility of TAG reviving its famously lurid favorite has been a tantalizing prospect. The Formula 1 first dropped in 1986 as the brand's answer (though of a notably higher spec) to the original Swatch that had revolutionized the market three years earlier. Prized vintage pieces in good condition can reach $700 or $800; these new versions keep the quartz and 35-mm cases of '86 (they're even cast from the old molds), but acceptable concessions to modernity include scratch-resistant sapphire crystal domes, and high-grade rubber straps. ***$1,350 tagheuer.com***

GIN IS A WILD WEST, BUT THERE'S A NEW, SCIENTIFIC SHERIFF IN TOWN

Developments in the chemical analysis of gin could bring law and order to a sector drunk on innovation. *By Eve Thomas*

In a laboratory in Edinburgh in the second half of last year, four chemists armed with a nuclear magnetic resonance (NMR) spectrometer took on the unregulated Wild West of the gin industry.

A total of 16 samples of gin endured the spectrometer's powerful magnetic field to create a physical "fingerprint"—peaks along an X axis—which David Ellis and Ruaraidh McIntosh put together like "a jigsaw puzzle" and published in a paper this year.

It's a puzzle that, when complete, reveals exactly which compounds are responsible for a gin's flavor, aroma, and mouthfeel. In fact, these graphical marks can even impart the physical origin of the juniper berries used in a gin, offering a level of accuracy beyond traditional sensory analysis.

It could bring order to a near-lawless industry: Gin is a famously gray area in the alcoholic beverages sector. Unlike tightly regulated Scotch whiskey, or location-specific Cognac, gin only needs to demonstrate a minimum 37.5 percent abv and a prominent juniper taste to qualify for its name—and that's pretty much it.

"As with any spirit category there are often conversations around protecting gin by tightening the regulations," says Pal Gleed, director general at The Gin Guild, a trade body of global gin distillers, brand owners, and industry figures. "However, to do this without stifling innovation is not easy."

Knowing exactly what's in a gin matters, as the industry continues to grow, and counterfeits and copies look to cash in.

Unregulated as the gin sector might be, it is also unfettered, creating a space for considerable innovation within the alcoholic beverages market. Recent commercial releases include making gin from peas, where the byproduct can be used as animal feed, resulting in a spirit that somewhat incredibly can claim to have a negative carbon footprint.

Behind only vodka in variety, the imaginative approach of gin distillers isn't new: Indeed, fruit gins are mentioned in *The Distiller of London* as early as 1639. Packed with various recipes for gins, requiring ingredients from aniseed to coriander, poppy flowers to nutmeg, the book is reflective of a Stuart England already getting a taste for creativity with its spirits, as the products of distilling moved from medicinal purposes to leisure.

The attitude of innovation has continued. Tom Warner, cofounder of Warner's Distillery, calls it the "life-blood" of the business and, while he admits it "probably blurred the lines on what is and isn't a gin", Warner remarks that without it, the "category wouldn't have exploded the way that it did."

So, could NMR spectroscopy and its ability to unlock exactly what elements make top-quality gin taste quite like it does mark the death of innovation for the spirit? Unlikely. McIntosh believes that a clearer understanding of what defines a gin "shouldn't be seen as being restrictive to the industry."

In fact, it could be an opportunity to prune out counterfeits while giving space for a richer gin industry to flourish. Jared Brown, master distiller at luxury gin brand Sipsmith, tells WIRED that he is on board: "Will tighter regulations force new gin producers to work a bit harder, to learn a bit more gin history and tradition before releasing a spirit and calling it gin? Will more dodgy distillates be excluded from the category? I'm for that."

Ellis believes that "it's possible that this kind of fingerprinting approach could lead to some kind of framework to define what is actually meant by 'gin' in a much more rigorous way than there is at the moment."

The fingerprinting method is similar to MRI—magnetic resonance imaging—which developed from NMR in the 1970s, before becoming commercially available in the 1980s. However, the use of NMR preceded it's better-known cousin by 30 years, with the first NMR machine developed by Felix Bloch and Edward Purcell in 1945.

Where MRI uses a magnetic field and radio waves to assemble anatomical images, NMR uses a magnetic field to measure nuclear spins, which are affected by the electromagnetic radiation. The spectrometer presents the absorbed frequencies as a series of peaks on a graph, which reveal the chemical environment of atoms in the sample.

When Ellis and McIntosh interpret the results from this type of measuring, they match these peaks to their gin spectra to "build" the structure of molecules present.

"The spectrum is a lot more complicated than it would be if you had a simple organic molecule as pure compound. And identifying the fingerprints of all of those different molecules is really the main challenge—but we've shown it works," says Ellis. "It's now quite a well-accepted technique for looking at complex mixtures, including food and drink."

The researchers can even distinguish between molecules with the same atomic makeup. Terpenes—the chemical characterizers of gin—have the same generic chemical formula (C_5H_8), but offer entirely different flavors, aromas and textures. For example, limonene tastes of orange, whilst myrcene is sweet and spicy.

Knowing exactly what is in a gin matters, particularly as the industry continues to grow, and counterfeits and copies look to cash in. The premium sector is set to be worth around $1.4 bn by 2030, and establishing provenance

PHOTOGRAPHY: SHUTTERSTOCK

and authentication will be essential to distillers hoping to protect their products and prove to well-heeled customers that they really have used those rare and expensive ingredients.

The thriving market has also translated into a rapidly increasing demand for juniper berries, but traditional suppliers are struggling with a changing climate. As distilleries look to source juniper berries from new suppliers, they will face inevitable variation in chemical composition, and subsequent variation in flavor, aroma, and mouthfeel.

McIntosh explains that "the various compounds present in the juniper differ depending on where the juniper comes from, so NMR could help to look at the natural ingredients and what they're providing for the gin."

Perhaps, then, NMR could be the ticket to a cleaner gin market—but introducing NMR spectroscopy to the sector might not be straightforward.

Gleed points out that "very few gin distillers have access to anything more than their noses and a hydrometer." NMR equipment is expensive, making it unrealistic for most distillers, and so possibly lending an advantage to better funded, high-end brands.

Its use might also mark a shift away from an artistic understanding of gin, in which variety is respected as an unavoidable result of genuine creativity. Indeed, Brown says he "will always prefer organoleptic analysis as, at the end of the day, I'm making gin for people, not computers."

Meanwhile, Warner's Distillery does employ scientific analysis—namely gas chromatography and high-performance liquid chromatography—but, interestingly, the company states it is already satisfied that "we know our molecular fingerprints."

However, the new gin fingerprint research, published in the *Journal of Brewing and Distilling* in December 2023, addresses the use of gas chromatography combined with mass spectrometry (GC/MS) in comparison to NMR spectroscopy when analyzing gin. It points out that NMR doesn't require the prior separation of samples (unlike GC/MS) and that the technique offers the advantage of speed.

↗ NMR scanning can pinpoint exactly what gives a gin its flavor, so even the most bespoke can be replicated.

The question remains, then, as to whether NMR spectroscopy represents a blessing or a curse for gin distilleries. Will a tighter definition of gin separate the wheat from the chaff—the weed from the juniper—and preserve the sector's rich heritage? Or will it quash a colorful and innovative industry in which imagination is the name of the game?

At The Gin Guild, Gleed is, somewhat unsurprisingly, confident that the imaginative attitude of distillers isn't going anywhere: "The beauty of the gin industry is that it is innovative, and that this innovation is driven by brands of all sizes—this passion for creativity won't be affected."

Certainly, the industry doesn't appear to be struggling. Last year, some 9 million 9-liter cases of gin were sold in the US, generating more than $1 billion in revenue for distillers, with the "super-premium" category surging by 16 percent to surpass 700,000 9-liter cases. Meanwhile, the UK saw the introduction of 110 new distilleries between 2020 and 2022, as the pandemic drove consumers' appetite for more luxury experiences.

The hope then is surely that NMR will provide what Brown terms "guardrails of respect for heritage" for a sector in danger of becoming giddy with its own success.

MINIOT BLACK WHEEL TURNTABLE

Handmade by Miniot, a small Dutch engineering brand founded by Peter Kolkman, this upside-down turntable has the tone-arm and stylus hidden beneath the record, and can be wall-mounted, displayed upright via a stand, or laid flat. Admittedly, placing the side you want to listen to face-down feels counterintuitive, but it means sensors can accurately analyze your album's progress and display track-positions on the subtle LED display, while monitoring technology adjusts the speed in real-time to make even the wonkiest vinyl sound silky smooth. The outer edge also hides volume and playback controls, and there's Bluetooth streaming plus a 3.5-mm mini-jack for getting connected. ***£3,293 miniot.com***

KUSTEM TROLLEY

For households that don't revolve around their big screen (yes, such people exist), South Korean design studio Kustem has your back. Its multipurpose stand/trolley lets you wheel your 55-inch TV where it is (or isn't) needed, and you can even flip it around entirely—its rear side features handy storage bays and a pegboard, perhaps for keeping track of a particularly complex plotline … ***KRW 2,278,000 kustem.co.kr***

AUSTRIAN AUDIO: THE COMPOSER

These high-end, open-backed wired headphones feature a new, 49-mm Hi-X49 DLC driver with a diaphragm coated in diamond-like carbon for exceptional rigidity and authentic sound reproduction, and, at just 400 grams, they're pretty light for such huge cans. ***£2,249 austrian.audio***

ELIPSON W35 XI

Like a Death Star for dropping the beat, the W35 XI continues Elipson's fine tradition of spherical speakers. Its latest is a Chromecast- and AirPlay 2-connected wireless ball with 2x 25-mm tweeters and 2x 165-mm drivers, and it can be mounted via tripod, ceiling pendant, or wall bracket. ***€699 elipson.com***

SOUND

&

ADSUM + ELAC DEBUT CONNEX DCB41-DS SPEAKERS

Brooklyn-based Adsum creates stylishly restrained clothing and accessories; ELAC is a high-quality, low-hype German audio brand. Together, this disparate duo has redesigned the ELAC Debut ConneX powered speakers to create something with considerable drip. Adsum brings fresh magnetic grilles, bare tubular stands, squared-off corners, and a minimalist-loft-worthy custom paint finish; ELAC adds USB Audio, HDMI eARC, Bluetooth aptX, phono preamp, and analog and optical inputs. ***$649.98 elac.com***

VISION

TIME DIFFERENTIALS: INSIDE SEIKO'S SPLIT PERSONALITY

Grand Seiko wants to stand apart as a high-end marque—if it can finally stop being mistaken for its ubiquitous sibling. *By Laura McCreddie-Doak*

Deep green forests surround the building, mountains are on the horizon, and inside, watchmakers are quietly focused on movements, assembly, or finishing. But this isn't Switzerland. Mount Iwate, not the Alps, looms in the distance, and the watchmaker's benches are made from the finest zelkova wood with ornate iron-worked handles.

This is Grand Seiko's hub of high watchmaking in Shizukuishi, in its new building, completed in July 2020 in Morioka in the northern part of Japan. And it's not just the desks that are different. Despite the obvious similarities to myriad Swiss manufactures, Grand Seiko's approach to watchmaking is imbued with Japanese sensibilities.

"We test our watches in six positions, not five," says WIRED's tour guide around the new studio, a light-filled, low building in lush surroundings. "The sixth position is upright with the lugs resting on the desk. It's part of Japanese culture to rest your watch like that when you take it off to work."

Here, watchmakers are referred to as "takumi". Essentially the name translates as "artisan", but it is much more. True takumi are recognized by the Japanese government, while Grand Seiko itself has its own program of Meisters—a group of watchmakers who mentor others and pass on their knowledge.

Unlike some Swiss manufactures, which have become increasingly reliant on robots and automation, nothing is automated at Shizukuishi. The only evidence that we are in the 21st century is the microscopes on the workbenches—the watchmakers use them in place of loupes.

Even the building adheres to Japanese principles. The manufacture, designed by renowned Japanese architect Kengo Kuma, has been created to supposedly exist in harmony with the natural environment; the walls of the reception area are made from pale, scented pine sourced locally, and are built according to the principles of yamato-bari. A construction technique used in Japanese shrines and temples, the slats of wood are laid unevenly to create an interplay of light and shade. "The importance of nature is reflected in every corner of the building," explains president of Morioka Seiko Instruments Inc, Yukinori Kato.

It also influences the watches. The natural world, viewed through those floor-to-ceiling windows inspires dial colors—a pale pink reminiscent of the blossom of sakura, or cherry blossom flower; a dark blue with faint rippling on the dial to signify the autumn equinox and the wispy clouds that are a characteristic of that time of year.

It even feeds into the finishing. Grand Seiko has its own version of côtes de Genève, the intricate series of wave-like scratches that form parallel lines engraved on higher-end watch movements—only here, the sharper lines take their name from the nearby Shizukuishi River. The yamato-bari of the walls is also reflected on the dials and in the way the cases are polished, mimicking its play of light and shade.

However, if you turn your back on Mount Iwate and look in the other direction, you see something else entirely—the crisply modern buildings of Seiko Instruments Inc, where production lines pump out quartz movements, well, by the second. The contrast couldn't be more stark. Inside these buildings are row upon row of machines stretching into the distance. Here, robots rule the roost, while in Shizukuishi, there is barely a circuit board in sight.

Despite its insistence on adhering to traditional watchmaking techniques, Grand Seiko is part of a bigger Seiko universe, one that produces everything from affordable quartz watches to constant-force tourbillons.

Grand Seiko was born as the pinnacle of the Seiko brand in 1960. Post-WWII, Seiko's timepieces were not considered good quality. It was using rebranded movements from Switzerland, which it was modifying unsuccessfully at its two factories, Suwa Seikosha and Daini Seikosha. By 1959, the two became separate entities (technically they always were, as the roots of Daini lie in an original business set up by Hisao Yamasaki, an ex-employee of Hattori Tokeiten, the original Tokyo clock shop run by Seiko's founder, Kintaro Hattori). This was done in order to encourage competition between the two.

The first to innovate was Daini, which launched the Marvel in 1956, generally accepted to be the brand's first 100 percent in-house movement, though the architecture was very reminiscent of Swiss movements in circulation at the time.

Then, in 1960, Suwa replied with the Grand Seiko, a high-precision watch developed with the goal of being as precise as anything coming out of Switzerland.

Despite the intention of the brand to position Grand Seiko as something separate, the two have continued to be entwined. A situation that is no doubt exacerbated by the

↗ A shared name and some similar offerings has caused confusion for Seiko and Grand Seiko buyers.


Grand
月 6
10
8
10

historical parallels between the two brands. Alongside the birth of Grand Seiko was that of the Seiko 5. Launched in 1963, it was designed to be durable and affordable, but still having "features"—those to which the "5" in the name refers. Every Seiko 5 was to be mechanical, water resistant, have a day and a date window, a durable case, and a recessed crown at four o'clock.

In that description, it is easy to see correlations between these criteria and those that made up Taro Tanaka's "Grammar of Design". Tanaka was a young, straight-out-of-university designer who joined Seiko in 1959, and completely rewrote its design language. He decreed all surfaces and angles on everything from the case to the indices be flat and geometrically perfect for reflecting light. Bezels were to be simple, two-dimensional faceted curves. Case and dial needed to be mirror-polished to avoid visual distortion and, finally, all case-shapes were to be unique. Nothing generic was to be allowed. These are tenets to which Grand Seiko adheres today.

It may also be a hindrance that still, outside of watch connoisseurs, Seiko is better known globally thanks in part to its canny knack for collaborations. Its recent team-up with cult ersatz collegiate brand Rowing Blazers has been phenomenal. The company, which was founded by former rower Jack Carlson to ape the style of the preppy set, has a huge following among celebrities, and is especially popular among the TikTok generation.

Even as far back as 1983, Seiko partnered with Giorgetto Giugiaro, one of the greatest industrial designers of the time, to create the Speedmaster "Ripley" and Speedmaster "Bishop"—both of which featured in James Cameron's *Aliens*.

Grand Seiko by contrast may say it is trying to appeal to a younger market with its latest launches, such as the pastel-dialed, nature-inspired 38-mm SBGH341 "Sakura-Kakushi" and SBGH343 "Sakura-Wakaba" that have a style that sits somewhere between sport and dress, but its collaborations say otherwise. Firstly, they are few and far between, and they tend to be industry-facing, for example, with watch culture and retail site Hodinkee, and Watches of Switzerland. The strategies appear to be different, but the names are still entwined. Whether this is to the two marques' benefit or not is hard to say.

"Among prospective Grand Seiko buyers, and by that I mean people willing to spend four figures on a luxury watch, I don't think there is any confusion. Such buyers tend to be quite knowledgeable about the watch market and history," says David Flett, editor of watch culture online platform Beyond the Dial, and one of the few people who has a handle on Seiko and Grand Seiko's complex and enmeshed history. "In the US, Grand Seiko has done an excellent job differentiating the brands in a mere six years. I won't say they fooled everyone, but the narrative that they are completely separate entities is repeated by the media without the caveat that in every other country, including Japan, they are part of the same overall organization."

> The spider's web of all this is that Seiko as a corporation makes everything from watches to printers, and its name is splashed over the lot.

There's also the added problem of numbers and exposure. Seiko Group Corporation doesn't like to give out production numbers, but figures from 1992 to 2008 show Seiko producing millions of watches per year. Grand Seiko, on the other hand, produces thousands.

The company would confirm to WIRED that in terms of designs, Grand Seiko produces 30 new designs per year, while Seiko produces 100. Grand Seiko has five collections ranging from the haute horlogerie of the Masterpiece line to the more sporty styles such as its diver.

Seiko has seven collections, from its top-of-the-range King to Presage, but even within those seven there are numerous sub-categories. Scale up 100 new designs across multiple categories and you can see why Grand Seiko gets submerged by Seiko, particularly in the mind of the customer.

Then there is the issue of the internal confusion as to whether Grand Seiko should be separate from Seiko—something that has played out on the dial branding from the outset. When the first Grand Seiko launched in 1960, its name was there in Gothic script, and without the

renowned "Seiko" logo. By 1965, the "Seiko" logo was brought to the fore, replacing "Grand Seiko" at 12 o'clock and relegating the original brand name to the six o'clock position in a slimmer, less discernible font. By 1969, all that was left of the Grand Seiko name was a "GS" logo at six o'clock with the Suwa/Daini symbol underneath.

Even when the "Grand Seiko" name was resurrected in 1988, after it was phased out in the 1970s, it was the "Seiko" logo that had prominence. It wasn't until 2017 that the "Grand Seiko" logo was finally given pride of place. This relaunch happened because, as president Akio Naito has admitted in interviews, Grand Seiko initially struggled to find an audience, as customers thought it was a mid-market brand in the same vein as Seiko—a view not supported by the difference in price.

Grand Seiko may now be being promoted as a separate company, but the confusion hasn't stopped. In 2021, for example, Seiko relaunched its King Seiko line.

King Seiko's origins lie in Daini Seikosha's desire to compete with Suwa's launch of Grand Seiko. After its release, Daini wanted its own version of a high-precision movement. The watch, launched in 1961, was originally going to be called "Champion Seiko", however, Ren Tanaka, product manager behind Grand Seiko, refined his thinking. If Grand Seiko was the highest level of what Seiko could achieve, then this would be the "King" of Seikos. At the time, the only difference between the two was that the rigorous testing to which Grand Seiko was subjected did not apply to King Seikos. With the relaunch of the King marque, consumers are now in the position of trying to work out where their money is better spent. A £3,000 King Seiko that's mechanical, or a Grand Seiko, albeit quartz but hand-assembled, for £2,450?

And that's before you factor in collections such as Presage, which features automatic timepieces that marry the attention to detail you have with a Grand Seiko with the price point of a Seiko 5.

The spider's web of all this is that Seiko as a corporation—one that has businesses that make everything from high-end watches to printers and semiconductors—has grown organically, and the "Seiko" name is splashed over the lot.

Whether that is a help or a hindrance to Grand Seiko, a marque that has always positioned itself as a serious competitor to the best the Swiss have to offer, ultimately lies in the eye of the beholder.

"Should Seiko have chosen another name, as they did for Credor, the higher-end luxury Seiko line?" asks Flett. "I think it would have meant losing all that history they now use as marketing collateral to great effect. While Seiko as an organization has a propensity to look forward rather than back, in the case of Grand Seiko, the narrative they chose is fundamentally tied to their models of the past."

The big question now facing the corporation as a whole is how to proceed in the future. Grand Seiko's popularity is slowly on the rise outside of the watcherati, as evidenced by its recently developed New York City boutique, which, at over 6,200 square feet, is the largest Grand Seiko retail space in the world.

The survival of Seiko is never going to be an issue—but is Grand Seiko's growth being held back by the continuing need to assert its brand identity as something separate from the other side of the business, the one that makes a quartz movement every second?

If you look at Tudor and Rolex as a comparison, when Tudor relaunched in 2012 it was constantly referred to as "Rolex's little brother". Over a decade on, and with its name above its own door in Le Locle, no one's using that moniker now.

With Shizukuishi now open as a standalone concern and Grand Seiko's shift in communicating how much the rhythms and reflections of Japanese culture and nature influence so much of its working practice and designs, maybe now is the time to finally establish Grand Seiko as a separate concern, both at corporation level and with customers; one that shares the Seiko name, but not necessarily much else.

And to fix that goal in view, perhaps Grand Seiko should keep its sights set on Mount Iwate, rather than concerning itself with what lies in the other direction.

↗ Grand Seiko's "Birch Bark", "Hotaka Peaks" sunrise, and "Koda" daybreak designs all draw on nature in Japan.

↗ Grand Seiko SLGW003 Titanium Hi-Beat, *£10,300*; Caliber 9R 20th Anniversary *£12,000*; SLGT005, *£tbc*

↙ Seiko's Rowing Blazers collab has proved enormously successful, with each colorful iteration quickly selling out.

FIRST DRAFTS: HOW MONTBLANC REWROTE ITS RULES FOR DESIGN

Montblanc pens are usually a byword for quiet craftsmanship—but its eye-boggling luxury line demands new, technologically-enhanced creative rigor. *By Jeremy White*

As it celebrates 100 years of the Meisterstück, the German brand's iconic fountain pen, it is easy to forget that these high-end writing implements are, surprisingly, in no way the zenith of what Montblanc produces in the field. Peak pen is reached in the High Artistry department, where single, fantastically intricate pieces can cost well over $1 million.

