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Futurist Stewart Brand Wants to Revive Extinct Species

By Kevin Kelly
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Photo: Joe Pugliese

ICONS

This summer it was announced that the WELL, a revolutionary online community founded nearly 30 years ago, had been put up for sale by its current owner, web magazine *Salon*. If no buyer emerges, this historic online watering hole will likely have to close up shop. It would mark the end of an era—but no matter what happens, the WELL's legacy will continue to live on all around us, in the rollicking conversations we enjoy every day on social networks and comment threads.



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In that regard, the WELL is just one of many world-bending triumphs in the long, strange career of its cofounder, Stewart Brand. A Merry Prankster in the early 1960s, Brand went on to found the *Whole Earth Catalog*, a bible for both the back-to-the-land movement and the first computer hackers. Indeed, the community that sprang up around the catalog was what formed the seed of the WELL (an acronym of Whole Earth 'Lectronic Link), an early BBS that became an Internet service provider at the dawn of the web.

In addition to his many entrepreneurial ventures, Brand has also been a vocal visionary on technology and its future, famously coining the phrase “Information wants to be free” (though it also wants to be expensive, he immediately added in a far less-quoted caveat). He’s written extensively and perceptively about alternative energy, the environment, and bioengineering. Today Brand heads the Long Now Foundation, a group devoted to thinking about what humanity and Earth will look like in 10,000 years.

As part of our 20th-anniversary Icons series, we sent Kevin Kelly—a longtime writer and editor for Wired as well as an early member of the WELL and a former contributor to the *Whole Earth Catalog*—to chat with Brand about the legacy of his online community and the challenges of trying to peer into the future.

Kevin Kelly: There was an event in San Francisco in 1968 that has come to be called “the mother of all demos”—when Stanford’s Doug Engelbart showed off a computer with a mouse and graphical interface. You were there. What significance did that event have for you?

Stewart Brand: It made me perpetually impatient. I saw a bunch of things demonstrated that clearly worked, and I wanted some right now, please! That demo gave a really accurate look at what was coming and made it seem so easy. But decades would go by, and it just kept not coming.

Kelly: Does that give you pause that maybe all kinds of things that look to be around the corner today—drones, magic glasses, self-driving cars—are just premature promises?

Brand: The lesson was that this is exponential technology. I don’t mean that just in terms of power or capacity—driven by Moore’s law—but also in that it starts out slow as consumers find ways to put it to use.

Kelly: Another harbinger of the digital age is on the ropes right now. In June, *Salon* announced

it was selling the WELL, which you cofounded. How would you describe the WELL?

Brand: My first impulse is to say it was a jumped-up bulletin board, a teleconference system using dialup modems, running on a minicomputer. But no one knows what those are now! Best to say it was an early version of social email, with themed threads of messages you could read whenever. We liked to think of it as a digital pub—a “great good place” you got to by typing.

Kelly: I think of it now as community text messaging. Regardless, it was ahead of its time.

Brand: There is a common feeling that when you’re making something new you had better get the structure of it right, because it may wind up being the structure of everything important in the future. Computer scientist Jaron Lanier describes that feeling as “karma vertigo.”

Kelly: Did you feel karma vertigo when starting the WELL back in 1985?

Brand: Sure. When email was first developing, all the questions that people deal with today were beginning to come up. Who owns your words? How do you organize these massive email conversations? On the WELL we organized messages into “conferences.” Do you need moderation? Is it OK for users to stay anonymous or use pseudonyms? People on the WELL board, like yourself, were aware that they were crafting a whole digital universe.

Kelly: I find that the online voice—the tone, the humor, and many texting acronyms—dates back to the WELL. In fact, if you go into any online forum today, the dynamics from the WELL days are entirely recognizable, including the dark side: the flame wars, the trolls, the stuff that polite people will write that they wouldn’t say in person.

Brand: I left the WELL because of being flamed. It was due to the now-usual dynamic that Facebook is encountering. Administrators are surprised to discover that the users who occupy the community believe it is *their* community and the administrators work for them! Because of the nature of the system, the dissent is intensely personal and flows right into your inbox. I found myself approaching a public WELL conference about administration with hands trembling. That type of confrontation is fatal, and there’s no way out except to bail.

Kelly: That was an epiphany for me too. I saw the wisdom of the crowd flip into the stupidity of the mob in a nanosecond. It’s the same charge, with the polarity reversed.

Brand: Online behavior can be like chicken-pecking: If anyone shows blood, that bird is down.

Kelly: The dark side of the WELL may have been even more influential than the civil side. We had the True Confessions conference, where you could write anything anonymously, and a whole section called Anonymous. This was a precursor to 4chan, with the same subversive power of anons making trouble. Yet the WELL never thrived like its cohort, AOL, which was born about the same time. What did the WELL miss?

Brand: We didn’t go far enough in holding people to their real identity. I was pretty sure that anonymity was toxic, and so at first I didn’t want anonymity on the WELL. This became a source of controversy: Others liked online anonymity, because it allowed people to tell the truth. So the compromise was pseudonymity, where anybody who wanted to could have a handle. We knew who everyone was, because every handle was tied to a real name on a credit card. But the other members didn’t know.

Kelly: If you had to do it over again, would you do it differently?

Brand: Definitely. Instead of half-fixing the bug, we should have done what Mark Zuckerberg did and turn the bug into a feature. Your Facebook identity is the identity that’s confirmed by all the people who friend you—and therefore it’s the real you. It’s not somebody pretending to be you. Facebook created a largely self-policing model for online identity, and that has proven to be a cashable feature for it. By turning the bug totally upside down, Facebook accomplished something we could have done back then. We just failed to be that bold.

Kelly: Anything else you would have changed?

Brand: I wish we had also figured out a better way to welcome newcomers. We made it painful

for anybody to be new.

Kelly: There was no netiquette. It took 20 years for troll management to become common knowledge. Now everyone knows you control trolls by ignoring them.

Brand: When you have a new communications medium, everything will be tried and then new forms of courtesy will emerge.

Kelly: New forms of civics, even. How do you deal with people who don't comply? What are the limits to what's permissible? The thing that has impressed me the most about this digital era in the past two decades is how much more humane this technology is than most technology was before it. Sure, it has costs, but every new technology seems to inspire new Luddites.

Brand: Well, you and I have both made careers out of chuckling at those people. Look at my library here. There are probably 340 books about technology—

Kelly: At least 20 linear feet of books.

Brand: —and a significant portion of them, perhaps 15 percent, tell us why the good times can't last, why there's some profound flaw. But they provide