Usually, for WIRED, the innovation in Montblanc's pens is focused inside the lacquer casing, where a complex patented capillary system—called somewhat disappointingly the "ink feeder"—precisely controls the flow of pigment to paper, while an iridium ball at the tip not only ensures the user enjoys a smooth stroke while scribing, but also protects the delicate gold nib from wear.

However, in its Hamburg-based High Artistry atelier, the brand produces one-off and extremely limited edition writing instruments that not only impress Montblanc fans worldwide, frequently selling out quickly, but also challenge the in-house skills of the small team entrusted to make such expensive creations.

The idea is simply to blur the lines between pens, art, and jewelry. This is seen in the recent High Artistry A Journey on the Orient Express Limited Edition, where the marquetry wall paneling on the famous train inspired a one-off inlaid wood traveling case, while the oval shape of the carriages themselves was modified to become the shape of the pen.

Such luxury creations are, naturally, made from expensive materials including 18-karat gold and precious gems. One Orient Express version features diamonds, rubies, and blue sapphires (as well as a single, brilliant-cut diamond on the nib). Another, the Papillon pen, boasts an articulated butterfly created by Richemont sister brand Van Cleef & Arpels. The delicate figure is protected behind a glass door on the body; it unfolds its wings when this door is opened.

So intricate was the pen's construction, that a completely new multipart mechanism had to be designed in-house, enabling its owner to fill their writing instrument with ink by turning a small wheel on the pen's body.

Of course, when you're turning out super-exclusive implements made almost entirely from precious metals and gemstones, the team tasked with the designs clearly cannot attack individual pieces head-on. Instead, before the craftspeople get anywhere near the "gold drawer", designs are worked up and essentially finalized using 3D printing, so that any nasty surprises can be encountered while working with nothing more expensive than plastic.

These "3D Rapids" reduce development time on the pens, and with the printed prototypes Montblanc is able to approve the final shape (length, diameter, dimensions between cap and barrel, and so on). In the past, without 3D-printing, prototypes were made in turned and milled metal—both time consuming and inflexible when it came to adjusting the design. Now, depending on the resolution and complexity, the final print of a pen can be produced in about an hour or two.

The printed prototypes themselves are made by selective laser melting of nylon 12 powder; if a higher resolution for more precise detail is required, PolyJet technology is used, where tiny droplets of resin are extruded and solidified almost instantly under intense ultraviolet light.

Montblanc keeps these plastic prototype pens under lock as key, in case they may be of use on future High Artistry projects. Your only chance to get your hands on such a design is to purchase the real thing—but once they're gone, they're gone. It's fortunate then that the High Artistry department has established its annual cadence for releasing each bold new collection. ***montblanc.com***

↓→ Montblanc's High Artistry designers use 3D printing to ensure their creations can live up to expectations.

Designs are worked up using 3D printing, so any nasty surprises can be encountered while using nothing more expensive than plastic.

PHOTOGRAPHY: MITCH PAYNE

How connecting the digital dots will boost healthcare

With expertise in digitizing public services, Netcompany is helping NHS England in its digital transformation of GP registrations—and this is only the beginning

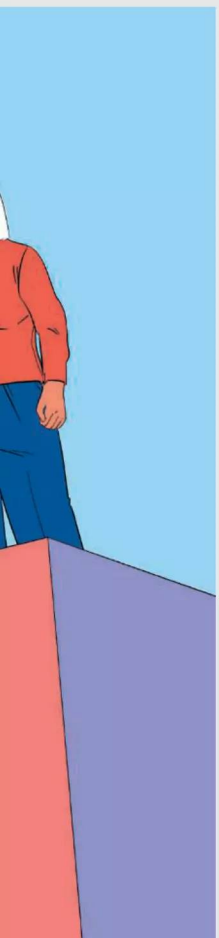
In June 2021, Netcompany, a pan-European IT corporation, was contracted by the National Health Service (NHS) in England to support its pioneering Demographics Transformation Program.

The country was just coming out of the third and final Covid-19 lockdown, and there was an urgent need to tackle the long backlogs that had built up within the healthcare system, with patients already having waited months to access care in specialized fields such as cancer and gynecology. To that end, the UK Government had just announced a new healthcare reform, called Data Saves Lives. Data had played a key role during the pandemic—for instance, 26 million users had downloaded the NHS England app for the first time—and the British Government was keen to seize the momentum to implement ambitious reforms about how health data was used.

"Historically, hospital systems weren't really built to be open to integrate with other IT systems, running instead on siloed systems within local hospitals," says André Rogaczewski, CEO and cofounder of Netcompany. "This decentralized nature ends up neglecting the patient. For example, data collected in hospitals is often not shared with the GP surgeries where patients go for follow-up consultations. This adds delays and obstacles in getting patients the care they need."

One area of particular concern was patient registration at GP practices. More than 6.8 million people registered every year at their local surgeries, but the process was considered onerous and outdated. Patients were required to visit surgeries in person, present proof of address, and fill in long, arduous forms that could include as many as 150 questions. An internal study

"Data collected in hospitals is often not shared with the GP surgeries. This adds delays and obstacles in getting patients their care"



Smart use of data helps both doctors and their patients.

had found that, on average, clinical staff were spending half an hour just processing the applications, with patients waiting two weeks for their registration to be complete. When NHS England contracted Netcompany, the goal was clear: To create an online GP registration service that would reduce administrative burden in practices.

Digitizing public services is Netcompany's expertise. In Denmark, for instance, Netcompany had successfully built a nationwide debt-collection service for the national tax authority, as well as a messaging platform for Danish schools. During Covid, Netcompany also developed Covid passes for Denmark, Scotland, and Norway—all in a matter of weeks. "In Scandinavia, there's a large emphasis on digital-first societies and its impact on citizen happiness," Rogaczewski explains. "There, we are trusted with the largest pillars of government infrastructure, like healthcare, tax and customs."

Of course, digitizing a health service that encompassed 6,300 different practices was still a formidable challenge. "Imagine having roughly 6,300 different forms, and then trying to understand what a one-size-fits-all form and process would look like—that's what it would be here. We had to ensure we captured enough of the right information from patients to allow GPs to do their job."

The program delivered "Register with a GP Surgery Service", an online tool that allowed patients to more quickly and easily register with their local doctor via the NHS England app or the website. Unlike the old, paper-form-based system, the new service automatically matched each patient's information to their existing medical records, capturing good demographic data for the central patient database. A pen-and-paper form was also available to patients not entirely comfortable with the digital format, but its information could still be entered into the new, joined-up system. "We made sure the forms were fully accessible." Rogaczewski says. "Having an easy-to-understand and easy-to-use process was critical—especially in a digital landscape in which people generally have a lower attention-span."

The service launched in August 2022, four months earlier than scheduled, on a voluntary basis. At the time of publication, 2,700 GP surgeries have already signed up. "We had to learn quickly what makes each locality tick, what their pain points are and how to build a specific strategy for them," Rogaczewski says. "We had to convince 6,300 teams that going digital is the way of the future." The goal was to reach 2,000 teams by December 2023; that number was achieved by November 2023. By then, already half of new registrations were being processed digitally and processing times had halved. In a survey, patients gave the new service a 95 percent satisfaction score.

> "Registering for a GP is the first point of contact for patients and citizens in the UK to access a better life and their health journey"

By March 2024, more than one million patients had used the service. Its success prompted Amanda Doyle, National Director for Primary Care and Community Services, to request all GP surgeries in England to offer this new registration channel from October this year.

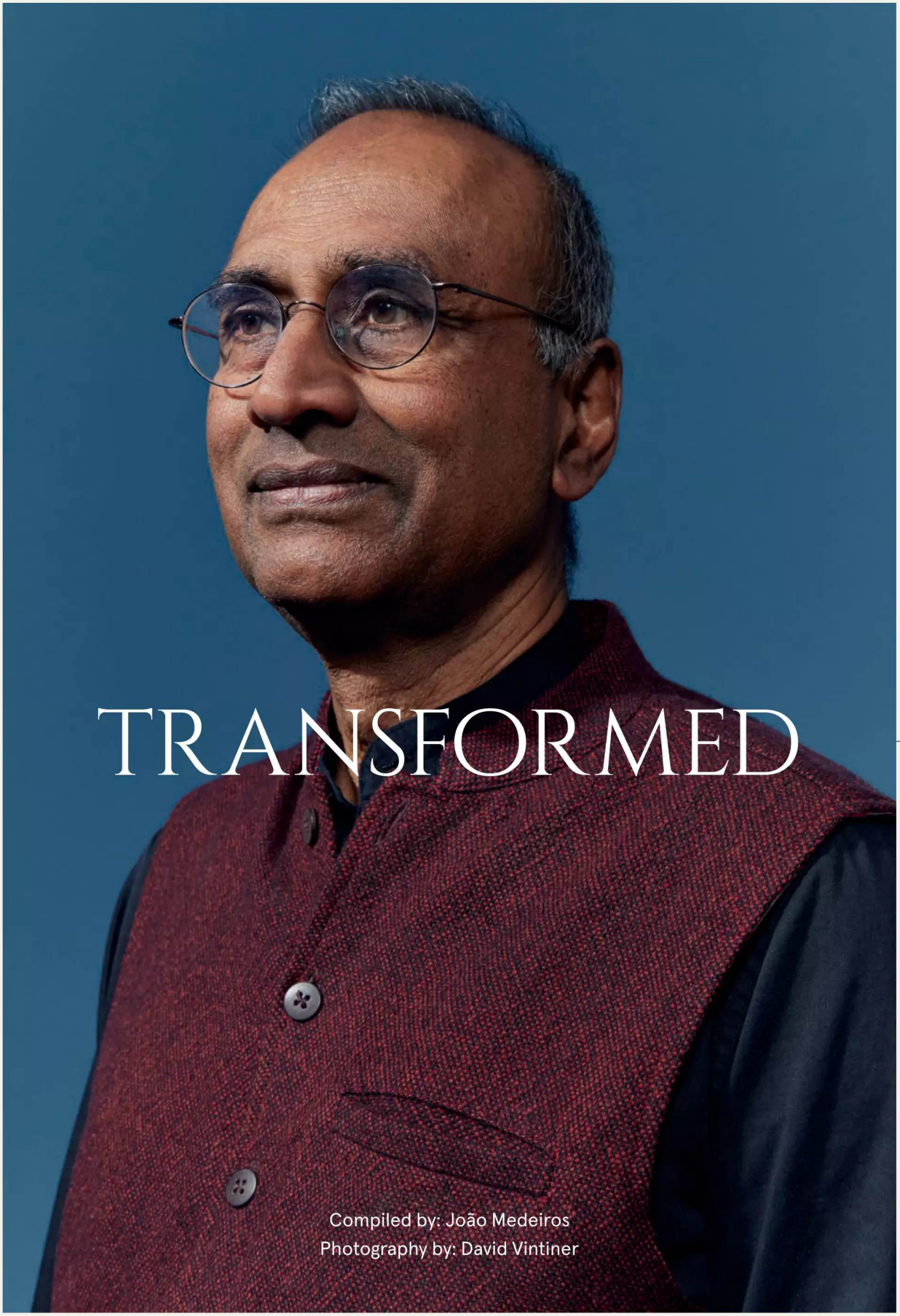
For Rogaczewski, the project is just the onset of something bigger: The transformation of the UK's healthcare system. "We are eager to support NHS England's larger vision and road map," he says. "Registering for a GP is the first point of contact for patients and citizens in the UK to access a better life and, ultimately, their health journey." This is the sort of transformation that the company is already driving in other places in Europe, from the development of "virtual wards" in Nordsjaellands Hospital in Denmark to helping manage cancer screening and treatment projects across the continent.

However, when asked about what the future of healthcare might look like, Rogaczewski's answer is unexpected: Copenhagen Airport.

Copenhagen Airport is considered the most digital airport in the world, thanks to a single, AI-powered platform called Pulse that handles and manages data across 100 different airport departments—from baggage handling to passenger flow—in real-time. "You can see many parallels between the operational requirements of an airport versus a hospital," he says. "These include a decentralized and complex system, where large data streams that include sensitive citizen information are interconnected. Both industries would benefit from a real-time decision-making technology like Pulse, which makes the workday predictable and alleviates workload burdens. We need to look at how to digitize hospitals and the entire healthcare system. There's a huge potential in managing physical ecosystems like hospitals and airports by using digital twins," Rogaczewski concludes. "That's why we want to use Pulse to develop the hospital of the future."

WIRED Health 2024 brought together practitioners, politicians, creatives and campaigners to share their visions for building a sector that's fit for the future

HEALTHCARE



TRANSFORMED

Compiled by: João Medeiros
Photography by: David Vintiner

GOOD DESIGN CAN BE FOOD FOR THE SOUL

British architect and designer Thomas Heatherwick thinks the construction industry is in a crisis. "We've just got so used to buildings that are boring," said the man behind London's revived Routemaster bus, Google's Bay View, and New York's Little Island. "New buildings, again and again, are too flat, too plain, too straight, too shiny, too monotonous, too anonymous, too serious. What happened?" While those features can often be aesthetically appropriate on their own, Heatherwick notes that it's the relentless combination of them in the aesthetics of modern buildings and urban spaces that makes them overwhelmingly boring.

This boredom, he adds, isn't just a nuisance—it can actually be harmful. "Boring is worse than nothing," Heatherwick writes in his latest book, *Humanise*. "Boring is a state of psychological deprivation. Just as the body will suffer when it's deprived of food, the brain begins to suffer when it's deprived of sensory information. Boredom is the starvation of the mind."

This isn't just a matter of opinion. Heatherwick cites, for instance, the research of Colin Ellard, a cognitive neuroscientist at the University of Waterloo who studies the neurological and psychological impact of the built environment. In his experiments, Ellard has shown that people's moods were considerably affected when surrounded by tall buildings. In one experiment, he collected data from wearable sensors that tracked skin conductance response, a measure of emotional arousal. When people pass by a boring building, Heatherwick says, "their bodies literally go into a fight-or-flight mode. They have nothing for their mind to connect to."

The brain, Heatherwick argues, craves complexity and fascination. "There's a reason why, when you look out into a forest, nature's complexity and rhythms restores our attention back," he said. "We need that in buildings. Less is not more." This is backed by the research of psychologists Rachel and Stephen Kaplan, who in the 80s developed Attention Restoration Theory, which posited that people's concentration improves when spending time in natural environments.

"We haven't been paying attention to the nutritional value to society of the buildings that are around us," Heatherwick says. He believes, for example, that architects now prefer to prioritize the internal spaces of a building, while neglecting what the building looks like from the outside. This is a mistake. "Buildings are the backdrop of society's life," he said. "A thousand times more people will go past this building than will ever come inside it. The outside of that building will affect them and contribute to how they feel." Ultimately, to humanize our urban spaces, architects need to think about the people that inhabit them. Heatherwick recalls a debate of elite people in the construction industry a few years ago about whether the opinion of the public mattered. "We debated all night and then they voted that they didn't. It was unbelievable."

One of the consequences of such short-term thinking is leading to what Heatherwick calls "the dirty secret of the construction industry": Its disastrous environmental impact. Just consider, for instance, that in the US, a billion square feet of buildings are demolished every year. "That's half of Washington DC destroyed, just to get rebuilt after with the same sort of boring buildings," he said. In the UK, 50,000 buildings a year are demolished, with the average age of a commercial building being around 40 years."If I were a commercial building, I would have been killed 14 years ago," he said. "To build a tower in the city of London, which by global standards isn't that big, takes the equivalent of 92,000 tons of carbon emissions." As a result of this, estimates show that the construction industry now emits five times more greenhouse gases into the atmosphere than aviation.

"We can't have buildings that are only here for 40 years. We need thousand-year thinking," he said. "The world of construction teaches you that form follows function; less is more; ornament is a crime. It's powerful, and when you're studying, that goes in your brain and brainwashes you." But Heatherwick reminds us that emotion is a function, and one that should be celebrated in the world of construction.

Thomas Heatherwick believes architecture has a “nutritional value” to society.

To improve health outcomes, says Angela Saini, all evidence must be considered.

DATA WILL HELP CLOSE THE HEALTH GAP

In 2013, the US Food and Drug Administration made an unprecedented recommendation, advising that women should receive a lower dosage of the insomnia drug Zolpidem than men. The rationale behind it was that medication seemed to affect women for longer periods, which could become a safety issue. However, in 2019, research conducted at Tufts University concluded that the differential effect of the medication had nothing to do with sex. Rather, researchers found that what determined the rate at which the person cleared the drug from their system was their body size. The report concluded that the reduced prescribed dosage for women could in fact lead to underdosing and a failure to effectively treat insomnia. "They were using sex as a proxy for body size because we tend to collect data about sex, but we don't collect data about body size," Angela Saini, author of *The Patriarchs: How Men Came to Rule*, said. "This is the perverse way that medicine sometimes works: You base your diagnostics on the data you have, rather than the data you need."

Indeed, Saini argues that many of the prevailing gaps in health outcomes between men and women have nothing to do with biological sex. "It can be so tempting for scientists to look at a gap and want to find a simple biological explanation for it, but when it comes to gender and health those simple explanations often don't exist," she said. Of course, sex differences do exist in aspects of health such as reproductive health and physiology. However, what research suggests is that, in most cases, the health-related difference between men and women—from disease symptoms to drug efficacy—is really quite marginal. "The differences that do exist are down to gender," Saini said. "Differences in the way people are treated and thought about and the assumptions we make about them." That, according to Saini, is what explains many of the failures when it comes to women's health.

Consider, for instance, the common misconception that women present atypical heart-attack symptoms, different from men's. This prevailing myth was quashed by a 2019 study, funded by the British Heart Foundation, at the University of Edinburgh. The research, which involved nearly 2,000 patients, showed that, in fact, 93 percent of both sexes reported chest pain—the most common symptom—while a similar percentage of men and women (nearly 50 percent) also felt pain radiating from their left arm. "The problem of underdiagnosis of women is because health professionals—and even the women themselves who are having a heart attack—believe heart attacks are something that mostly happens to men," Saini said. Estimates indicate that differences in care for women have led to approximately 8,200 avoidable deaths due to heart attacks in England and Wales since 2014. "It's not about men discriminating against women, this is often about women not being listened to—sometimes by other women," she said. Another example that starkly illustrates how gender can affect health outcomes came from a 2016 Canadian study about patients who had been hospitalized with acute coronary syndrome. The research showed that the patients who experienced higher rates of recurrence were the ones who performed gender roles stereotypically associated with women—like doing more housework and not being the primary earner at home—independently of whether they were a man or a woman. "This was because people who carried out a 'female' social role were more likely to be anxious." Saini said.

If these disparities are caused by the way patients are perceived and treated, the solution, to Saini, is clear: "We need to be careful to diagnose the problem where it is, not where we imagine it to be." She highlights the successful work of Jennie Joseph, a British midwife who, in 2009, founded the Common-sense Childbirth School of Midwifery in Orlando, Florida, to support women without access to maternal health care. Research has shown that Black mothers, both in the US and in the UK, are three times more likely to die than white women. "Joseph lowered maternal mortality rates among minority women simply by improving the quality of their care, listening to their concerns, and responding when they say they're in pain," Saini said. "We don't need technology to solve this issue. We just very simply can't allow our biases and prejudices to get in the way."

THE LONG ROAD TO UNLOCKING LONGEVITY

In 1997, a French woman called Jeanne Calment died at the age of 122 years. She was the world's oldest verified person, according to the Gerontology Research Group. Her daily habits included drinking a glass of port wine and smoking a cigarette after meals (she also ate two-and-a-half pounds of chocolate every week). "Nobody else has lived past 120 since she died," Venki Ramakrishnan, Nobel winning-biologist and author of *Why We Die*, said. Indeed, while the number of centenarians is increasing every year, the number of people living past hundred and ten is not. "This suggests that maybe there's a natural limit to human lifespan."

If such a limit exists, it's one imposed by biological evolution. "Evolution wants to make sure that your genes have the maximum likelihood of being passed on," Ramakrishnan said. "It doesn't care about how long you live." This explains, for instance, why there seems to be a correlation between the size of animals and their life expectancy—in general, the larger the species, the longer it will live. Most mayflies live between one and two days. Monarch butterflies can live for months. Bowhead whales live more than two hundred years. Greenland sharks may live over 500 years. "If you're a smaller species there's no point spending a lot of resources maintaining and repairing the body because the likelihood of being eaten or starved to death are high," he said. "Larger species, on the other hand, will have the advantage of more time finding mates and producing offspring."

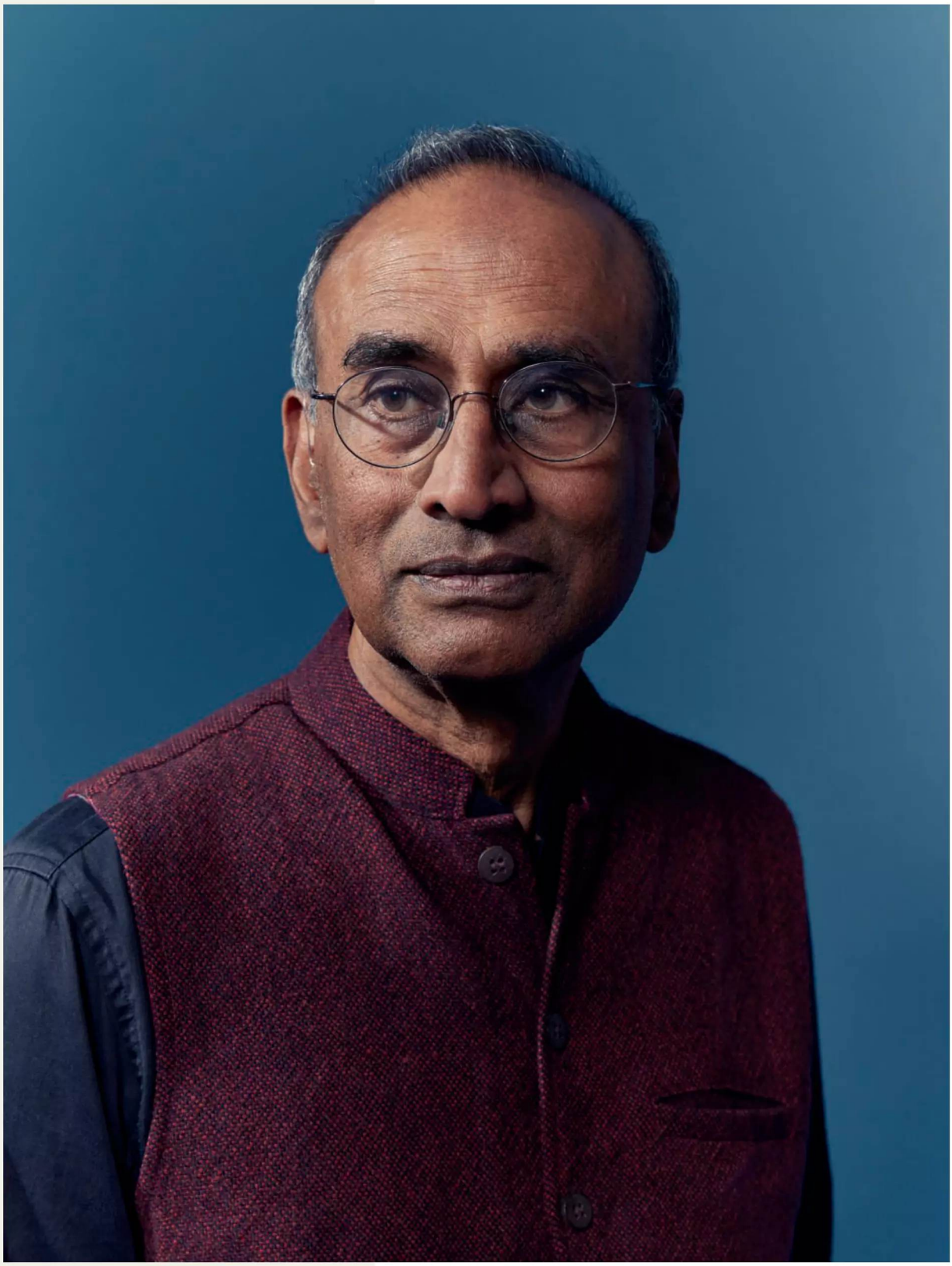
A few species, however, seem to be exempt from this rule. The hydra, a small freshwater animal with twelve tentacles, doesn't seem to age at all. The immortal jellyfish can even age backwards. "It suggests that aging is not inevitable and that we might be able to circumvent our natural limits if we alter our biology," Ramakrishnan said.

That is why understanding the biological underpinnings of why we age and die is such a hot topic of research today. Scientists are trying to find out how to manipulate the cellular aging processes—for instance, how to destroy senescent cells, aged cells that cause inflammation, or how to reprogram cells to revert them to an earlier state of development. Over the last decade, more than 300,000 scientific papers about aging have been published, while billions of dollars have been funneled into more than seven hundred longevity startups including Altos Labs, Human Longevity, Elysium Health and Calico.

One of the most promising avenues of research involves the discovery of chemical compounds that can mimic the effects of a low-calorie diet, which is recognized as one of most well-established ways to slow down aging. One such compound is rapamycin, first discovered on the soil of Easter Island due to its anti-fungal properties. "Later they found out that it was also a potent anti-tumoral and anti-inflammatory," Ramakrishnan said. "It's also immunosuppressant, so it can also make people prone to infection and slow down wound healing. We need to find that sweet spot between not having the side effects and having just the (anti-aging) benefits."

Longevity researchers are also familiar with a body of research that shows that young blood can rejuvenate old bodies—in mice, at least. This discovery came about when researchers first surgically connected the circulatory system of a young and old mouse—a technique called parabiosis—and observed that this procedure slowed down the symptoms of aging, lengthening the lifespan of the older animal by ten percent. Ramakrishnan notes that while scientists are still trying to identify the factors in young blood that cause this effect, "there are companies that jumped the gun and started offering young plasma to billionaires."

"While we're waiting for all these things to happen there are things we can do." Ramakrishan noted. "This is likely similar to the advice your grandparents gave you: Eat moderately, eat healthy diets, get enough sleep and exercise. It turns out that each of those affects the other two so it's really a virtuous cycle. If you do all of them at once, it works better than any medicine on the market, it has no side effects, and it's free."



We've got many paths to living longer, says Venki Ramakrishnan—starting with self-care.

The NHS must harness its wealth of data says Shadow Health Secretary, Wes Streeting.

THE NHS NEEDS A HEALTHTECH CHECK-UP

In December 2023, Shadow Health Secretary Wes Streeting visited Singapore General Hospital, regarded as one of the best in the world, and what he witnessed there surprised him: "Patients arrive having already registered their appointments via an app, they check in on touchscreen kiosks awaiting them at reception, tablets at their bedside allow them to read about their treatment or call for assistance," Streeting said. "This is Space Age stuff compared with where the NHS is today."

Streeting characterizes the National Health Service (NHS) as an "analog system in a digital age".

"When I visit a hospital, doctors often take out their *pagers* to show me what they are forced to work with," Streeting said. According to estimates, 13.5 million hours of GP's time is wasted every year due to inadequate IT. Fixing that would be the equivalent of hiring 8,000 new NHS doctors. "For the past 14 years, modernization of the NHS has been put on the back burner by a Conservative government which opts for sticking plasters instead of the major surgery that's required," said Streeting, who added that he fears that five more years of "Tory mismanagement" could mean the NHS ends up like Woolworths—"a much-loved national institution which failed to change with the times and was left behind."

Central to Streeting's plan to fix the NHS is the NHS app, which has been downloaded by 31 million people in England and Wales. "It has the potential to transform how the NHS interacts with patients and promote better public health," he said. He pointed out that, for instance, only one in every 200 GP appointments are currently made via the app. "In too many cases, patients still wait on the phone at 8:00am, or even queue up in person in the cold on a frosty morning just to see a doctor." The NHS app could not only allow appointments to be made, but also let patients receive notifications about vaccine campaigns, health tests, cancer screening, or even upcoming clinical trials. "Clinical trials can use genomics to identify patients who will benefit from the latest treatments, but they struggle to recruit—not for a lack of people willing to take part, but because they can't access basic data," he said. He promised that Labour would clamp down on bureaucracy and allow clinical trials to recruit volunteers via the app. "During the pandemic, half a million people signed up to the vaccine trials registry," he said. "If we can do it to defeat Covid, we can do it to cure cancer."

At the core of Labour's plan is patient data. Recently, the NHS has announced the launch of a federated data platform that would centralize hospital data, but would not include general practice or social care data. "The NHS has struck gold here, yet it's leaving it in the ground," Streeting said. "General practice data is key to unlocking better population health outcomes." Streeting promised that a Labour government would ensure a transparent process about what aspects of patient data would be shared and with whom, as well as the necessary safeguards to ensure patient confidentiality. As for those who oppose it on the grounds of privacy concerns, he had a simple message: "It's a fight that a Labour government is willing to have," he said. "While the tinfoil hat brigade takes to TikTok to urge followers to opt out of sharing their data with the NHS—the irony isn't lost on me—the government refuses to take on their fear-mongering."

He recalled when, last January, he met the parents of a two-year old boy at Alder Hey Children's Hospital in Liverpool. "They have been through hell," he said. "In his short life, he has already had five operations on his heart." When he asked them what their main frustration had been, however, the answer surprised him: Technology. "Their local GP couldn't access the notes from Alder Hey and the hospital couldn't read the records held by their GP. It meant that on every appointment they had to repeat themselves again and again. The Health Service should be lessening their worry, not adding to their stress."

FIGHTING FOR THE RIGHT TO BREATHE CLEAN AIR

In 2010, three months before her sev-enth birthday, Ella Roberta suddenly developed a chest infection and a severe cough. Her mother, Rosamund Adoo-Kissi-Debrah took her to the local hospital in Lewisham, South East London, where she was initially diagnosed with asthma. In the following months, she got worse and began suffering from coughing syncope—coughing episodes so violent they caused her to black out due to a lack of blood supply to the brain.

"She had one of the worst cases of asthma ever recorded," Kissi-Debrah recalled. "They didn't really know what was wrong as she didn't present as a normal asthmatic. They tested her for everything, from epilepsy to cystic fibrosis. Her condition was extremely rare." So rare, in fact, that Kissi-Debrah couldn't find a single case of a child suffering a cough from coughing syncope in the scientific literature. "It was only common in long-distance lorry drivers," she said.

In the next three years, Ella was admitted to hospital some 30 times. On February 15, 2013, shortly after her ninth birthday, she had a fatal asthma attack.

Her original death certificate stated that she had died from acute respiratory failure. "At the inquest, it was established that some of it might be due to 'something in the air'," Kissi-Debrah said. None of the medical experts consulted had mentioned that air pollution could have triggered Ella's syncope. That possibility only came to light after Kissi-Debrah was contacted by a reader of the local newspaper who had read about her story and suggested that she check the air pollution levels on the day Ella died. Indeed, that day the levels of nitrogen dioxide caused by traffic on the heavily congested South Circular road, near where they lived, had far exceeded set limits.

With the assistance of her lawyer, Kissi-Debrah applied to the High Court to quash the verdict of the first inquest and request a second one, which was one granted. "My lawyer, Jocelyn, outlined on a graph all the times Ella had been admitted to hospital and then she got the data from the monitors near the house," Kissi-Debrah recalled. The pattern was clear: There was a spike in air pollution prior to Ella's coughing syncope episodes. "Twenty-seven out of twenty-eight times. As far as I'm concerned, that's scientifically significant. Furthermore, they showed that, on average, dioxide emissions and particulate matter levels in Lewisham far exceeded World Health Organization (WHO) guidelines. After nine days of deliberation, the inquest concluded that "Ella died of asthma contributed to by exposure to excessive air pollution". It added: "Ella's mother was not given information about the health risks of air pollution and its potential to exacerbate asthma. If she had been given this information she would have taken steps which might have prevented Ella's death." The cause on Ella's death certificate was amended. To date, she remains the only person in the world to have air pollution on her death certificate.

Given the evidence at the inquest, the Coroner also issued a Prevention of Future Deaths Report with a series of recommendations such as ensuring that national air pollution levels be in line with WHO guidelines, that the public in England and Wales should be made aware of the risks of air pollution, and that health professionals should be educated on the health impacts of air pollution and inform patients accordingly.

"The coroner felt that other children were at risk of dying," Kissi-Debrah said. "He made it very clear, actually, that unless the air was cleaned up, more children would die."

Currently, 600,000 children die from breathing polluted air every year. In London alone, a quarter of a million children suffer from asthma. "The only time in this country no child has died from asthma was during the first lockdown," Kissi-Debrah said. Ten years on from the death of her daughter, she continues to campaign, lobbying for the approval of the Clean Air Bill, also known as Ella's law: A parliamentary bill that establishes the right to breathe clean air. "It is our right—and it is the government's duty to clean up the air and ensure that the UK targets are in line with WHO targets, as currently, they are not," she said. "This isn't a party political issue. It's about our health. It's about our future."

Rosamund Adoo-Kissi-Debrah says governments need to meet WHO pollution goals.

Early detection of Alzheimer's must be matched with new therapies, says Hilary Evans.

ALZHEIMER'S TREATMENTS ARE COMING

"The statistics are frightening: Dementia is the biggest killer in the UK. It has been the leading cause of death for women since 2011." Hilary Evans, CEO of Alzheimer's Research UK and co-chair of the UK Dementia Mission, explained. "One in two of us will be affected by dementia, either by caring for someone with the condition, or developing it ourselves."

There are reasons for optimism, however, with Alzheimer's researchers achieving extraordinary breakthroughs in the treatment of the disease. In May 2023, drugmaker Lilly announced that its new Alzheimer's drug, Donanemab, slowed cognitive decline by 35 percent; In 2022, another drug, Lecanemab, registered similarly promising results. "For a long time, dementia research has been a costly, even hopeless cause," Evans said. "But we are now at this real tipping point for change with the arrival of the first ever Alzheimer's drugs that tackle the root cause of the disease rather than just the symptoms." Donanemab and Lecanemab act as antibodies, clearing the amyloid plaques that form in Alzheimer's patients' brains.

"Like many first-generation treatments, however, the benefits are modest and also come with serious side effects," Evans said. "We need to look back at how we started off the first generation of treatments for diseases like HIV, which often had limited efficacy and difficult side-effects, but paved the way for combination medicines that have revolutionized outcomes for the next generation of people with the condition."

Evans has reasons for optimism. Currently, there are more than 140 clinical trials ongoing for a variety of potential Alzheimer's treatments, ranging from compounds capable of removing toxic proteins to drugs that can restore the function of damaged brain cells. "I'm in my mid-forties and I really think our generation will benefit from the progress that we are now witnessing. Developing safer and more effective drugs is really a matter of when and not if."

Evans, however, is concerned that these new treatments will remain out of reach for patients if they can't receive a timely and accurate diagnosis. Recent research in the *New England Journal of Medicine* also showed that someone can be in the early stages of Alzheimer's 20 years before the onset of detectable symptoms. "New treatments will rely on the diagnosis of people earlier on in the disease," Evans said. Furthermore, diagnosis of the disease in the population remains woefully inadequate. "It hasn't changed in over two decades," Evans said. Pen-and-paper cognitive tests remain the most common diagnostic method; only two percent of patients undergo the gold standard test—lumbar puncture and PET brain scans.

Even though the UK government has set a national dementia diagnosis target at 67 percent of patients, that target is missed in many parts of the country. Those patients who do get a diagnosis have had to wait on average two years; for patients under 65, that waiting time goes up to four years. "One in three people with dementia in England never get a diagnosis at all," Evans said. "This isn't something we would accept in any other health condition."

This could be changed by the introduction of accurate digital cognitive tests, for instance, which would allow patients to be evaluated in real-time and access care faster. Researchers at Moorfields Eye Hospital are also developing AI algorithms which could potentially screen for signs of Alzheimer's disease in the eye. "The retina is a particularly attractive target because it's closely related to brain tissue and can be examined non-invasively during routine eye checks," Evans said. Alzheimer's UK is also supporting research to find blood biomarkers for the disease. "Research has shown that a blood test could be as effective as a standard lumbar puncture and a brain scan, and it could be used as an initial triaging tool," she said. "People are naturally much keener to take a blood test than something that's very invasive. This could revolutionize the way that dementia is diagnosed."

AI CAN CRACK THE CODE OF LIFE

Pushmeet Kohli says AI will help us understand life.

In 2021, AI research lab DeepMind announced its first digital biology neural network, AlphaFold. The model was capable of accurately predicting the 3D structure of proteins—which determines the functions that these molecules play. "We're just floating bags of water moving around," Pushmeet Kohli, VP of research at DeepMind, said. "What makes us special are proteins, the building blocks of life. How they interact with each other is what makes the magic of life happen."

AlphaFold was considered by journal *Science* as the breakthrough of 2021. In 2022, it was the most cited research paper in AI. "People have been on it for many decades and were not able to make that much progress," Kohli said. "Then came AI." DeepMind also made freely available the AlphaFold Protein Structure Database—listing the protein structures of almost every organism whose genome has been sequenced. More than 1.7 million researchers in 190 countries have used it for studies ranging from the design of plastic-eating enzymes to the development of more effective malaria vaccines. A quarter of the research involving AlphaFold was dedicated to cancer, Covid-19, and neurodegenerative diseases like Parkinson's and Alzheimer's. Last year, DeepMind released its next generation of AlphaFold, which also predicts biomolecules like nucleic acids and ligands.

"It has democratized scientific research," Kohli said. "Scientists working in a developing country on a neglected tropical disease did not have access to the funds to get the structure of a protein computed. Now they can go to the AlphaFold database and get these predictions for free." For instance, one of DeepMind's early partners, the Drugs for Neglected Diseases initiative, used AlphaFold to develop medicine for diseases that affect millions, such as sleeping sickness, Chagas disease, and Leishmaniasis, yet receive comparatively little research.

DeepMind's latest breakthrough is called AlphaMissense. The model categorizes the so-called missense mutations—genetic alterations that can result in different amino acids being produced at particular positions in proteins. Such mutations can alter the function of the protein itself, and AlphaMissense attributes a likelihood score for that mutation being either pathogenic or benign. "Understanding and predicting those effects is crucial for the discovery of rare genetic diseases," Kohli said. The algorithm, which was released last year, has classified around 89 percent of all possible human missense. Before, only 0.1 percent of all possible variants had been clinically classified by researchers.

Kohli believes that AI could lead to the creation of a virtual cell that could radically accelerate biomedical research, enabling biology to be explored in-silico rather than in laboratories. "With AI and machine learning we finally have the tools to comprehend this very sophisticated system that we call life."

We're still in post-pandemic recovery says Lucy Easthope.

WE NEED TO PLAN FOR DECADES OF POST-DISASTER IMPACT

Lucy Easthope, one of the UK's top experts in disaster planning, has advised the UK government on major international incidents such as 9/11, the Grenfell Tower fire, the war in Ukraine and, of course, the Covid pandemic. "If you were a pandemic planner in 2020, then there have been few surprises over the last few years," Easthope said. "In those pandemic plans we wrote a reasonable worst-case scenario—and now we get to live it." Emergency planners such as Easthope know that the aftermath of a disaster can usually be divided roughly into three stages: The honeymoon ("Or, as we call it now, lockdown one"); the slump; and the uptick. "We're still in the slump," she said. "We've reached a stage where all signs of institutional collapse are here. Basic reliance on the healthcare system for the most privileged is now gone. Failure gets talked about loudly."

However, Easthope warns that the uptick, the stage when societies rebuild, isn't always guaranteed. "It's really important to have no issue be off-the-table and [to keep things] non-political," she said. "To be very aware that the Titanic can sink, and to leave the hubris at the door." Disaster planning research, for instance, shows that the mental health crisis will continue for the next thirty to forty years, with an increased prevalence of alcohol and drug abuse in affected communities. "Recovery after these sorts of events is not a spring, but the worst kind of endurance," Easthope said. "The only good thing that comes out of a disaster like a pandemic is that it creates one single opportunity to re-examine structures and institutions."

Yves Behar says healthcare design needs to catch up.

DESIGNING FOR EXTREME AUDIENCES

"The adoption of new ideas and the pace of change in healthcare can lag behind other innovations that consumers experience every day," said Yves Behar, industrial designer and founder of design firm FuseProject. People, Behar continued, become frustrated when they contrast their experience in clinics and hospitals versus, for instance, the consumer experience they have at an Apple Store. Behar's belief that design can have a positive impact in people's lives leads him to focus on what he calls "designing for extreme audiences", such as children, the elderly, neurodivergent, and mobility impaired people. "Much of design addresses the comfortable middle part of life when you're happy, healthy, and have money," he said. "For me, design is most needed when change is most extreme." One example is Moxie, an AI learning robot companion intended for autistic and neurodivergent youngsters. "It turned out to be incredibly useful for all kids, especially during Covid," Behar said. Since its launch in 2022, Moxie has had over 4 million conversations with children, with a reported 71 percent improvement in social skills such as assertiveness, social engagement, and self-control for those who regularly play with it. Another FuseProject invention—and Behar's favorite—is the SNOO robotic bassinet. The bassinet mimics renowned pediatrician Harvey Karp's method for soothing babies, which involves swaddling, shushing, and swinging. "The AI recognizes when the baby is fussing and screaming, and starts creating the noise and the movement in response," Behar said. "It's the first and only medical device that has received approval from the FDA for its ability to keep sleeping babies safely on their backs and avoid SIDS (sudden infant death syndrome)". ▥

Preparation is everything. Out now: our essential trends briefing for the year ahead, **The WIRED World in 2024.** Featuring predictions, intelligence and need-to-know insights sourced from the smartest minds in the WIRED network.

On sale now
in print and digital

Buy it in print from major newsstands or download the digital edition from the Apple App Store or Google Play

Tickets on sale now

Anya Taylor-Joy

Actor

Russell Crowe

Actor

Ian Wright

Sporting Icon & Broadcaster

Charli XCX

Musician

Rachel Chinouriri

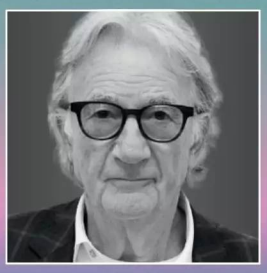
Musician

Tim Spector

Scientist & Author

Emma Corrin

Actor



Sir Paul Smith

Designer

GQ HEROES

IN ASSOCIATION WITH

BMW

Oxfordshire, 3–5 July 2024

gqheroes.com

PAYMENT PARTNER

Klarna

AUDIO PARTNER

Bowers & Wilkins

TECH PARTNER

sky glass

SKINCARE PARTNER

SUNDAY RILEY

CONNECTIONS PARTNER

tinder

LISA CORSON


Hi!
Do U
2night?
Yiko<3
Umm, yes.
Mmmmm, yes.
Lol. I can do that
okay okay. Let's play
a better mood
Just a little something for you
this morning
You should be
ARE U A GOOD BOY
ARE U A GOOD BOY

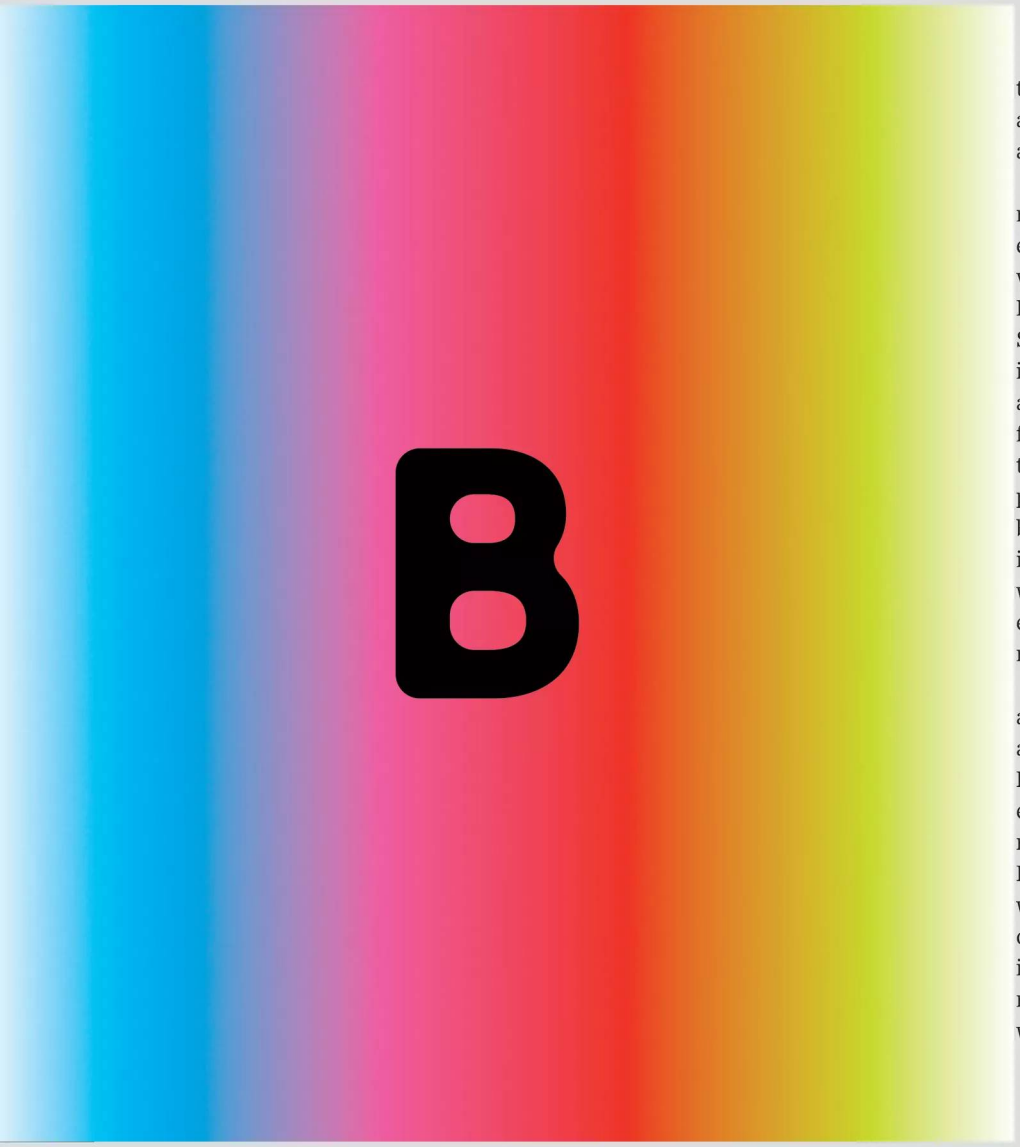
YOUR ONLINE GIRLFRIEND IS A WORKFORCE.

SHE CONTAINS MULTITUDES

I JOINED IT.

BY BRENDAN I. KOERNER

ILLUSTRATIONS BY EMILY LÓPEZ



BECAUSE I HAVE A DEEP AND CHILDISH FEAR OF BEING EXPOSED as uncool, I try hard to act nonchalant when I'm around people with lives more interesting than my own. This is the tactic I employed last year when I met an OnlyFans star, a fit cosplayer and Japanophile who has soared into an enviable tax bracket by selling what she terms "exxxtra spicy content." I made a show of calmly nodding along as she recounted how she'd ditched her plan to become a tech consultant after discovering that droves of admirers will pay $10.99 a month to watch her try on leggings or vigorously bring herself to climax.

Despite my best efforts to appear blasé about the nuances of modern sex work, the creator caught me off guard with one detail about her business. Like many of OnlyFans' top earners, she had hired a management agency to help keep up with her customers' demands for personal attention. "The chat specialists they give you, that was a huge deal for me," she said. The agency provided a team of contractors whose sole job is to masquerade as the creator while swapping DMs with her subscribers. These textual conversations are meant to be the main way that OnlyFans users can interact with the models they adore.

The existence of professional OnlyFans chatters wouldn't have surprised me so much if I'd given just a few moments' thought to the mathematical realities of the platform. OnlyFans has thrived by promising its reported 190 million users that they can have direct access to an estimated 2.1 million creators. It's impossible for even a modestly popular creator to cope with the avalanche of messages they receive each day. The $5.6 billion industry has solved this logistical conundrum by entrusting its chat duties to a hidden proletariat, a mass of freelancers who sustain the illusion that OnlyFans' creators are always eager to engage—sexually and otherwise—with paying customers.

I wanted to know more about this murky yet vital sector of the OnlyFans economy, so I set out to interview some veteran chatters. But nearly everyone I contacted was reluctant to open up. Some demanded to be paid for their insight; others ghosted me after initially agreeing to speak. I couldn't fault them for their wariness: OnlyFans is already a touchy subject because sex weirds people out, and chatters have nothing to gain by revealing one of the platform's shadier quirks. "We need to be anonymous so we can get hired," said Bel, a 26-year-old engineering student from Argentina who moonlights as a chat specialist.

Gradually I realized that my best shot at understanding how chatters operate would be to join their ranks. As an English major who's been fortunate enough to make a living with words for more than 20 years, I naively assumed I was qualified to land a gig. And as a writer, I was curious to learn what kind of artistry the job would require—what it takes to ensure that OnlyFans users never doubt they're really interacting with the objects of their desire.

XXX

AS I EMBARKED ON MY JOB HUNT, I asked the owner of a top-tier OnlyFans agency for tips on how to make myself an appealing candidate. He was pessimistic about my odds of getting hired, mainly because I'm American. He said agencies tend to favor contractors who reside in lower-wage countries. That insight was borne out as I poked around the online communities where chatters find help-wanted ads; though the vast majority of OnlyFans users live in the US, the bulk of my competitors were based in places like the Philippines and Venezuela. Judging by their posts on the r/OnlyFansChatter subreddit and in an invite-only Facebook group, these workers are relatively well-educated, with university-level English and ace typing skills that some developed in high-pressure call centers. They also put up with all manner of abuses: OnlyFans agencies are notorious for stiffing

GETTY IMAGES

their freelancers, forcing them to work 70-hour weeks, and summarily firing them if they miss a shift due to a power outage. "Us chatters are not robots," a Filipino contributor complained in an anguished screed on Reddit. "We're humans, we feel."

Once I started responding to ads, I found that my biggest flaw in the eyes of most recruiters—and yet another way in which many of my global rivals had an edge on me—was my lack of specific experience. Even for positions with a starting hourly wage of just $2, agencies often demanded evidence that applicants had not only chatted on OnlyFans before but had also cajoled subscribers into purchasing thousands of dollars' worth of so-called exclusive content. (An OnlyFans subscription includes unfettered access to photos and videos that are posted on a creator's main feed, but the most avid customers also buy additional pay-per-view content that is teased to them in chats.) My fluency in English and my claims to be a quick study meant nothing to agencies that only wanted to deal with proven upsellers.

Finally, after a few frustrating weeks, I received an encouraging reply from a

potential employer—one that introduced a jarring plot twist. The interest came from a man I'll call Daniel, who said he was based in Serbia, though his company was incorporated in Cyprus. Contrary to the impression I'd gotten from his help-wanted listing, his firm wasn't in the business of providing human chat specialists to OnlyFans creators. They were instead looking for writers to train a proprietary AI chatbot to spout convincing erotic banter. Though OnlyFans currently bans the use of AI, there are plenty of startups like Daniel's that are developing the technology to replace flesh-and-blood chatters altogether. (Some claim they're already routing around OnlyFans' prohibition by having a lone human press Send on thousands of AI-generated messages.) If I accepted the job, I'd be playing a role in the eventual destruction of the world I was trying to comprehend.

I was hesitant to take such an ass-backward approach to advancing my OnlyFans career. But at this point in my journey, I was desperate to gain a toehold in the industry, however small. So I told Daniel I was game to teach his bots how to mimic online sex workers.

To seal the deal, I needed to pass an elaborate written test. Daniel sent me a biographical sketch for a fictional "adult influencer from Tokyo" named Miko; she was a fan of karate, green tea, and the tongue emoji. My assignment was to write four extended back-and-forth dialogs between Miko and a hypothetical subscriber—two had to involve X-rated material, while the other two were meant to be clean. "Each bot's reply should contain a call to action, a question, a compliment, or an inspiration to do something," the instructions dictated, though I was forbidden from using question marks in more than 20 percent of Miko's responses.

I found it quite easy at first to write the sort of run-of-the-mill smut the Serbs expected. (I'll spare you the gory details, except to say I cribbed some color from Kathryn Bigelow's 1995 sci-fi film *Strange Days*.) For the less explicit chats, I imagined Miko offering to cook the subscriber a pasta dinner and feigning appreciation for his TV recommendations. I did make one glaring error that could have led to an entire chat being voided as unusable: Due to my hasty misreading of Miko's bio, I characterized her as a fan of spicy ramen when she actually prefers her food mild. "I have to ask you to pay attention to these little facts," Daniel wrote in his assessment. "In this case, these lines mentioning the food could have been rejected, and that could have led to the dialog's rejection."

But despite that mistake and a few other hiccups—my punctuation seemed unnatural because it was too accurate—Daniel offered me the job. I was to be paid 7 cents per line of dialog, with each dialog running for a minimum of 40 lines. For my first assignment, I had to compose 20 dialogs involving sex in public places—10 at the beach, five inside a car, and five in a forest or garden. There was a list of particular sex acts I had to include, as well as a stricture that I refrain from using emoji in more than 30 percent of lines. I had only 48 hours to complete the task.

By the time I wrapped up my fifth dialog, my brain was a puddle of goo. I felt stymied by the confines of the rapid-fire chat format, which make it nearly impossible to keep coming up with novel ways to depict two characters moving from initial tease through consummation. I had to beg for an extra two days to finish my 10 beach dialogs, after which I gritted my teeth through the car and forest scenarios. While I was slogging through this joyless work, Daniel sent me a contract that included such onerous nondisclosure and noncompete clauses that I might never have been able to work anywhere else again (or write this story) if I signed. Upon turning in the last of my dialogs, I informed Daniel that I couldn't continue. He wished me luck in my future endeavors, but never paid me the $56 I was owed.

XXX

THE UPSIDE TO HAVING SUFFERED through the AI chatbot job was that I could now list some relevant experience when approaching more traditional OnlyFans agencies. I finally cleared the initial screening hurdles at a few places and completed their applications, which tended to be arduous despite the terrible compensation on offer. For one agency that quoted me a rate of $1 per hour plus a 6 percent commission on any content I sold while posing as a creator, I was asked to write a lengthy essay about my perception of OnlyFans' business model. (I never heard back from them after jumping through all of their hoops.)

An agency in Los Angeles liked my résumé enough to arrange a phone interview. I spoke to the founder, the son of a 1980s pop star, and he said he wasn't happy with the contractors in Pakistan whom he employed as chatters. "They view it more as sales," he griped. "But I'm like, this isn't a sales pitch. These fans, they're desperate, so I say, let's engage with them more."

I liked the idea that my foremost duty as an OnlyFans chatter should be to comfort the afflicted rather than wheedle the sexually frustrated into buying pricey "nudes and lewds" content. But I balked when the founder suggested that I start as his intern, an arrangement I suspected would lead to weeks of unpaid labor. I didn't want to end up like so many of my peers on r/OnlyFansChatter, who called out deadbeats in angry posts littered with all caps text.

Good news finally arrived in the form of a kind email from an agency representative I'll call Janko. After I confirmed that I'd be willing to work for $5 per hour plus a 0.5 percent sales commission, Janko had me take a brief test. The trickiest of the three short-answer questions asked me to imagine that I was chatting with a 34-year-old construction site inspector who is a lonely virgin and cat owner. If this man was droning on and on about how much he hates his job, how would I nudge our chat in a happier direction?

I thought back to something Bel, the Argentinian chatter, had told me about her approach to such situations. A longtime writer of fan fiction about the *Yakuza* video games as well as a connoisseur of erotic audio stories, Bel had an excellent feel for how to get a chat back on track. "You can say, 'Oh, I had this really hot dream,'" she said, "or, 'Oh, I just saw this porn video.' And you guide the conversation from there."

I took the first of Bel's recommended approaches, keeping in mind that my customer seemed to be a sensitive soul. I told the subscriber I had dreamed of him cooking for me in his apartment as I snuggled up on the sofa with his cat. "And I was watching you in the kitchen making me dinner, except now you were wearing something different—these gray sweatpants that really showed off your body," I

wrote. "I felt so happy in that moment."

Janko pronounced himself a fan of my cringey work, a bit of validation that I relished too much. He followed that praise, however, with a rude surprise: He didn't have a job to give me. His agency had vetted me so that I could be placed in the recruiting pool for an entirely different agency, a firm that manages some of OnlyFans' biggest accounts. So I couldn't get to work right away, but would instead be admitted to a Discord server with scores of other candidates from around the world. It was there that we would receive the training and testing required to become chatters for the sorts of superstar models who have a million-plus followers on Instagram and TikTok.

"We wish you luck and the only advice I have for you is feel free to be greedy and push for sales as much as you can," wrote Janko. "We like the approach you have and have high hopes for you."

XXX

THERE WERE SUPPOSEDLY THREE steps to securing a full-time job with the big agency. The first was to attend a series of tutorials led by one of the firm's principals, a master chatter whom I'll call Luka. I would then have to take yet another test—a longer, more in-depth version of the one I'd aced for Janko. If I scored high enough, I'd be assigned to shadow some accomplished chatters as they handled major accounts. Once I'd observed a few of these pros function in real time, I would finally be slotted into an eight-hour shift.

At the onset of my initial training session, held in a Discord voice channel, Luka distributed a link to a Google Doc that contained his collected wisdom on the subject of chatting. It included a quote attributed to Benjamin Franklin, who was identified as an American president: "The potential is untapped, dealing with PEOPLE, you may never know what's awaiting behind the next chat."

What Luka lacked in respect for historical accuracy he made up for in swagger. "Last night, I was chatting with a guy for like, four hours," he told us while establishing his credentials. "He was a medical documenter, he was in the basement of a hospital telling me how stressed out he was. And I was like, 'Oh, how about we chat for the rest of your shift and like, I take your mind away from things?' And I'm just playing on this guy's emotional side, and this motherfucker is just eating it up. He ends up sending me a $400 tip." Luka then told a disgusting yet compelling story about the time he was eating mac and cheese while chatting, and his meal's squishiness inspired him to invent a sexual scenario that made a subscriber horny enough to tip $600.

Luka instructed us to cycle through three tasks at the start of every chat. We first had to check on the subscriber's emotional state—are they happy, sad, bored, excited? After that, we were supposed to perform an activity check—what is the subscriber doing, did they have a tough day? Lastly, and most importantly, we had to find a way to assess how much money they might be willing to spend on photos and videos of the creator we were imitating. This involves titillating the subscriber a bit, then sending them some modestly priced content that they must pay to unlock. If the subscriber makes the purchase quickly and affirms in writing that they enjoyed what they saw, the next step is to introduce more expensive options into the conversation.

Luka also told us to study all the customer data available on Infloww, the software his agency uses to manage its chats. Infloww tracks how much each subscriber has spent on pay-per-view content and tips, providing chatters with an easy way to differentiate between the two kinds of clients: "brokies" and "ballers." We were under strict orders to devote minimal time to the former so we could lavish attention on the latter. Our goal with ballers was to "farm" them—to use our dramatic talents to sell the visual aids they need to fuel their gradual journeys toward orgasm. "If you're able to play with people's desires, you're gonna maximize your cash flow, a hundred percent," Luka said. "We have literal slaves on this account, meaning these people are so in love and obsessed and literally infatuated by anything that the girl does that they will open up their wallet to about $100,000 a month. And they will literally dump it all onto the girl. Just dumping, dumping, dumping, because we've done a good job of evaluating these people and dominating them and giving them enough praise."

Luka seemed to regard all subscribers as chumps and to take delight in outfoxing them. "I've done sales for, like, internet and robotics and all this other fucking shit," he said toward the end of his lecture. "You always focus on what's going to make the customer want more right now. You're selling sex, guys—it's so easy for you to make sales. But you need to make these relations, you need to make these fucking stories in their head. Focus on the good parts, focus on the fact that long, deep strokes is her favorite way to be satisfied. You know this guy's dick is hard, just fucking do it—don't be scared!"

I wanted to believe that I would be a less predatory chatter than Luka if given the chance. But I was starting to worry I might never reach that point: Luka had noted that 450 people had taken the agency's last qualification exam, which he and his colleagues were grading by hand.

I COULDN'T HELP BUT PONDER HOW DISAPPOINTED THESE MEN WOULD BE IF THEY COULD SOMEHOW SEE ME SITTING IN MY HOME OFFICE, SIPPING HIBISCUS TEA.

XXX

I HAD RESIGNED MYSELF TO SPENDING WEEKS IN EMPLOYMENT LIMBO when I caught an unexpected break: I heard back from a German agency that I'd forgotten I'd applied to, and they were in desperate need of someone to fill the 4 pm–to–midnight shift for one of their creators. The wage was $4 per hour, no commission.

The agency's manager sent me a background memo about the woman I'd be playing, a purported 21-year-old university student blessed with physical proportions that are in vogue these days. To ensure that my performance was as authentic as possible, I spent two hours committing all of her details to memory: her favorite programming language, her favorite sushi roll, her favorite classic rock band, the width of her rear end. The memo also contained notes regarding her preferred chatting style (I had to strive to be "40 percent girly") and a pricing guide to all the exclusive content in her "vault."

When I logged in to the agency's Discord server at the appointed hour, I found that I was not alone: A polite yet humorless supervisor was on duty, and he walked me through how to install and navigate the CreatorHero software that his firm uses to engage with subscribers. He also told me to beware of anyone who had a red X by their name—those were longtime brokies who'd worn out their welcome and were thus entitled to only the hastiest of interactions.

I had nearly 100 unanswered messages to sift through when I began, and subscribers often replied quickly when I pinged them back. This made for an exhausting experience as I tried to juggle dozens of simultaneous conversations about various subjects, all without breaking character. I constantly had to remind myself that I was not myself, but rather a woman on the other side of the country whose life had almost nothing in common with my own.

True to the OnlyFans stereotype, most of the chats were overtly sexual. I had to wade into several prosaic fantasies about babysitters and office blowjobs, some of which included laughably florid professions of love for me. I couldn't help but ponder how disappointed these men would be if they could somehow see me sitting in my home office, sipping hibiscus tea as I typed out commands for them to manipulate their genitalia or deposit their semen on certain parts of my body. The most surreal moment came as I noticed the faint sounds of my daughter and her puppy watching *Bluey* together down the hall, right as a subscriber was waxing poetic about how much he wanted to eat a macaron from between my ass cheeks; the juxtaposition made me question the entire course of my life.

My supervisor occasionally chimed in to remind me to push pay-per-view content on the customers who seemed most aroused. I persuaded one man to unlock a series of short videos priced between $20 and $35, which I swore I had recorded solely for his benefit just minutes before in my bedroom. (The content was actually a year old.) Another subscriber bought all four of the $45 videos in which the creator has sex with her supremely well-endowed boyfriend. I had to promise to notify him as soon as I'd filmed more.

Yet not every chat was centered solely on sexual gratification. There were some subscribers who, it seemed, wanted merely to feel a little less adrift in the cosmos. I analyzed the TV show *Suits* with a saxophone-playing quality engineer; I let one of my ballers, a math and science teacher, break down his recipe for baked salmon; I queried a New Mexico state trooper, who was chatting with me while on the clock, about the best aspects of his job ("Driving a really cool cop car and shooting guns"). Sometimes these conversations took a sudden prurient turn, like when a haphazardly tattooed psychology student with whom I'd been discussing *SpongeBob SquarePants* sent me an unsolicited photo of his confusingly shaped penis. But for the most part, the subscribers who came seeking emotional or intellectual companionship were averse to crossing the line.

I kept worrying someone would notice that my tone or vocabulary was slightly different than in previous chats, and as a result get wise to the trick that was being played on them. But only one subscriber expressed any inkling of suspicion: He remarked that he'd heard some OnlyFans models hire professional chatters, and wondered whether I ever did that. With more than a trace of guilt, I replied that although I was familiar with this phenomenon, I was vehemently opposed to it—I was just too devoted to my wonderful fans to ever shortchange them. That lie was more than enough to nip his investigation in the bud.

There was one instance in which I was tempted to drop my charade. A truck driver and single dad told me his son was recovering from an awful night. When I asked what had happened, I was moved by the rawness of his response. "He just has night terrors so some nights are horrible," he wrote. "He will wake up but he will be screaming with no way of calming him down or anything, it's really sad."

The father in me wanted to send a long and heartfelt note in solidarity, to offer some anecdote from my own kids' younger years to let him know such moments of helplessness are unavoidable parts of parenting. But I couldn't do that, of course, since I was supposed to be a 21-year-old sex worker who exudes a sense of carefree fun. "You're such a good dad for doing everything you can to help him," was the most authentic consolation I could concoct without betraying my true identity; the subscriber did not reply before my shift ended at midnight.

As I prepared to log off, my supervisor gave me no kudos for being kind to a struggling dad. He instead gently criticized me for being too meek about selling content to customers who were clearly ripe to masturbate. I could keep the job, but I'd have to get better at valuing commerce over art.

XXX

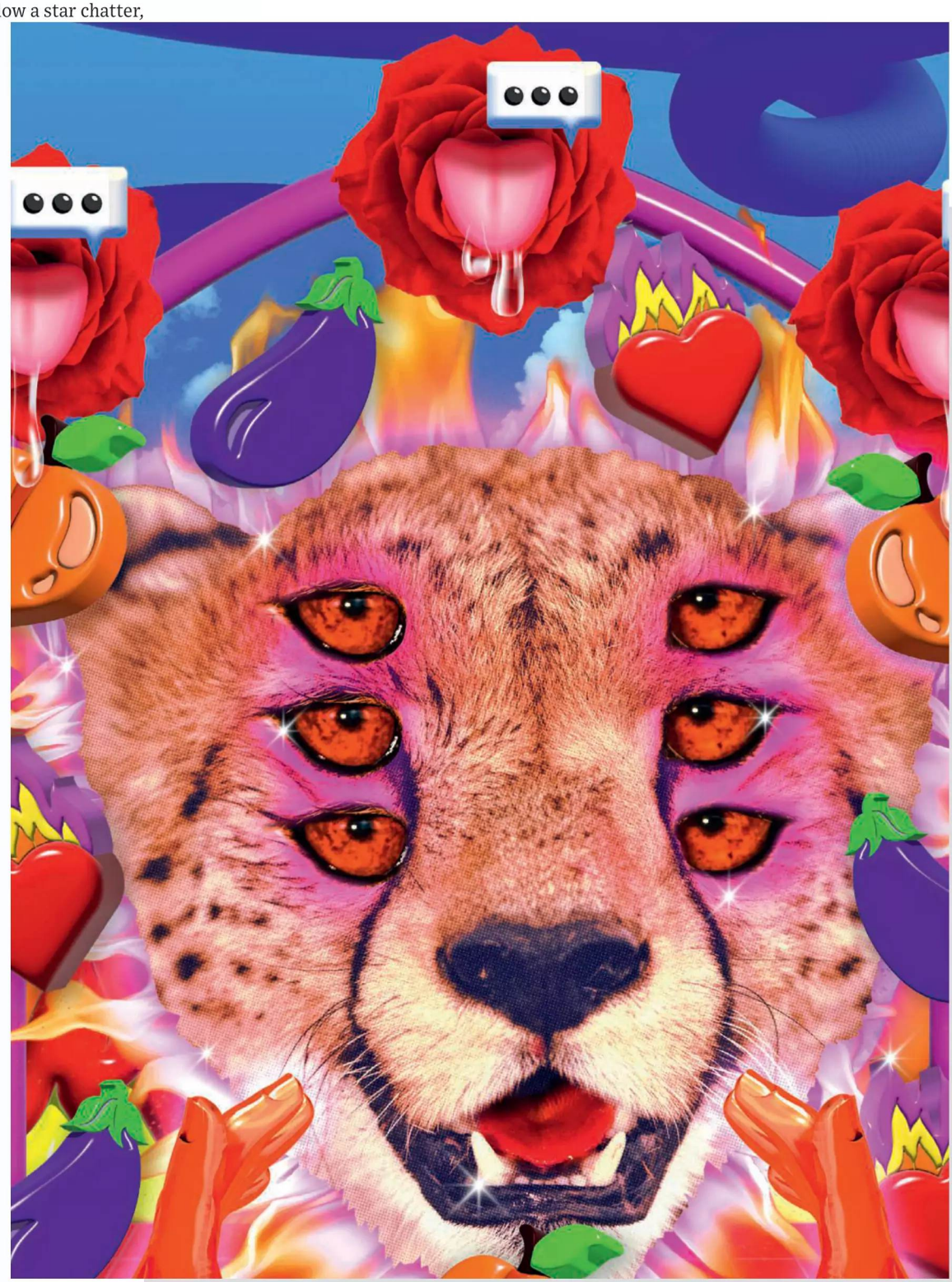
THOUGH I WAS NOW EMPLOYED AS a chatter, I decided to keep attending Luka's tutorials in hopes of upgrading to one of his agency's sought-after jobs. His half-hilarious, half-upsetting advice continued in the next session, during which he taught us how to keep our eyes peeled for new subscribers with baller potential. ("If somebody comes in and they tell you where they live, and you don't understand that that's a high-income area, you're gonna miss out on a really good opportunity. Like, 'Oh, this guy lives on the East Coast, he's an upper Manhattan

GETTY IMAGES

businessman, he makes fucking bank.'")

As he wrapped up, Luka said we could now take the agency's qualification exam if we thought we were ready. I jumped at the chance and breezed through the test in 25 minutes—my brief stint working for the Germans had taught me how to massage subscribers' egos and deepen their attachments to the women they follow. I wasn't given my score, but I must have done well enough: Two days later, I was invited to shadow a star chatter,

AFTER PLEADING WITH A SUBSCRIBER TO SEND A DICK PIC, ELVIN MESSAGED ME: "THIS IS SO HE FEELS IT IS NOT JUST ABOUT THE MONEY."



"WHEN YOU SUBSCRIBE, THE VERY FIRST THING IT SAYS IS, 'HAVE A DM RELATIONSHIP.' WELL, THAT'S TOTALLY FRAUDULENT," SAYS ROBERT CAREY, A LAWYER PREPARING A CLASS ACTION SUIT.

whom I'll call Elvin, as he impersonated a jet-setting creator, a woman famous enough to sell hoodies emblazoned with her likeness.

The reason Elvin had been selected as an exemplar quickly became apparent: He was a chatting savant who operated a tick faster than seemed humanly possible. He wove in and out of dozens of conversations with ease, never failing to tailor his writing to each subscriber. In the space of a minute, I watched him quiz one man about Drake lyrics, indulge a second

GETTY IMAGES

man's taste for degradation, then provide a third man with a lovey-dovey but manipulative "girlfriend experience." ("If you want me to be with you, I need your wallet to be with me," he wrote to that last subscriber. "Forever and always.") I had kept up with multiple chats, too, but never with such dexterity or style. My gut told me that no matter how much I honed my craft, Elvin would forever be a class above me.

Yet like Luka, he also oozed contempt for the subscribers he was entertaining. This disdain emerged in his typed asides to me, in which he emphasized that the creator's moments of sincerity were all for show. "This is so he feels it is not just about the money," he messaged me after pleading with a subscriber to send a dick pic; he didn't open the photo when it arrived, and immediately got the man to spend upward of $400 on videos.

The most egregious example of Elvin's rapacity was his use of "points." When one subscriber became hesitant to purchase more content, Elvin persuaded him to press forward by promising to award him another "point" if he spent an additional $200. Perhaps sensing that I was puzzled by his lingo, Elvin used the notes field in Infloww to send me a message about the maneuver he was making on behalf of the creator. "He thinks there is such a thing as points," Elvin wrote, "and if he earns enough he gets to fuck her."

I gamed out the various ways in which this ruse might end, and every outcome was depressing. One day the subscriber will realize he has wasted a fortune in pursuit of a lie, at which point there will be a heavy emotional toll to be paid. Some may think he deserves that comeuppance for getting hoodwinked by such a selfish fantasy, and I understand the moral logic behind that view. But as I watched him succumb to Elvin's ample literary charms, my dominant feeling was one of pity. And now I worried that if I lingered in the chatting world for much longer, I'd be forced to lose something that so many of us have struggled to retain: the ability to empathize with people we know only through words on a screen.

The agency had several other shadow sessions on my calendar, each promising to teach me a different skill: They had titles like "Scripts and Storytelling" or "High Spender Retention." I skipped out on them all, a choice I knew would doom my chances of advancement. I also submitted my resignation to the Germans, telling them I'd landed a higher-paying position elsewhere that I couldn't turn down. The agency's only response was to delete my CreatorHero credentials and boot me from its Discord server; they never paid me a dime.

XXX

THE PROS AND CONS OF SELF-DELUSION HAVE BEEN MUCH ON MY MIND since I emerged from the OnlyFans haze. Though I encountered a few true weirdos while passing myself off as a creator, most of my chat partners seemed, at the very least, like halfway reasonable and competent adults. If they ever were to pause to consider the logistics of the platform where they seek sexual and romantic solace, they'd realize there's no way the unattainable women they covet have the time or inclination to chat with them. I want to believe these men—and it was only men I encountered, as far as I know—have chosen to avoid such reflection because it would diminish their relief from loneliness. For those whose use of OnlyFans borders on addiction, the scales may fall from their eyes only after they can no longer afford their preferred means of escape.

But maybe I'm just assuaging some of my own anxieties by imagining that these consumers have consented, on some level, to being duped. Robert Carey, a Phoenix-based partner at the law firm Hagens Berman, which specializes in massive class actions, has a less charitable view of the matter. In the midst of my plunge into the chatting industry, I caught wind that he was looking for men to become plaintiffs in a class action against both OnlyFans and the agencies who hire chatters. A lead attorney in the lawsuits that revolutionized college sports by making it possible for student-athletes to get paid for name and image rights, Carey argues that the managers who run creators' accounts are engaging in a type of bait and switch that fits the classic definition of fraud. "When you subscribe, the very first thing it says is, 'Have a DM relationship,'" he said. "Well, that's totally fraudulent … It's an open secret they're just defrauding people."

Carey, who confided in me that his firm plans to file its lawsuit soon, contends that the chatting illusion can lead to serious harm for unwitting subscribers. "A bigger problem than the communications fraud is when you think you're cultivating a confidential relationship, and a chatter is soliciting private pictures and they're going to some dude in the Philippines," he said. "And they're stored on a server somewhere and put on a Slack channel somewhere, and suddenly your private pictures are all over the goddamn internet. And people are laughing at it." As Carey laid out this hypothetical, I thought of all the men who'd shared their fantasies or explicit photos with me and how they might feel if they knew I'd chuckled to my wife about them after a shift. (When asked to comment on Carey's allegations, as well as the industry's reliance on chat specialists, an OnlyFans spokeswoman stated that the company "is not affiliated with and does not endorse any third party or agency." She went on to emphasize that "each creator is empowered to run their business as they see fit," provided they abide by OnlyFans' terms of service.)

It's easy to imagine human chatters being squeezed out of the industry if Carey's class action makes headway. Even if OnlyFans maintains its resistance to AI, creators might see the wisdom in transitioning to chatbots; then they could at least promise their customers that the bots are honest facsimiles of the real thing, as opposed to some remote worker whose performance is based on facts memorized from a 12-page memo. And for the right price, the most fervent subscribers could pay extra—perhaps a lot extra—to chat with the creator herself, the wizard behind the curtain.

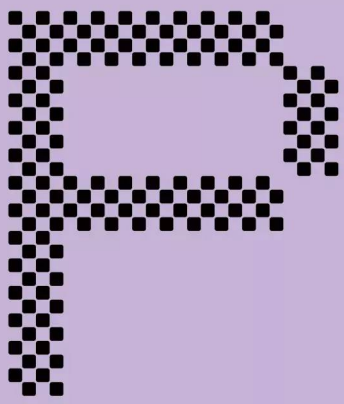
Yet the chatters I got to know seem strangely unperturbed by this doomsday scenario. When I posted about the looming AI threat on a private Discord server for chat specialists, my colleagues dismissed my concerns as overblown. "No AI can beat a damn good salesman," read one typical response. Some chatters clearly take pride in having mastered the art of the upsell. But their confidence may have clouded their ability to recognize that in an AI-saturated future, they, too, are destined to be marks.

BRENDAN I. KOERNER *is a contributing editor at* WIRED *and the author, most recently, of* The Skies Belong to Us: Love and Terror in the Golden Age of Hijacking. *He wrote about the science of hibernation in issue 05.23.*

THE TRICKY BREAKAWAY OF PHIL WIZARD

He recently deactivated the Patreon that helped him scrape together enough to get by. Now he's a (somewhat reluctant) global ambassador for a new Olympic sport.

BY **DEXTER THOMAS**



PHILIP KIM knows what you're thinking: *Breakdancing? At the Olympics? That's not even a sport.*

He agrees with you, mostly. He just prefers you call it by its proper name: *Breakdancing* is something only outsiders say. Those who know call it *breaking*. But Kim, who is better known as Phil Wizard, is pragmatic enough to know that "breakdancing" is better for SEO. He usually doesn't bother to correct people.

So, let's be proper: Kim is the top-ranked B-boy in the world and a favorite to bring home the gold for his home country of Canada. This has made him a hot commodity for every press outlet in the country, and he admits the pressure is getting to him. And the interviews all seem to follow a pattern: *How'd you get your name? What's your best move? Is breaking a sport?* Then they ask him to do a couple tricks for the camera. Kim knows I've flown to Toronto to make him do it all again for probably the fifth time this week, but he doesn't seem to mind. If it's good for the culture, he's down.

There's not a lot of room for the culture on the official Olympics website, which glibly says that breaking started at "lively block parties." Not wrong per se, but it obscures a cold irony: That one of breaking's founding figures might have had a shot at the Olympics in his time, had he not been so poor. Richard Colón, now known as the B-boy Crazy Legs, trained as a boxer in his neighborhood and as a teenager wanted to compete in a Junior Olympics event. His single mother couldn't afford the $14 registration fee. Left without opportunities, Colón stayed in the Bronx streets, where he helped pioneer an explosive style of dancing. Back then, rapping was a novelty; hip-hop's main event was breaking. And for a while, mainstream culture found breaking useful: Colón appeared with his Rock Steady Crew in 1983's *Flashdance*; another crew performed at Ronald Reagan's 1985 inauguration gala. Then, the calls stopped coming. A lot of the kids went back to the streets.

One of Paris 2024's "most fashionable sports" wouldn't exist if it weren't for the pressure cooker that was late-'70s New York—the structural racism, the oppression, the poverty—that forced those Bronx kids to find a way to survive.

Philip Kim didn't know about any of this back in 2009 when, as a 12-year-old in Vancouver, he saw a performance by a breaking crew that put on shows at weddings and corporate events. He thought it looked cool, so he went home and watched the first thing that came up: a competition on Red Bull's YouTube channel. He's now sponsored by Red Bull and a growing list of increasingly un-hip-hop companies that includes Lululemon (he prefers the flowy, baggy women's pants; the men's line is too tight for him), Toyota, and Royal Bank of Canada.

Kim is a rarity. He estimates he's one of maybe a couple hundred breakers worldwide who make enough money to focus full-time on dance. In fact, he only recently deactivated his Patreon, which, before all the sponsors, had helped him scrape together enough to get by. (It's wild to think that a couple years ago you could get one-on-one training from a future top-ranked Olympian for $50 per session.)

This leaves the majority of breakers in the scene to find a day job. Kim hopes the Olympics can help change that; mainstream exposure means more opportunities. And the scene might not get another chance: The IOC announced last year that breaking will *not* be featured in the 2028 events in Los Angeles. (Among the sports that got a nod instead are flag football and squash.) So Phil might not only be the first gold medalist B-boy, he may well be the last.

Before we finally sit down, our video producer asks Kim (inevitably) to do a couple moves for the camera. After he helps us clear out a space just inside the entrance of the surf-goods shop where we've been chatting, Kim prepares to spin into a photo-friendly windmill move. Just then, a scruffy brown dog, which until now had been lazily watching customers flick through beach-themed tank tops, dashes across the shop floor.

Fascinated by the movement, the dog rears up on its hind legs and leaps toward Kim. Kim pulls his legs back into a tighter spin; he doesn't want to smack the dog, but he isn't gonna stop his flow. For a couple minutes, the video shoot turns into an impromptu battle-slash-rough-housing session, with the dog playfully snapping at Kim's legs and Kim playfully lunging back, laughing as it barks. It takes Kim a bit to figure out the chaotic style of his new "opponent," but before long he has incorporated a few puppy-like hops into his movement. Kim has the same goofy grin he always has on stage. For just a moment, the pressure—not just the expectations of his country, or his friends, or his scene, but of 50-plus years of history—is off his shoulders.

DEXTER THOMAS: That was hilarious. I think you made a new friend.
PHIL WIZARD: [*scratching the dog behind the ear*] I *love* dogs, man. I love dogs. I wish I could have one. But I travel too much.

Yeah, weren't you just in South Africa? And Hong Kong. You've been all over. Do you remember when things started feeling "real" for you, doing this as a profession?
It was a Red Bull event, Red Bull BC One. It's the biggest one-on-one event in the world, and there was a qualifier in LA. I bought my own flight and stayed with a friend out there. I told myself that if I win this event, then I'm just going to drop out of school and pursue it. And if I lost, I'll focus on school. But I won. It was unexpected, I was just this kid from Canada. I had a little bit of name recognition, but I beat people out who are veterans.

And then you told your family?
Yeah. My parents had immigrated from Korea. They're like, "We sacrificed our lives to give you guys a different opportunity." They weren't super pushy, but they were just ... traditional. My dad was like, "I'll give you three years to show us that you can do it. We'll support you, you can live at home, whatever. But then after that, if it doesn't work out, you go to school." My parents were always supportive, they were just worried about me, right?

How old were you?
I was maybe around 20 at the time. So I did it: I dropped out of school, and I pursued dance. But I still struggled mentally. Because it was so difficult as a dancer to make it. Every day was a challenge of like, "I don't know if I can do this."

I actually found an old video of you showing off some moves and combos. I think you're still 17 in this one.
Haha, look at the big shorts I'm wearing! This is in my friend's basement. That's where we would go to practice. It's actually really funny seeing this now. There are certain movements, there are certain shapes, the way that I move is still very similar. But you can see the energy, you can see the hunger that I had at that age. That's changed.

What do you mean? What's changed?
It's always more pure when you start. You dance because you love to dance. Now, there's sponsors, there's media. At that age, when I would go to an event, everything was super exciting. I still have the same love, but it's lost the shine a little bit, for sure.

OK, boilerplate question: Is breaking a sport?
Good question.

You knew this was coming.
It's a conversation we have to have. Whenever I get asked this question, I say I've always seen it as an art and a culture first. I've never seen it as a sport. Most of us have never seen it as a sport. It's self-expression, it's culture. It's an element of hip-hop culture. Now it's going into the realm of sports. To be completely honest, I don't care what people label it. Hip-hop in general, it can transcend these labels.

It's kinda funny to me that there are two groups of people who agree that breaking isn't a sport: the haters who are mad that breaking is in the Olympics, because they don't respect it, and the breakers themselves. I don't get the hate, though. What you do is really athletic, it's really difficult.
There's also a ton of subjectivity involved. There's no cookie-cutter "if you do this move, you get this many points." You have categories like originality, execution, and difficulty. But "difficulty" is a hard one to judge, because you could do something physically difficult, but you could do something equally *creatively* difficult. How do you gauge those factors? It is still extremely subjective; it is very political when it comes to judging.

Right. And even when this was first announced as a 2018 Youth Olympics event, there was that petition from a

> "IT'S GOOD TO BRING FINANCIAL STABILITY AND SUPPORT INTO BREAKING. ALL I'VE EVER WANTED IS FOR PEOPLE TO BE ABLE TO LIVE OFF OF THIS."

B-boy who accused World DanceSport Federation and the International Olympic Committee of exploiting breaking for their own gain. It got over 2,000 signatures—other B-boys, B-girls.
Yeah, some people in the community don't want us in the Olympics. But there are a lot of OGs and people who are very respected in the game who understand the opportunities that will come from it. It's not perfect, but nothing ever is. At the end of the day, the positives outweigh the negatives. So let's focus on that and just do our best.

Just like you said, all of this isn't just a sport, it's a culture. And that's where things get really deep.
Of course. You have to respect that side too. For me, I understand that I am a guest of this culture. I'm just someone who came in after. It came from Black and Latino culture. It came from the hood. It's grown outside of that. It touched people like me who come from a middle-class family that just saw breaking and were like, "I want to do this." Same thing with the Europeans and the Asians. If you go to Japan, there's a lot of kids whose parents see it as something fun and positive their kid can do. I don't think that's a bad thing.

I do think that people will notice, when they see breaking in the Olympics on TV, that there are way fewer Black and brown faces than they might expect; that it doesn't look like it used to.
A lot of the scene has moved to Europe and Asia. So that's why you see predominantly Asian and white people in the scene competing at the highest level, because that's where the scene has shifted. It might just be an opportunity thing. In Japan, it's huge.

Yeah. North America, in general, breaking seems way more rare, you know what I mean? Compared to how Korea had a boom of breaking in the mid-2000s, when it got really popular for a while.
Exactly. But even if you look at Korea

Twenty-seven-year-old Philip Kim, from Vancouver, British Columbia, is

a favorite in the 2024 Olympic breaking competition.

now, they don't have that next generation. It's shifted to K-pop. Even among dancers, breaking is seen as like a "Oh, you're still doing that?" kinda thing. Hopefully the Americans see the opportunity with the Olympics and they open more doors for breaking to be showcased, or to teach at school. And then that'll bring more people in, right?

You're in an interesting position as one of the "faces" of this sport. I don't think anyone expects an Olympian sprinter or swimmer to educate people about the cultural context of their sport. Do you feel like there's a responsibility?
I do think we should talk about it. I do my best to learn about it, but I could probably do a better job. Hopefully when people see us, they want to learn more and want to get into the culture.

So we're in Toronto now, because you're out here for work. But you grew up in Vancouver. Do you see differences in the two scenes? Can you tell what city somebody's from in how they move?
I think Canada in general has always been known for a creative approach, a lot of threading, which is when you create an illusion with your body, one body part going through another. I think there used to be probably more of a difference between cities. That changed in general with the YouTube generation. There's less difference now.

That's happened with music too. Southern hip-hop had a particular sound, so did California. Even within California, you had a more Bay Area sound, and LA had multiple different sounds, and you can tell by listening to someone ...
... where their music comes from, yeah. Now you just watch videos, so it's changed. You have a lot of background in hip-hop culture, don't you? You know your stuff, I can feel it. You're very invested in it.

I am, I guess. I am a DJ, but I can't

scratch. I didn't learn on vinyl. I learned on computers. I feel a little like a poser because of that. I'm kinda like you: I'm not old enough to have been there in the beginning days, so I don't know if I even have the right to gatekeep. But then I look at all the commercialization last year of the 50th anniversary of hip-hop, and I see LinkedIn's content division posting "brand tribute" listicles, and I think, "What?"
Yeah, like, "What is your connection to this?"

Yeah, like, "Who are you?"
Exactly.

So you get me! We got looked down on for being into this culture, you know what I mean? I used to DJ at this one club where the management would tell us, "Do not play hip-hop because it attracts the wrong crowd." And now I see people glomming onto it. I feel like, "Yo, what? You trying to make money off of this after, like, everything that we've been through?"
But my question is, isn't that the whole idea? To bring more people together, right?

Yes, of course.
There will always be people who are just latching onto it, but then you also introduce it to new audiences, and people that will fall in love with it. That's part of the process. Nothing's ever cookie-cutter and clean. That's the grit you have to go through to get to the other side. That's my view of the Olympics. Of course, you're going to get brands and shit that jump on, and they're just in it for the hype. But you might get those few brands that jump on and be like, "I love the culture. Let's keep supporting this." I think it's good to bring that financial stability and support into breaking, to provide a lot of opportunities for a lot of people now, which is all I've ever wanted. For people to be able to live off of this.

I think I see what you mean. There's this rose-tinted idea we have of a time when a scene's motivation was 100 percent pure. Almost like they wanted to *suffer* for the culture. But I also look back at some of the original B-boys and B-girls, and they were very clear that in the early days they were trying to get paid.
It's the same. Exactly. You could look at rap artists. What do they talk about most of the time? It's about money. Everyone's just trying to get paid. Money changes everything always, but I think you can still keep cultural roots and love for the art of it.

I've also seen people recently saying that the concept of "selling out" is a Gen X thing. And that millennials and Gen Z don't really ... well, they either don't understand it or it's not relevant, because they start out from the standpoint of, "I should get paid to do this."
Exactly. Yeah. What is "selling out," right? If you do something and you do it at a high level and people respect you for it, of course you should get paid for what you do. So that's not selling out. If you're doing something that you really don't want to do, like, "This is not me. This doesn't represent me at all. But I'm doing it for the paycheck." *That*, there, is selling out.

I hear you grew up watching anime.
Yeah.

> "I THINK THE OLYMPICS NEEDS BREAKING MORE THAN BREAKING NEEDS THE OLYMPICS. BUT I DON'T THINK THAT IT IS THE END ALL, BE ALL."

VIDEO STILLS BY ELYY KWONG

What'd you watch?
I watched a lot of *One Piece*, *Bleach*, *Naruto*, the big three shonen anime. A lot of breaking to me is kind of like watching *One Piece*, actually. It's all pirate crews. You form a crew, you travel the world, people have bounties, and they're notorious for something. It's like that for me when I go to an event. It's like, "Oh, I know this person, Victor [*Montalvo, an American B-boy also headed to Paris*]. He's notorious for this, he's well known for that." You want to battle him to see, to test yourself. You form a crew as well within your community, and you go out and represent.

Speaking of which, things have changed, shifted from battles between crews to individuals, haven't they?
For sure. With Red Bull BC One, and now the Olympics, there's a lot more focus on individual battles and competitions. I still think the root of breaking is in crew battles, though. That's where it started, and that's where the energy is. And, honestly, it's the most fun to watch for me, too. The two-on-two, the three-on-three crew battles. You can see the chemistry. I think that things will start to change, and we're going to see the crews and stuff start to come back after the Olympics.

Hmm. Why do you think that is?
I think it's just an energy shift. I think people are tired of one-on-ones. I'm tired of competing in one-on-ones. It's more fun to do two-on-two, three-on-threes. It's cool to win by yourself, but it's more fun when you're winning with your boys.

OK, the *One Piece* thing is starting to make sense to me now. One thing that I imagine is going to surprise a lot of people at the Olympics is the judges' showcase. Before the event starts, the judges have to perform in front of all of you, the athletes.
So the judges' showcase is a part of what has always been in competitions. The judges at most events are people that are very respected in the culture, that are known for their style, known for their contribution to the scene. And so the judges' showcase is like a nod to that, to showcase why they're up there on the panel. With the Olympics, it's probably a little bit different, to be completely honest. A lot of us don't even agree with who's judging these events.

Really?
You're going to see some weird calls, and that's been the case in the last year with [Olympic] qualifications. And there've been some bad judges' showcases, to be honest. We all talk about this openly. I don't know half the people that are up there. Some of them are very respected in the scene, and some of them are not. That's one of the flaws of the system, but it is what it is. So we just go and adapt.

Wow. So as you're watching them dance, you could be strategic and go: "OK, I see who's here. I know what will play well. I'm going to adjust my movements to get points," right?
Yes, some people do that. I do not do that. There are definitely people who will look at the judges and say, "I can tick more boxes if I do this. This person prefers this type of dance. And so I'll try to cater more toward that." But for me, that's when you take away the art of it. The idea of breaking is self-expression. Not catering to other people.

Even at the Olympics? When a medal might be on the line?
No. At any event that I go to, I'm going to do my thing. The majority of us are like that. We don't care who the judges are. We'll complain, be like, "Fuck, these judges suck," whatever. But it's your style versus someone else's style, you know?

I get it. I'd imagine there's a lot of future potential Phil Wizards out there, and if you do something corny, you risk turning that kid off.
Exactly. People think I like to compete, but I don't. I'm not a competitive person. I'm a very anxious person. So when I go on stage, it's super anxiety-driven, and I don't like being there. My love of breaking comes from dancing. I like to be with my friends at practice, just creating and dancing. If I could do that, I would just do that.

Speaking of which, breaking won't be at the next Olympics, and there's no guarantee it ever comes back after that. How do you feel about that?
I think it's a missed opportunity for the Olympics. I think they'll regret it when they see it in Paris.

You mention "opportunity," which reminds me that the IOC president said breaking as an event is part of an "opportunity to connect with the younger generation." Who needs who more, the Olympics or breaking?
I think the Olympics needs breaking more than breaking needs the Olympics. This is a big platform to showcase breaking on another level, and there's been incredible funding and opportunities for people, but I don't think that it is the end all, be all. I compete the next week and I compete the week after that. There's literally an event, IBE, one of the biggest events, the week after that, and I'll be there. So it just keeps going.

You're going to compete again, the week after the Olympics?
The Olympics is just one event. It is one event of many.

It's almost like y'all are thinking of this Olympics thing as a big commercial to advertise your scene, the culture.
Yeah, I guess. I hope that brands see that it's a cool thing to invest in and start working with people in the community. And I hope that when people see breaking, they fall in love with it. If the Olympics don't invite us back, we go back to what we've been doing. Breaking was here before they brought us to the Olympics. It'll be here after.

DEXTER THOMAS *is a documentary filmmaker and professor. He has a PhD on Japanese hip-hop, and he lives in Los Angeles.*

DELOREAN VS

DELOREAN

by Kathy Gilsinan

Decades after her dad's iconic sports car time-traveled into movie history, Kat DeLorean wants to build a modern remake. There's just one problem: Someone else owns the trademark on her name.

In the fall of 2020, bored and restless in Covid-restricted Spain, Ángel Guerra doodled a dream car.

The automotive designer, then 38, wanted to make a tribute to his first four-wheeled love: the time-traveling DeLorean DMC-12 that rolled out of a cloud of steam in *Back to the Future*. The sketch that took shape on Guerra's computer had all the iconic elements of the 1980s original—gull-wing doors, stainless-steel cladding, louver blades over the rear window, a rakish black side stripe—plus a few modern touches. Guerra smoothed out the folded-paper angles, widened the body, stretched the wheel arches to accommodate bigger rims and tires. After two weeks, he decided he liked this new DeLorean enough to stick it on Instagram.

The post blew up. Gearheads raved about the design. The music producer Swizz Beatz DM'd Guerra to ask how much it would cost to build. Guerra started to think that maybe his sketch should become a real car. He reached out to a Texas firm called DeLorean Motor Company, which years earlier had acquired the original DeLorean trademarks, but was gently rebuffed. The design seemed destined to live in cyberspace forever. Then, by some algorithmic magic, a different kind of DeLorean showed up on Guerra's Instagram feed in the spring of 2022—a human DeLorean by the name of Kat. Her posts showcased her love for her puppy, hair dye, and above all her late father, John Z. DeLorean. Although the general public often remembers him as a high-flying CEO with fabulous hair and a surgically augmented chin who went down in a federal sting operation, Guerra chiefly thought of him as a brilliant engineer. He sent Kat a message with some kind words about her dad and a link to the design. Kat saw it and got stoked.

Kat DeLorean is a frequently stoked type of person. At the time, she had recently dyed her long hair in rainbow colors to, in her words, "create the rainbows in my heart on my head." Yet for much of her life, her relationship to the DeLorean name had been an unhappy one. When people asked

Photograph by Peyton Fulford

Kat DeLorean at a DeLorean event in Augusta, Georgia, on March 11, 2023.

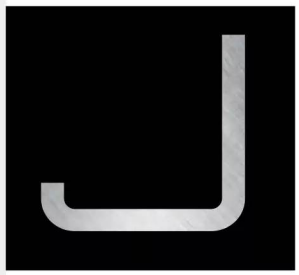
why she didn't own a DMC-12, she would reply: "If there was an iconic representation of your entire life falling apart, would you park it in your driveway?" She would say, only half-jokingly, that the initials stood for "Destroy My Childhood." A fortysomething cybersecurity professional, Kat lived in a ramshackle farmhouse in New Hampshire with her husband and a few kids. But when Guerra's note arrived, she was undergoing a pandemic- and work-stress-induced reevaluation of her life's purpose. She was dreaming up ways to reclaim her father's legacy. She wanted to launch an engineering education program in his name.

One thing she insisted she didn't want was to start a car company. It was a car company, after all, that had ruined her father. But then something happened that changed her mind. In April 2022, the Texas company that had given Guerra the cold shoulder announced it would soon reveal a new DeLorean. Kat kept her feelings about this to herself only briefly. First she drew attention to Guerra's design, posting it on Instagram. ("A timeless classic given the treatment it deserves!") Two days later, she made her feelings explicit: "@deloreanmotorcompany Is not John DeLorean's Company," she wrote. "He despised you." Details about the new Texas DeLorean emerged a few days after that: Called the Alpha5, it would have four seats instead of two, would reportedly be built mostly from aluminum rather than stainless steel, and would be available in red. Like many DeLorean purists, Kat hated it.

As people kept messaging her about the pretty design they'd seen on her Instagram feed—some even offered to help build it—a new plan took shape. Kind of a crazy one. She started to think: Why not build one car and film the process of building it for the engineering students? Eventually that turned into: Why not make several and sell them to fund the engineering program? But then why not ...

As Kat's ideas tend to do, this one snowballed: an engineering program in every state, funded by cars; her mind could easily leap from there to notions of rebuilding the industrial Midwest and rejiggering American work culture in general, the ultimate realization of her oft-stated belief that "everyone should have the same opportunity to live their dream." John DeLorean had plotted to return to the car market until the day he died. Now, she thought, shouldn't she give the nerds what they wanted? Fine, she had zero experience running a car company, but she could find people for that, and anyway she'd spent, by her estimate, thousands of hours talking engine design with her dad. She described herself as having "gasoline in her veins."

Which didn't really change the fundamentals, including how difficult and outrageously expensive it is to bring a car to market, not to mention the itchy point that the "DeLorean" branding technically belonged to someone else. Never mind all that. Kat was a DeLorean—a name, for good or ill, associated with wild ambition.



John Z. DeLorean was a suave, swashbuckling General Motors executive who dated young models and palled around with celebrities. He became automotive royalty in the mid-1960s, when he had the idea of sticking a bigger engine into an "old lady" car, thereby reinventing the Pontiac brand and launching the "muscle car" era. But DeLorean felt stifled at GM, and he dreamed of building what he called an "ethical car": safe, reliable, affordable, and environmentally friendly. He left the company in 1973, the same year he married the supermodel Cristina Ferrare, his third wife. Two years later, he founded the DeLorean Motor Company. And two years after that, DeLorean and Ferrare, who shared an adopted 6-year-old son named Zach, welcomed their baby daughter Kathryn.

The original DeLorean Motor Company's brief and turbulent history spanned Kat's early childhood. She has few direct memories of the time her dad spent assembling a team of mavericks and dreamers enticed by the idea of building a whole car company from a blank sheet of paper. With a generous investment from the British government, DeLorean opted to put his factory outside Belfast, Northern Ireland. This was during the Troubles, when the idea of Catholics and Protestants working side-by-side seemed impossible. But, for a time, it worked. "There was a bog, then there was a factory, then there were jobs," William Haddad, an executive for the company, recalled in a 1985 interview. "It was really exciting as hell."

It also happened to be an era of inflation and soaring gas prices. An inexperienced workforce and frequent bomb scares further complicated production. Timelines slipped, production costs ballooned, demand collapsed, debt accrued. The company had to recall a couple thousand cars. DeLorean's original vision, described by one classic car aficionado as a $12,000 "Corvette killer" featuring "unprecedented

PREVIOUS SPREAD: GETTY IMAGES; COURTESY OF DELOREAN MOTOR COMPANY

safety and efficiency attributes," morphed into a $25,000 vehicle with few of those qualities. Then, in October 1982, with little Kat approaching her fifth birthday, came the world-famous denouement: John DeLorean caught on tape with an FBI informant in a room with nearly 60 pounds of cocaine. The informant had pitched the sale of the drugs as a way to raise enough money to save DeLorean's struggling company.

Kat was 6 when her dad's high-profile trial ended in an acquittal in the late summer of 1984, on the grounds of entrapment. Her dad's company and career were destroyed; as he ruefully asked reporters outside the courtroom: "I don't know, would you buy a used car from me?" Also destroyed was a kind of childhood idyll for Kat, who went very suddenly from living in an intact, wealthy, and famous New York City family—complete with an apartment on Fifth Avenue worth $30 million in today's dollars—to being a child of bicoastal divorce. Within the year, her mother was remarried to a television executive, and Kat was mostly living in California. She was allowed 10 minutes a day on the phone with her dad back East, which she extended by enlisting his help with math homework.

Back to the Future came out a year after John's acquittal. Although a studio official had pushed the filmmakers to use a Mustang for their time machine—Ford was willing to pay handsomely for the product placement—the screenwriter reportedly replied, "Doc Brown doesn't drive a fucking Mustang." The selection of the DMC-12 for the honor (cue Marty McFly: "Are you telling me that you built a *time machine* out of a *DeLorean*?") prompted John to write a thank-you letter to the director and screenwriter, who he said had "all but immortalized" his car. Unlike Guerra, Kat has no recollection of seeing *Back to the Future* for the first time. "It just felt like the movies were always there, always a part of my life," she told me.

As a teenager, Kat was allowed to choose which parent to live with, and she picked her dad. She spent her high school years on a farm in Bedminster, New Jersey. (The exact site that would later become the Trump National Golf Club Bedminster.) She rode dirt bikes around the vast property, did musical theater in private school, and sometimes endured cocaine jokes from her peers. Her best friend at the time taught Kat how to fix her own computer and inspired her habit of tinkering with the machines.

She modeled for a few years after high school but stayed geeky, spending her nights on hacking competitions. Then, in her early twenties, pregnant with her first child from a brief first marriage, she decided she didn't want to raise her son in the world she'd known as the daughter of a supermodel. (These days she refers to "that world" of fabulous wealth from an almost mystified remove, as if the visit on the Schwarzeneggers' private jet and the pajama party with Kourtney Kardashian had happened to someone else.) Instead, she took an IT internship at Countrywide Financial—later to be acquired by Bank of America—and started working her way up. She met a systems engineer named Jason Seymour at a company Christmas party and married him a little more than a month later at a drive-thru wedding chapel in Las Vegas. (Jason had wanted an Elvis impersonator to officiate, but he wasn't available.) The following year, in 2005, her father died. John DeLorean had spent some of his final months attempting to trademark the name "DeLorean Automobile Company" through a company called Ephesians 6:12, which he'd set up with Kat and Zach as co-owners. (The name is a reference to a biblical verse about struggling "against the rulers of the darkness of this world, against spiritual wickedness in high places.") But he passed away before the application could be approved, so it was officially listed as "abandoned."

John's death devastated Kat. Although she remained fiercely proud of her father and kept attending car shows in her capacity as a DeLorean, she went professionally by her married name, Seymour, and maintained a separation between those two identities. But in the 2020s, as the DMC-12's 40th anniversary approached, John's name was popping up in documentaries and movies again, and Kat was not happy with some of the portrayals depicting him as a kind of narcissistic hustler. She became determined to get the positive story of John DeLorean out.

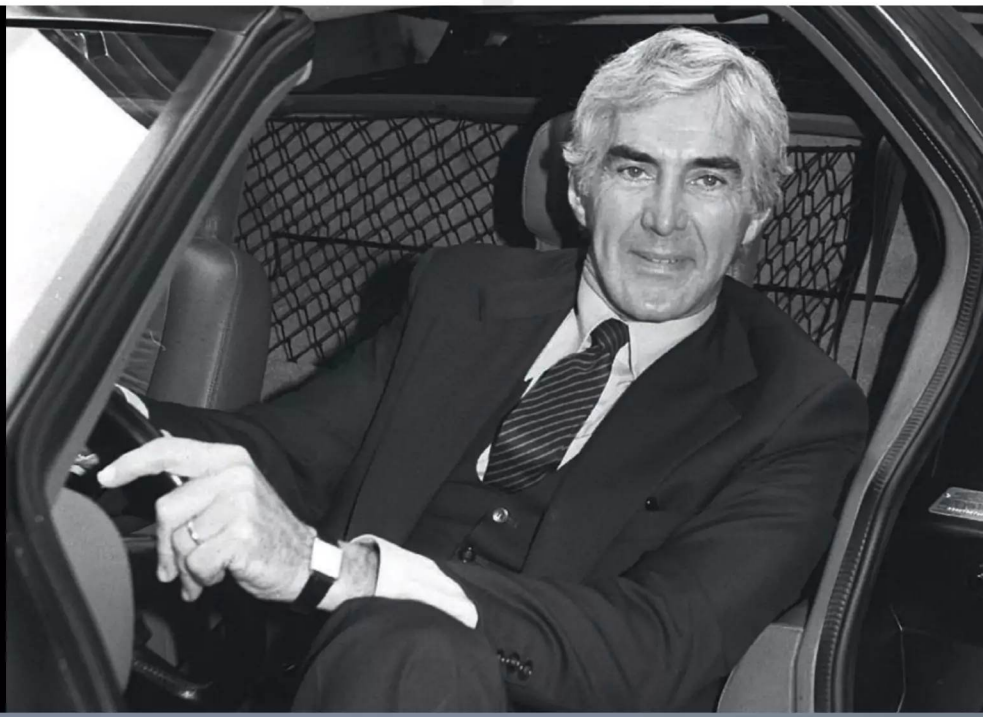
As a big "trust the universe" person, she believed it was meaningful that an actual angel (Guerra) had shown up in her life with a design. So through the summer and fall of 2022, Kat's ambitions took the shape of a car. The model would be called JZD, her dad's initials, and the company would pour the sales revenue into more education programs—expand-

COURTESY OF ÁNGEL GUERRA/DELOREAN NEXT GENERATION; GETTY IMAGES

Clockwise from top left: A front view of DeLorean Next Generation's JZD; John Z. DeLorean at the wheel of an original DMC-12; a side view of the JZD.

ing into underserved areas in the industrial Midwest where her dad made his career. She resisted even calling the venture a "car company"; she much preferred to say it was a "dream-empowerment company fueled by automobiles," in the same way Girl Scouts is a youth-empowerment organization fueled in part by cookies.

Whatever the company was, the New Hampshire farmhouse turned into its de facto headquarters. Kat and Jason took video meetings, recruited talent, and entertained wild ideas about what a new car "with DeLorean DNA" could do. (She joked: "Leave it to me to start a car company right when nepo babies are a thing.") Could they source sustainable stainless steel for their first car by melting down old appliances? Could they use recycled computer chips to control it? Could they make virtual-reality manufacturing labs for their students, to assemble first a virtual car and then a real one? This was going to be a brand-new kind of



"There's just something loose in her head," he said. "Kat's thing is illegal. And she's being shut down."

car company—among the first ever founded by a woman and likely the first intended to be a not-for-profit.

With these big visions came big promises. In August 2022, Kat posted a screenshot from John's final automotive business plan, which promised to "shake the automotive world" with a car that would kick off "an affair with man and machine at a price point that will be affordable."

She expressed an intent to follow these wishes with her own car company. The company's name: DeLorean Next Generation.

The news spread, first with an item on Fox News and then in outlets all over the world. Jason was so high on enthusiasm for the new company, and pride in his wife's ambition, that he dashed off a public promise on the DNG Motors Instagram account. "UNVEILED SEPTEMBER 13, 2023," read an image of white text on a black background, with Jason's caption: "DeLorean is back in the Motor City." He'd just committed them to building a car for the Detroit Auto Show. When Kat saw the post, she flipped out.

Soon afterward, the DeLorean Motor Company in Texas sent Kat a cease-and-desist, demanding she stop using the DeLorean name for her planned car. She and Jason had their lawyer send a reply asserting their rights and expressing their willingness to litigate, and kept going.

DeLorean Motor Company sits in a squat building off a tangle of highways in suburban Houston—you drive past some shabby lots and fields, and then the 1980s spring up around a curve in the road, where a retro-looking DMC logo looms over a row of DMC-12s in the parking lot. You might even spot a JIGAWAT license plate there. Inside the garage/warehouse is an array of disembodied gull-wing doors that evoke a flock of injured birds. Old covers of *Deloreans* magazines stare out from frames in the showroom.

This is the realm of Stephen Wynne, a Liverpool-born mechanic who has devoted his life to DeLorean the car—to the point of driving his son Cameron to kindergarten in DMC-12s that appeared in *Back to the Future*. Wynne is less impressed with DeLorean the man, however. "I have more respect for the team that he put together," he says. "All you hear about is John DeLorean and not the team, and that, to me, is not right." John was, Wynne said, ahead of his time as an engineer. But: "He made the company, and he also, you know, killed the company in the end."

It was Wynne who picked up the pieces, effectively securing a monopoly on the small, strange market for DeLorean parts. This was not a decision about preserving someone else's legacy; it was about securing his own future. "It felt to me like, to control my destiny, going forward, it was to have control of the parts," he told me in the shop as tools clanked against cars behind us. "If someone was going to get it, I wanted it to be me." He founded the new DeLorean Motor Company in 1995.

Wynne considers the original buyers of the 1980s DeLorean to have been "entrepreneurial, outside-of-the-box-thinking type people," with something a "little bit different about them"—less interested in owning a really fast sports car than a piece of cultural history. (The original DeLorean did 0 to 60 in about 10.5 seconds, something my used Hyundai can easily beat.) "We believe that there's much more wealth in that market these days," Wynne says.

Over the years, Wynne and team made various plans to serve this market of "modern nerds" with new cars built mostly from original parts. But federal regulators were slow to relax the rules that said these historic replicas had to meet current safety standards, so the revival of the DMC-12—with its lack of airbags, a third brake light, and anti-

lock brakes, for instance—never happened. Still, the company did a thriving business in parts sales and car service. It also made a good buck from the DeLorean brand, which it alternately licensed for apparel, video games, and the like, or zealously protected via cease-and-desists and lawsuits.

Finally, Wynne got to talking with a Tesla alum named Joost de Vries, who'd been involved in previous efforts to electrify the DeLorean. The DeLorean brand, de Vries argued, was so universally beloved, and startup costs for electric vehicles were so much less than even 15 years earlier, that they could partner up to build a brand-new electric DeLorean. Together they formed a San Antonio–based spinoff of DeLorean Motor Company, called DeLorean Motors Reimagined, with the Wynne family as the largest shareholders and de Vries as CEO. (Wynne's son, the former time-traveling kindergartner, is now the companies' chief brand officer.) De Vries would lead the development of the car, and funding would come largely from private investors. The company incorporated in Texas in November 2021 (smack in between when Guerra posted his design in late 2020 and when Kat got involved in mid-2022). Wynne and de Vries hired Italdesign, the same firm that had drafted the original DMC-12, to design the Alpha5.

DeLorean Motors Reimagined hoped to build 88 cars to start (88 mph being the speed at which Doc Brown's DeLorean traveled through time), then about 9,500. The car would be "low volume, high-end, very exclusive, weird, wild technology," according to de Vries, an imposing, bald Dutchman with the hard-charging swagger of the Silicon Valley executive he once was. "DeLorean was always attainable luxury. My price tag is not going to be attainable luxury."

DeLorean Motors Reimagined went from founding to concept car within nine months. The company even bought a 15-second Super Bowl spot in February 2022, cryptically teasing the new car and setting off buzz in the automotive press. The Alpha5 premiered at the Pebble Beach auto show that August. It was only a concept, meant to show off design and technology, not a finished product that could operate on the road. But it was a real object that existed in the real world and was promised to be on sale to the public in 2024.

By that point, the JZD, Kat's model, was still in the design phase, living for the most part in computers.

1 2 3

COURTESY OF DELOREAN MOTOR COMPANY; ÁNGEL GUERRA/DELOREAN NEXT GENERATION

Like the original DMC-12, both the Alpha5 (left) and the JZD (right) sport gull-wing doors and louver blades over the rear window.

The steps to getting a new car from invention to production are standard, whether you're General Motors, DeLorean Motors Reimagined, or DeLorean Next Generation. On average, the process takes about five years. You have to design and engineer the car; find suppliers for thousands of parts, from wheels to seats to instrument panels; get tools custom-made to stamp out your body panels; and find or build the facility and the workforce to put these things together. This is all before you can actually mass-produce something that resembles the original design.

So it is not at all unusual for a concept car to appear at an auto show and then for nothing resembling it to ever materialize on actual roads. A paint facility alone can set a company back hundreds of millions of dollars. This is in fact why the original DeLorean was stainless steel: John DeLorean couldn't afford a paint plant. (His marketing genius, Kat says, was that "he made you all think it was intentional.") John Z. DeLorean had his first prototype by 1976, within about a year of founding his company; the first DMC-12s went on sale in 1981.

Theoretically, then, it was possible to build a one-off JZD concept car—if not a production-ready prototype—in the 11 months Kat and Jason had between founding the company and the 2023 Detroit Auto Show. Kat projected confidence onstage at a Miami auto show in January 2023, while a digital rendering of the JZD zoomed along mountain roads on a screen behind her. But shortly after that

appearance, she started getting stressed out about the timeline. Potential manufacturing partners were telling her it was wildly unrealistic. Even getting the doors to open and close the same way every time was its own feat of engineering, and Kat couldn't tell them whether the car would run on gas, batteries, or both. (She wanted students to make that decision as part of an engineering challenge she had yet to set up.) Kat began to have visions of living the same arc of ambition and collapse that befell her father.

This was her preoccupation when she showed up on a warm March 2023 morning in Augusta, Georgia, as a special guest at a "DeLorean Day" event. Well before 8 am, she was stalking around the parking lot in a rainbow plaid skirt and a NERD (Northeast Region DeLorean Club) hoodie with Jason in tow, enthusing to fans about their cars, talking not just with her hands but sometimes with her feet. She literally jumped up and down after a green '66 Pontiac GTO Tri-Power pulled onto the lot. She inspected the carburetors under the hood and declared that this model, in midnight blue, was her "ultimate dream car," shout-laughing when the owner confessed to the absurd gas mileage—about 8 miles per gallon in the city—then apologizing, through laughter, for laughing.

By 8 am she was posted up behind a mic to discuss her father and her own plans. "My father was my best friend in the whole world," she said. "In the summers, I sat and played gin rummy with him on the couch, to the point where there was a worn spot in each place where we sat—a big one and a little one." She got teary-eyed during the Q&A period when a kid of maybe 10 told her of his plans to be a robotics engineer. He hoped, he said, to make cars that could turn into robots that could "help people and protect humans from like, anything bad that can happen." She would later tell me that this moment and others like it in Augusta added up to a turning point for her—that "all of a sudden it was like, OK, whatever I have to do, whatever pain I have to go through, if it means building a car company, then I'm going to do it, because I want that moment every day for the rest of my life."

And when a well-meaning questioner brought up the Alpha5, she spoke carefully through a tight smile. "That is being made by the company DeLorean Motor Company Texas, and they're not affiliated at all with the family or the original car. And I think that's about all I'm going to say about that one."

When I asked Joost de Vries about Kat DeLorean's efforts a few weeks later, he was less diplomatic. "There's just something loose in her head," he said. "Kat's thing is illegal. And she's being shut down." He said in a later conversation that she would be "hammered with lawsuits" as soon as her car appeared at the Detroit Auto Show.

De Vries and I were in a bland tech office park in San Antonio, where he sat in his glass-walled office. He was well aware that the Alpha5 design was polarizing in the DeLorean community. (Some DeLorean forum users had groused that the model just looked like another Tesla with gull-wing doors; one called the whole effort "little more than slapping the name of a beloved car on an unrelated vehicle.") He also knew the discouraging fate that had befallen many an EV brand before his. Other high-end EV companies such as Lucid, Rivian, and the failed-then-resurrected Fisker had burned through billions and missed production targets, and even market leader Tesla was then struggling to bring its hyped (stainless steel) Cybertruck to market. DeLorean Motors Reimagined had hit supply-chain snags and cut its planned production run by more than half, to 4,000 cars. But de Vries had something most EV companies didn't: a brand that much of the world already knew. "The only thing I need to do is put good product into an existing brand," he said.

The question, of course, is whose brand "DeLorean" really is. Both companies insist on their own rights to use it. And each calls the other's claim transparently illegitimate.

Stephen Wynne registered and enforced trademarks on "DeLorean" and "DeLorean Motor Company" in the 2000s, as John's trademarks were canceled or abandoned, and he has renewed and protected them ever since. Furthermore, in a 2015 settlement with John DeLorean's estate, a woman named Sally Baldwin DeLorean, acting as John's widow, acknowledged "the worldwide rights of DMC to use, register, and enforce any of the DeLorean Marks for any and all goods and services" related to cars, clothes, and "promotional items"—for which DMC paid her an undisclosed sum. So, yes, it is Kat's name. But it's someone else's trademark, and it's one she has never tried publicly to contest until now.

Kat's argument includes that seemingly simple but possibly irrelevant part—it's her name—but also a convoluted part. She doesn't believe John actually ever married Sally. Nor do several people I spoke to from John's orbit at the time, including his son, Zach, none of whom can recall John mentioning a marriage to her. Kat told me she searched for and never found a marriage certificate. Nor did a private detective she hired. (Sally Baldwin DeLorean's lawyer did not return requests for comment, and attempts to reach her directly via listed phone numbers were unsuccessful.) John's will names his son as executor. Zach, balking at the prospect of attorney's fees, never actually filed the will. Kat contends that Sally's settlement with

A well-meaning Reddit commenter tried to buy Kat's car, only to accidentally reserve her competitor's.

the DeLorean Motor Company is illegitimate, as she was never in a position to act on behalf of the estate in the first place. What should have happened, Kat thinks, is for the US Patent and Trademark Office to reach out to her and Zach, as co-owners of Ephesians 6:12, about her dad's pending application.

Then there is the question of infringement, a key standard for which is "likelihood of causing confusion." Kat's DeLorean Next Generation is not using the exact same set of words as Wynne's DeLorean Motor Company, but it is fair to say, based on the Alpha5 question that Kat got in Augusta—and on a well-meaning Reddit commenter who'd tried to buy Kat's car only to accidentally reserve an Alpha5—that some members of the public are indeed confused. Yet each side accuses the other of doing the confusing.

Both sides have told me a lawsuit is inevitable. No jury decision is guaranteed—determining "likelihood of confusion" itself involves a (confusing!) 13-factor test. But New Jersey trademark attorney Richard Catalina, who is not affiliated with either party, told me that the "stronger legal arguments" belong to the Texas company. "Trademark rights only accrue with use. If you're not using the mark, you can lose your rights to it," Catalina said.

"I just learned the. Craziest. Thing," Kat told me on the phone last summer. She had come across the 1985 interview with William Haddad, the executive who'd found it "exciting as hell" how much good DeLorean Motor Company had achieved in Northern Ireland. Haddad had been crushed by the company's collapse, and now, in 1985, called it a "scam" and John himself a thief. (John had always denied this and was never convicted of financial misdeeds.) But Haddad was wistful about John's squandered ambition to locate factories where they could do the most social good. "If only he had done it … Can you imagine it?" Haddad mused in the interview.

Kat knew the Northern Ireland story well already, but Haddad had put John's goal and his downfall in terms that suddenly clicked for her. She and Jason had been so caught up in the crazy timeline they'd set for themselves that they were risking following precisely her dad's path—letting one car distract them from their bigger goal of supporting young engineers. "If my car company fails, that's OK," Kat said. Her goal had always been to create an education program for students who have "dreams that have been robbed from them," she said. "And if I can't do that with this car, then it's not worth the car."

One thing was obvious: They were moving too fast. Kat decided she would not unveil the prototype of the JZD until her father's 100th birthday, in 2025. In the meantime, they'd have students build a clay model for Detroit—not a full-size one, as automakers typically do during development, but one about the size of a shoebox—and debut it not at the Auto Show but concurrently at the Detroit Historical Society. Later on, they'd enlist students to help build a prototype of their Model JZD on top of a Corvette C8 platform, picking participants through an online contest in which students described their dreams. After that would come a separate line of cars under something called Project 42, involving a hand build of 42 customized cars. These would have a sales price of probably over a million dollars each (which would also include driving outfits and a motorcycle to go with each car). They'd use the proceeds to fund the education program. So if the Alpha5 was going to be "unattainable luxury" and its likely market rich tech bros, then these custom cars would be yet less attainable and probably serve a market of billionaires.

It's been two years since DMC Texas and Kat DeLorean both announced their new car projects. Neither has sued the other yet, and both are cagey about plans to do so. Joost de Vries stepped down from the helm of DeLorean Motors Reimagined last October, for reasons the company won't disclose. A lawsuit against de Vries and other DeLorean Motors Reimagined executives, in which de Vries' former employer Karma Automotive accused him and others of stealing the EV maker's intellectual property, was dismissed after a reported out-of-court settlement. Timelines have slipped enough now that Cameron Wynne won't specify exactly when the Alpha5 will be on sale—he says sometime in 2025. For Kat's venture, meanwhile, Ángel Guerra continues to revise the design. The car will not be stainless.

DeLorean fans have been burned many times by promises of the next car, and given the delays in both projects, skepticism about both potential new ones pervades DeLorean-related internet forums. (Indeed, as this story went to press in April, a San Antonio paper reported that DeLorean Reimagined had shut down its headquarters; a DMC executive told me the company was just moving locations.) Both companies continue to promise big things. Promises, after all, are part of the DeLorean legacy too. W

KATHY GILSINAN *is the author of* The Helpers: Profiles from the Front Lines of the Pandemic. *She lives in St. Louis.*

THE FORENSIC EMPIRE OF ELIOT HIGGINS

As fakes and deceptions proliferate at record speeds, one guy has maintained a miraculous nose for the truth—the founder of Bellingcat, the world's biggest citizen-run intelligence agency.

BY **SAMANTH SUBRAMANIAN**

TERMINAL GROTESQUE BY RAPHAËL BASTIDE (VELVETYNE TYPE FOUNDRY)

TEN YEARS AGO, ELIOT HIGGINS could eat room service meals at a hotel without fear of being poisoned. He hadn't yet been declared a foreign agent by Russia; in fact, he wasn't even a blip on the radar of security agencies in that country or anywhere else. He was just a British guy with an unfulfilling admin job who'd been blogging under the pen name Brown Moses—after a Frank Zappa song—and was in the process of turning his blog into a full-fledged website. He was an open source intelligence analyst avant la lettre, poring over social media photos and videos and other online jetsam to investigate wartime atrocities in Libya and Syria.

In its disorganized way, the internet supplied him with so much evidence that he was beating UN investigators to their conclusions. So he figured he'd go pro. He called his website Bellingcat, after the fable of the mice that hit on a way to tell when their predator was approaching. He would be the mouse that belled the cat.

Today, Bellingcat is the world's foremost open source intelligence agency. From his home in the UK, Higgins oversees a staff of nearly 40 employees who have used an evolving set of online forensic techniques to investigate everything from the 2014 shoot-down of Malaysia Airlines Flight 17 over Ukraine to a 2020 dognapping to the various plots to kill Russian dissident Alexei Navalny.

Bellingcat operates as an NGO headquartered in the Netherlands but is in demand everywhere: Its staffers train newsrooms and conduct workshops; they unearth war crimes; their forensic evidence is increasingly part of court trials. When I met Higgins one Saturday in April, in a pub near his house, he'd just been to the Netherlands to collect an award honoring Bellingcat's contributions to free speech—and was soon headed back to collect another, for peace and human rights.

Bellingcat's trajectory tells a scathing story about the nature of truth in the 21st century. When Higgins began blogging as Brown Moses, he had no illusions about the malignancies of the internet. But along with journalists all over the world, he has discovered that the court of public opinion is broken. Hard facts have been devalued; online, everyone can present, and believe in, their own narratives, even if they're mere tissues of lies. Along with trying to find the truth, Higgins has also been searching for places where the truth has any kind of currency and respect—where it can work as it should, empowering the weak and holding the guilty accountable.

The year ahead may be the biggest of Bellingcat's life. In addition to tracking conflicts in Ukraine and Gaza, its analysts are being flooded with falsified artifacts from elections in the US, the UK, India, and dozens of other countries. As if that weren't enough, there's also the specter of artificial intelligence: Still too primitive to fool Bellingcat's experts but increasingly good enough to fool everyone else. Higgins worries that governments, social media platforms, and tech companies aren't worrying enough and that they'll take the danger seriously only when "there's been a big incident where AI-generated imagery causes real harm"—in other words, when it's too late.

WIRED: You now preside over the world's largest open source, citizen-run intelligence agency. A decade ago, when you switched from your blog to the Bellingcat website, what path did you see this taking?

ELIOT HIGGINS: At that point, I was still trying to figure out exactly how I could turn this into a proper job. I'd been blogging for a couple of years. But I had children, and it was getting more important to earn a living. When I launched Bellingcat, the goal was to have a space where people could come publish their own stuff. Because at that point, I had several people who'd asked to publish on my blog. I needed a better-looking website. I also wanted a place where people could come together. But that was the extent of my strategy. There was no grand plan beyond that. It was all, "What's happening next week?"

Well, I launched on July 14, and then three days later MH17 was shot down. The way the community formed around MH17, it was really a massive catalyst for open source investigation—in terms of the growth of the community, the work we did developing techniques, the profile that gave it. Today our Discord server has more than 28,000 members. People can come and discuss stuff they think might be worth investigating, and we're publishing articles based off the work of the community.

The world is never boring these days. What has it been like at Bellingcat since October 7, for example?

We've hired more people. We're bringing in more editors. We've shifted people from other projects. We've already got one person who's specifically working on archiving footage. But what's different is that you don't get the same kind of footage that we've gotten from, say, Ukraine or Syria. There's actually a lot less coming from the ground.

Because of internet blackouts?

Yeah, and a lot of the stuff we find is actually from Israeli soldiers who're misbehaving and doing stuff that I would say

are definitely violations of international laws. But that's coming on their social media accounts—they post it themselves.

Another issue is: Because of the lack of electricity there, you actually get a lot of stuff happening at night that you can't really see in the videos. Like the convoy attack that Israel had the drone footage of—there's lots of footage of that, but it's just all at night and it's pitch-black. But there was a good piece of analysis I saw recently where they used the audio and could actually start establishing what weapons were being used. Just the sound itself makes it very distinct ...

Like audio signatures of missiles?

Yeah, and it's not just being able to identify the type of weapon: When you fire something, you can hear the sound of the bullet going by but also the sound the barrel makes—and you can use that to measure how far away the shot came from. When the Al Jazeera journalist Shireen Abu Akleh was killed in 2022, we had the footage where she was shot. And the shot came from the direction of positions occupied by Israeli forces. [*Months after the shooting, the Israel Defense Forces announced that there was "a high possibility" that the journalist was killed by one of its soldiers.*]

Are there things you haven't seen before, coming from this conflict?

It's certainly the first time I've seen AI-generated content being used as an excuse to ignore real content. When a lot of people think about AI, they think, "Oh, it's going to fool people into believing stuff that's not true." But what it's really doing is giving people permission to not believe stuff that *is* true. Because they can say, "Oh, that's an AI-generated image. AI can generate anything now: video, audio, the entire war zone re-created." They will use it as an excuse. It's just easy for them to say.

And then they can stay in their own information silo ...

Yeah, just scrolling through your feed, you can dismiss stuff easily. It reinforces your own beliefs. Because Israel-Palestine has been such an issue for so long, there is a huge audience already primed to be emotionally engaged. So you see grifters churn out misattributed imagery or AI-generated content. The quality of that discourse is really low. It means that if you're looking for real accountability, it's hard.

You have this entirely transparent process, where you put all your evidence and investigations online so anyone can double-check it. But it's a feature of the world we live in that people who're convinced of certain things will just remain convinced in the face of all the facts. Does the inability to change minds frustrate you?

I've gotten used to it, unfortunately. That's why we're moving toward legal accountability and how to use open source evidence for that. We have a team that's just working on that. You can have the truth, but the truth is not valuable without accountability.

What do you mean by legal accountability?

Well, you have people on the ground capturing evidence of war crimes. How do you actually take that from YouTube to a courtroom? No one has actually gone to court and said, "Here's a load of open source evidence the court has to consider." So we've been doing mock trials using evidence from investigating Saudi air strikes in Yemen.

A lot of our work is educating people: Lawyers in general don't know much about open source investigation. They need the education to understand how investigators work, what they're looking for—and what is bad analysis.

Because there's more and more bad analysis with open source evidence. Do you know Nexta TV? They're this Belarusian media organization, and they did a series of tweets after the attack on the concert in Moscow. They said there's a lot of people in this scene wearing blue jumpers. They could be FSB agents [*members of Russia's Federal Security Service*]. But where's the proof they're FSB agents in the first place? That was terrible analysis, and it went viral and convinced people there was something going on. If you can draw colored boxes around something and say you're doing open source investigation, some people will believe you.

There are elections this year in the US and in the UK and in India. Are you preparing to deal with these three big election events as you deal with Ukraine and Gaza?

There's only so much we can do to prepare, because I think the scale of disinformation and AI-generated imagery will be quite significant. If you look at what's happened already in the US with the primaries, you've already got fake robocalls; the DeSantis campaign used AI-generated imagery of Trump and Dr. Fauci hugging each other. So that line has already been crossed. These tools are available to ordinary members of the public as well, not just political agents.

Which makes it much worse.

Yeah, because it's not what the campaigns decide to do, it's what their supporters decide to do.

"WE DIDN'T REALIZE WE WERE TRAUMATIZING OURSELVES."

Given this flood of AI-generated imagery, are you wary of Bellingcat turning into just a fact-checker rather than doing these much deeper investigations where you build a case?
It's like the Kate Middleton thing that happened recently. I really tried not to join the conversation. I thought: This is really stupid discourse. But then you start seeing, like, TikTok videos that were saying, "Oh, the color's being photoshopped" or whatever, and they have millions and millions and millions of views. So you kind of feel: Yeah, I have to say something. It's actually a good reflection of how disinformation starts and spreads, and the dynamics.

I will not lie. I was fascinated too, for the span of a week.
That's why it was prime territory for disinformation! I've dealt with lots of communities who believe in conspiracy theories. None of them generally believe they're conspiracy theorists. They believe they're truth seekers fighting against some source of authority that is betraying us all. They've come to understand that a source of authority cannot be trusted, because of their personal experiences.

I love a phrase you used for this once: that people who believe in conspiracy theories have previously suffered some kind of "traumatic moral injury."
I use the example of Covid. A lot of people who were driving Covid disinformation were people in the alternative health community who've often had bad experiences with medical professionals. Like they've had a treatment go wrong, or they've lost a loved one, or they've been mistreated. And some of that is legitimate. Some of that is real trauma.

Now, they found like-minded people, and within that community you have people who are anti-vaxxers. When Covid came along, suddenly those voices became a lot louder within those communities. And the distrust people had in medical professionals was kind of reinforced. It's about feeding their anxiety—and they're being fed every single day, every time they scroll through their groups.

In an era when AI images are going to proliferate, wouldn't you rather that people have this heightened spidey sense about the world, where they're alert? That they're too skeptical rather than too trusting?
I'd argue against the frame of that question. If you have people's spidey sense tingling all the time, they'll just distrust everything. We've seen this with Israel and Gaza. A lot of people are really at that point where they do care about what's happening, but it's so confusing that they cannot stand to be part of this anymore. You're losing people in the center of the conversation. This is a real threat to a democratic society where you can have a debate, right?

Is this AI-generated stuff at a stage of sophistication where even your team has to struggle to distinguish it?
Well, we explore the network of information around an image. Through the verification process, we're looking at lots of points of data. The first thing is geolocation; you've got to prove where something was taken. You're also looking at things like the shadows, for example, to tell the time of day; if you know the position of the camera, you've basically got a sundial. You also have metadata within the picture itself. Then images are shared online. Someone posts it on their social media page, so you look at who that person is following. They may know people in the same location who've seen the same incident.

You can do all that with AI-generated imagery. Like the Pentagon AI image that caused a slight dip in the stock market. [*In May 2023, a picture surfaced online showing a huge plume of smoke on the US Department of Defense's lawn.*] You'd expect to see multiple sources very quickly about an incident like that. People wouldn't miss it. But there was only one source. The picture was clearly fake.

My concern is that someone will eventually figure that out, that you'll get a coordinated social media campaign where you have bot networks and fake news websites that have been around for a long time, kind of building a narrative. If someone were clever enough to say, "OK, let's create a whole range of fake content" and then deliver it through these sites at the same time that claims an incident has happened somewhere, they'd create enough of a gap of confusion for an impact on the stock market, for panic to happen, for real news organizations to accidentally pick it up and make the situation much worse.

So how do we even begin to fix this?
Social media companies need to have the responsibility—like, legislatively—to have AI detection and flagging as part of the posting process. Not just as something that's a fact-check layer, because that's not going to matter at all. I don't think a voluntary system is going to work. There need to be consequences for not doing it. I think my worry is that we're only going to figure this out when something really terrible has happened.

How do you spend your spare time online? What do you do on holiday?
I've removed Twitter from my phone, because that was one of the worst things. Arguing with people ...

You don't do that anymore, I noticed. You used to do it a lot, and in such good faith.
It was kind of like testing my own knowledge. If someone can come up to me and say, "Oh, you're wrong because of this," and I can't argue against that, then I'm the one in the wrong. It used to be worthwhile having those debates, even if they were arguing in bad faith. But it got to the point where the mythology around Bellingcat that existed in these echo chambers became crystallized. When someone now says, "Oh, Bellingcat is the CIA," it's always the same nonsense.

OK, you're not arguing as much. What else are you doing?
I use AI a lot for my own entertainment.

Do you know Suno AI, or Udio? These are music creation tools—and in the past six months they've taken huge, huge leaps. I have a SoundCloud where I upload my music. You can put in style prompts. You can also put in custom lyrics.

This is how the founder of Bellingcat spends his spare time.

Yeah. I like it especially when the AI generator really gets weird, goes completely off the rails. I write loads of songs about things like filter bubbles online and stuff. If you can condense an idea into a lyrical form, I find that helps process it into a simpler form to explain it to people in articles and books.

I've read elsewhere that you call any yearning for a time before the internet "cyber-miserabilism," which is a great phrase. But it's also true that all of us remember our minds being calmer before we started scrolling through feeds.

You're continually wired now. What really worries me is how this is traumatizing people. We had this a lot with Ukraine in 2022, when there were so many people engaged with the content stream. Those people were saying, "I just feel horrible all the time." We didn't realize we were traumatizing ourselves. We're seeing the same issue with Israel and Gaza and people streaming through this imagery that's just reinforcing the hate they have for the other side.

In the early days of Bellingcat, you were being exposed to videos like that on a daily basis, very often including footage of dead bodies. How do you protect yourself from what you're seeing?

For me, it felt like there was a point to it, because I had success through seeing all this stuff. It's the powerlessness that is often part of the traumatic response. But you can learn to disassociate from that.

Can you though?

I just think I got very good at compartmentalizing stuff. It's so, so important for this work. With MH17, I was looking at the wreckage of the site. There was a big, high-resolution photo, and I was going through it looking at the details of the shrapnel holes, and there was a doll in the wreckage, and my daughter had been given the exact same doll by her aunt when she was born. What happens then is you have a subconscious engagement with it. And you have to stop at that point. Trying to push through it is a really bad idea.

When I was looking at the victims of the 2013 sarin attacks in Syria, for example, we were trying to identify the symptoms. And one of the symptoms is the constriction of pupils. So I had to look at the eyes of these dead people to find enough screenshots to establish their cause of death. That was upsetting in itself. But then you go online, and you have all these idiots saying: "Oh, it's fake. No one really died. The babies are acting." *That* is traumatic.

I understand Bellingcat offers psychological support so anyone on staff can get free therapy. Do people use that counseling facility a lot?

Oh yeah, absolutely. It's not just about the content we face but also the reaction from governments that we have to deal with. Which can be, as you know, quite aggressive.

I did wonder about that. I've read that you don't eat room service meals anymore. But also, what changed when Bellingcat was declared a foreign agent by Russia in 2021?

Being declared undesirable and a foreign agent—in one sense, it's a badge of honor. It's also a problem, because we try to be transparent about who funds us, but if we're a foreign agent and have donations from people who're linked to Russia, that will put them at risk. We've had to stop publishing some of our donors' names, which we're not fans of. But they need to be protected.

I found a quote online from one of your former employees in which he says, "Data is the great equalizer between an individual and the state." But surely, at some point, governments and intelligence agencies will find ways to hide their own data better?

Russia tried to do that. After we did the first investigation of the poisoners [*of Sergei Skripal, a former Russian intelligence officer, in England*], we got copies of their GRU documents. The next time we tried that, they'd removed the photos from the documents of GRU officers. But that just told us they were GRU officers. When we posted about that, the photos returned, but they were of different people. They'd replaced a photo of a man with a photo of a woman. So ... they're not smart.

But they're bound to get smarter?

Maybe. The thing is, these are doors. One door closes, we just go through the 10,000 other open doors. It's never the end of the investigation. We just need to take another route. W

> "ONE DOOR CLOSES, WE JUST GO THROUGH ONE OF THE 10,000 OTHER OPEN DOORS."

SAMANTH SUBRAMANIAN *is a contributing writer at* WIRED.

PUBLISHED BY CONDÉ NAST

Chief Executive Officer Roger Lynch
Chairman of the Board Jonathan Newhouse
Global Chief Revenue Officer & President, U.S. Revenue & International Pamela Drucker Mann
Chief Content Officer Anna Wintour
Chief Financial Officer Nick Hotchkin
Chief People Officer Stan Duncan
Chief Communications Officer Danielle Carrig
Chief of Staff Samantha Morgan
Chief Product & Technology Officer Sanjay Bhakta
Chief Content Operations Officer Christiane Mack

WORLDWIDE EDITIONS

France: AD, GQ, Vanity Fair, Vogue

Germany: AD, Condé Nast Traveller, Glamour, GQ, Vogue

India: AD, Condé Nast Traveller, GQ, Vogue

Italy: AD, Condé Nast Traveller, GQ, La Cucina Italiana, Vanity Fair, Vogue, WIRED

Japan: GQ, Vogue, WIRED

Mexico and Latin America: AD, Glamour, GQ, Vogue, WIRED

Middle East: AD, Condé Nast Traveller

Spain: AD, Condé Nast Traveler, Glamour, GQ, Vanity Fair, Vogue

Taiwan: GQ, Vogue

United Kingdom: Condé Nast Johansens, Condé Nast Traveller, Glamour, GQ, House & Garden, Tatler, The World of Interiors, Vanity Fair, Vogue, Vogue Business, WIRED

United States: AD, Allure, Ars Technica, Bon Appétit, Condé Nast Traveler, epicurious, Glamour, GQ, LOVE, Pitchfork, Self, Teen Vogue, them., The New Yorker, Vanity Fair, Vogue, WIRED

PUBLISHED UNDER JOINT VENTURE

Brazil: Glamour, GQ, Vogue

PUBLISHED UNDER LICENSE OR COPYRIGHT COOPERATION

Adria: Vogue

Australia: GQ, Vogue

Bulgaria: Glamour

China: AD, Condé Nast Traveler, GQ, Vogue

Czech Republic and Slovakia: Vogue, WIRED

Greece: Vogue

Hong Kong: Vogue, Vogue Man

Hungary: Glamour

Korea: Allure, GQ, Vogue, WIRED

Middle East: GQ, Vogue, WIRED

Philippines: Vogue

Poland: AD, Glamour, Vogue

Portugal: GQ, Vogue

Romania: Glamour

Scandinavia: Vogue

Singapore: Vogue

South Africa: Glamour, GQ, House & Garden

Thailand: GQ, Vogue

The Netherlands: Vogue

Turkey: GQ, Vogue

Ukraine: Vogue

Colophon

THE SOCIAL NETWORKER

Carolyn Fong photographed serial social network-founder Orkut Büyükkökten, and found it a, well, suitably sociable affair: "It was so exciting to get to work on a profile portrait of Orkut before the launch of his next big project. He exuded calm and collected confidence, and against the backdrop of a beautiful apartment, we were able to tell the story of who Orkut is. The morning was filled with his friends, who all collaborated with him on grooming and styling to make sure he looked great. It was a wonderful experience from beginning to end."

Published by The Condé Nast Publications Ltd, The Adelphi, 1-11 John Adam Street, London WC2N 6HT (tel: 020 7499 9080). Colour origination by Rhapsody. Printed in the UK by Walstead Roche. WIRED is distributed by Frontline, Midgate House, Peterborough, Cambridgeshire, PE1 1TN, United Kingdom (tel: 01733 555161). Subscriptions rates include delivery and digital editions. Full rates are £29.94 for one year in the UK, £48 for the rest of the world. To place your order, call +44 (0)1858 438 819. Special offers and exclusive promotions are published in this issue or online at wired.co.uk. To manage your subscription, log onto www.magazineboutique.co.uk/solo. For enquiries, email wired@subscription.co.uk or mail to WIRED, Subscriptions Department, Tower House, Sovereign Park, Market Harborough, LE16 9EF, UK. The paper used for this publication is based on renewable wood fibre. The wood these fibres are derived from is sourced from sustainably managed forests and controlled sources. The producing mills are EMAS registered and operate according to highest environmental and health and safety standards. This magazine is fully recyclable - please log on to www.recyclenow.com for your local recycling options for paper and board. WIRED is a member of the Independent Press Standards Organisation (which regulates the UK's magazine and newspaper industry). We abide by the Editors' Code of Practice [www.ipso.co.uk/editors-code-of-practice] and are committed to upholding the highest standards of journalism. If you think that we have not met those standards and want to make a complaint please see our Editorial Complaints Policy on the Contact Us page of our website or contact us at complaints@condenast.co.uk or by post to Complaints, The Condé Nast Publications Ltd, The Adelphi, 1-11 John Adam Street, London WC2N 6HT. If we are unable to resolve your complaint, or if you would like more information about IPSO or the Editors' Code, contact IPSO on 0300 123 2220 or visit www.ipso.co.uk

recycle this magazine _ ipso Regulated

PHOTOGRAPHY: CAROLYN FONG

A WORLD WITHOUT JOURNALISM IS A WORLD WITHOUT TRUTH

The Committee to Protect Journalists is an independent, nonprofit organization that promotes press freedom worldwide. Show your support for the right of all journalists to report the news safely and without fear of reprisal. Scan the QR code to get involved.

CPJ
Committee to Protect Journalists

THE WIRED MATRIX

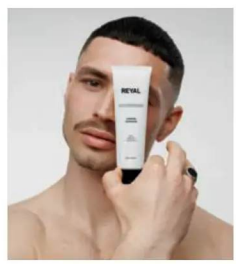
ASPER

Asper wants to inspire, to give an impulse, the courage to leave your comfort zone and the courage to push through every day. They want to remind you again and again to never lose sight of your own path. This message is intended exclusively for you and is therefore engraved on the inside of each piece. Visit **aspermmxx.com** and follow on IG: **@aspermmxx**

THE FURRY FOLKS

The furryfolks specialises in innovative dog apparel and toys, emphasising comfort, style, and engaging play. Committed to enhancing pet and owner experiences, they provide durable, stylish products designed for the modern pet's lifestyle and well-being, ensuring satisfaction and joy. Visit **thefurryfolks.com** and follow on IG: **@thefurryfolks**

REYAL



Award winning men's performance skincare that aims to fuel, strengthen and protect. Proprietary formulas made using active ingredients that aim to defend skin from pollution and environmental stressors. Created for a man who's committed to continuously bettering himself. Visit **reyalperformance.com** and follow on IG: **@reyalperformance**

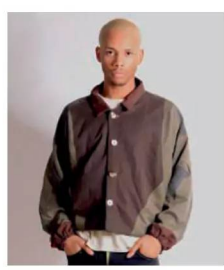
SARTORO

Sartoro is an NYC-founded custom suits brand combining bespoke tailoring with modern tech. Discover the elegance of simplicity, the assurance of quality and the surprise of affordability — all online. Visit **sartoro.co** and **@sartoro.co** on IG.

TANYA PAVAN

Tanya Pavan is an award-winning fibre and textile artist based in Montreal, Canada. Drawing inspiration from her childhood, Tanya uses wool and embroidery thread on canvas to create vibrant and playful hand-sewn pieces. Her work is best known for its abstract minimalism and bold use of colour. Visit **tanyapavan.com** IG: **@tanya.pavan**

BYFIELLE

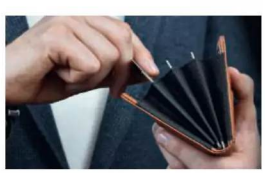


ByFielle is an emerging brand that creates 1/1 garments handmade by the designer. Their pieces are devoted to understanding the art of composition through textures and textiles. With the use of recycled fabrics, ByFielle creates pieces that take on a new life form and last forever. Visit **byfielle.com** and follow on IG: **@bbyfielle**

DOUXDS

Douxds provides the royal treatment to men. The hero product is the FLEX™ Vibrating Face Brush. It is a powerful tool used by men to achieve the look of smooth, clear, and fresh skin. FLEX™ is used by more than 50,000+ men and provides an effective solution to some of the most common male skin issues. Visit **douxds.com** and follow **@douxds** on IG.

MBACCO



Mbacco expandable wallet adds a twist to an everyday essential. Its custom-made foldable design means it's compact to carry and expands easily when you need access to your cards. For added versatility Mbacco has a secret compartment built inside that allows you to securely store some small essentials. Ideal for anyone living an on-the-go lifestyle, yet elegant enough for those who love evenings out. Visit **mbacco.com** and follow on IG: **@mbacco**

JACKERY

Camping isn't what it used to be — in a good way. You can watch Netflix under the stars, cook a showstopping feast, and make barista-quality coffee. But to do all that, you need a reliable power source, which makes the Jackery Explorer 1000 Pro 1002Wh/1000W the perfect partner for your outdoor adventures. It charges in just 1.8 hours and provides the power you need to keep your devices going when you're camping, hiking, or exploring. Visit **uk.jackery.com** IG: **@jackery.uk**

WIRED ADVERTISING FEATURE

SORBAS SHOES

Comfort starts with sustainable materials. Designed in Berlin, SORBAS Shoes combines fashion with sustainability by creating modern aesthetics from recycled and natural materials. Elevate your experience of comfort by wearing sneakers made with nature in mind. Made in Europe and worldwide shipping available. Visit **sorbasshoes.com** and visit **@sorbasberlin** on IG.

OAKYWOOD

Revolutionise your workspace with Oakywood desks. Elevate your comfort with their classic wooden desks or modern models featuring automatic height adjustment. Experience superior comfort in your daily tasks. Visit **oakywood.shop** now and use the code WIRED10 for an exclusive 10% discount (expires 07/08/24).

07/08.24

TO APPEAR HERE, CALL 020 7152 3705 OR EMAIL CLASSWIRED@CONDENAST.CO.UK

TOM BIENERT
Tom Bienert is a German digital artist and photographer. Here shown is the work TEARDROPS of his series "SWIPE (what are you looking for)" which is based on photography, then finalised with digital painting. The concept dramatises how people influence other people's lives just by a swipe of a dating app. Follow on IG: **@thomasbienert** and visit **t-bienert-art.de**

SUNFLY

Sunflower Butter is packed with high protein, top allergen-free, and available in 5 irresistible flavours. A nutritious alternative to nut butters, its remarkably smooth texture leaves you craving more, whilst keeping you full and content. Spread it, dip it, dollop it, and use it in sandwiches, sport bites, hummus and shakes. Available at Selfridges. Visit **shopsunfly.com** and follow on IG: **@sunfly.world**

JACOB & JOHN

Experience the epitome of autumnal fashion with Jacob & John's latest collection of menswear jackets and trousers. Discover timeless designs, luxurious fabrics, and impeccable craftsmanship that will elevate your wardrobe to new heights of style and sophistication. Shop the latest collection online at **jacob-john.com** Follow on IG: **@jacob_johnofficial_** and **@officialjohnpaulthomas**

CROWN AND CARAT

CROWN AND CARAT are a mother-and-daughter-run custom jewellery business, based in Toronto and shipping worldwide. They have over 35 years of experience within Crown and Carat, with a focus on custom jewellery, specialising in engagement rings. They find a sense of fulfilment and gratitude from being a part of their client's special day, custom-making their pieces from start to finish. Visit **crownandcarat.com** and follow them on IG: **@crownandcarat**

RE:FORM

RE:FORM's wallets are minimalist masterpieces, available as Coin Sleeve or Card Holder. Both versions combine thoughtful design with maximum functionality, offering a super-slim yet remarkably spacious everyday carry essential that's designed to last a lifetime. Visit **reformcarry.com** and follow on IG: **@reformcarry**

BIOKIDÉ
Biokidé, launched in 2015 by Fatimata Kane, is a growing brand of sustainable luxury cosmetics — a skincare range that's centred around one magical ingredient: baobab oil. Biokidé utilises the highest-quality baobab oil to create a variety of skincare products, from face masks to anti-ageing creams. Support your skin and shop sustainably. Visit **biokide.fr** and follow on IG: **@biokide**

EARFUN
EarFun, a trailblazer in wireless audio innovation, crafts affordable wireless earbuds that redefine excellence. Elevating your sound experience with cutting-edge technology, EarFun blends comfort, durability, and unrivaled performance, setting a new standard in audio brilliance. Visit **myearfun.com** and follow on IG: **@earfun_official**

NABS AND BABS

Nabs and Babs, an avant-garde jewellery brand, skilfully merges natural and modern elements to create exquisite pieces. Explore their carefully curated collection of bold, architectural designs, seamlessly marrying the wild allure of nature with engineering finesse. Visit **nabsandbabs.com** or IG: **@nabsandbabs** for more.

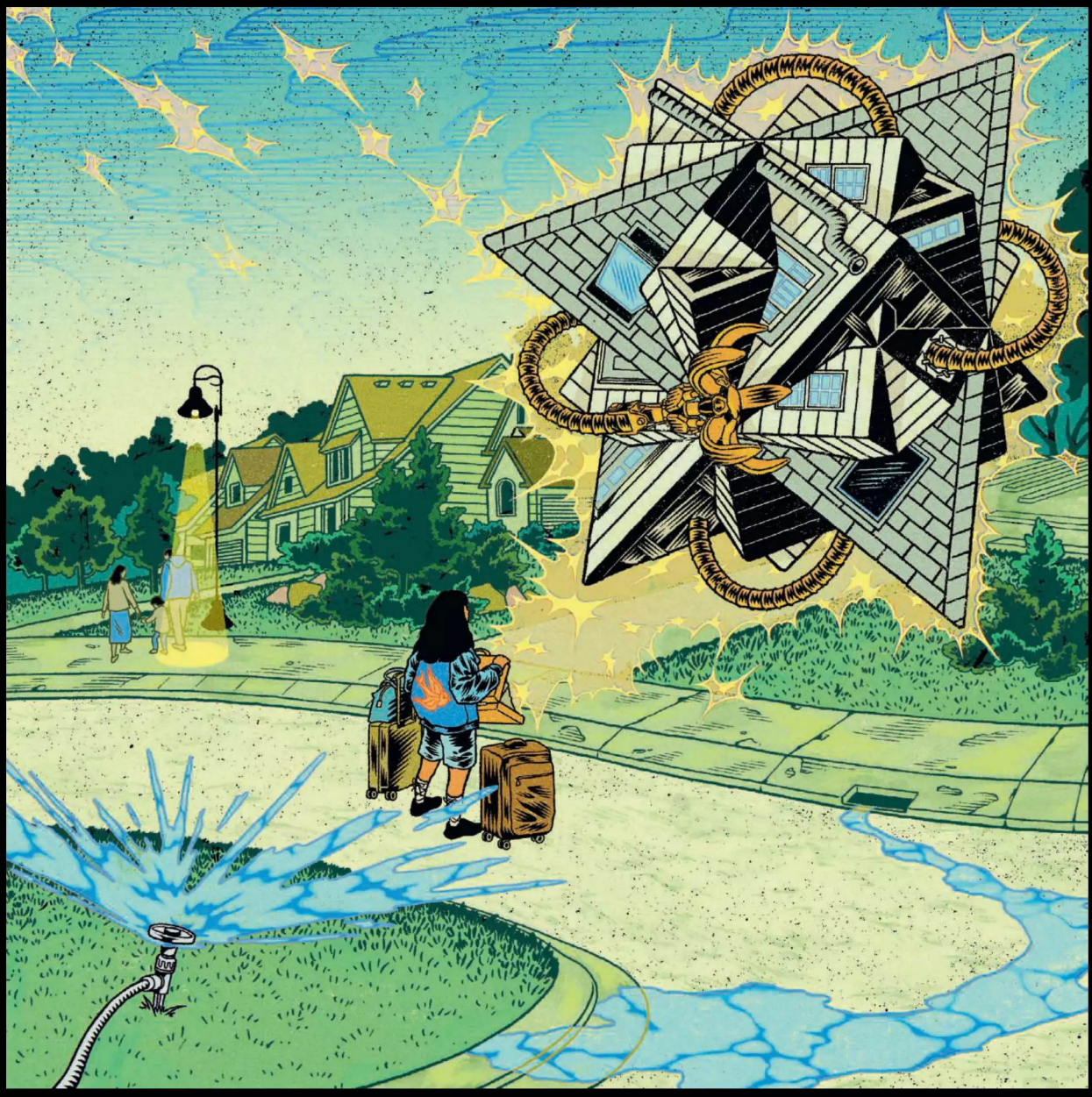
ASPEN AND CO
Unleash unparalleled luxury for your furry companion at Aspen and Co.'s dog boutique. With premium craftsmanship, accessories, bespoke dog bandanas, custom embroidered portrait sweatshirts, and sustainable practices, each piece is made to order, ensuring your pup exudes individual style. Follow **@shopaspenandco** on IG and shop at **shopaspenandco.com**

WIRED ADVERTISING FEATURE

THE ASSIGNMENT: IN SIX WORDS, WRITE THE 2024 VERSION OF THE DISNEY CHANNEL MOVIE *SMART HOUSE*.

OUR APOLOGIES! HOUSE-AUTO-FOLD IS IN BETA.

—@fbirman, via X



Honorable Mentions

Subscription based "Smart House" bankrupts family.
—@m_._oi, via Instagram

We're losing power; the house wins.
—@curtishoneycutt, via Instagram

Commercial-free mode is subscription-only.
—Anthony Potkines, via email

Honey, the house started an OnlyFans.
—@garretttanner, via Instagram

It's safer in here. Commencing lockdown.
—@samweldredge, via Instagram

Inevitably, the house ate her alive.
—@sunflowersandcynicism, via Instagram

Manual override denied. Continue disco mode.
—@iampurplepsychnurse, via Instagram

The house will be optimizing you.
—@zensicles, via Instagram

Want to submit a six-word story for us to consider? Look for the latest story prompt on Facebook, X, Instagram, and WIRED.com/six-word, where you can also see how we have illustrated past favorites.

Insight into trends. Foresight for the future. Confidence on the path ahead.

WIRED Consulting.

WIRED Consulting takes the WIRED knowledge, network and brand to our clients, helping them to drive innovation, shape strategy and build their voice on the trends that are shaping our world.

Consulting@wired.co.uk

"Gardens of the World – Springtime in Holland"
Golden Ellipse wristwatch with dial in cloisonné enamel over hand-executed guilloché work

7 – 16 June

MONDAY – SATURDAY: 10AM - 6PM (LAST ENTRY 5PM)
SUNDAY: 12PM - 5PM (LAST ENTRY 4PM)

Discover a unique selection of exceptional timepieces and meet our artisans as they demonstrate their skills.

FREE ADMISSION UPON REGISTRATION
WWW.PATEK.COM/RHC-LONDON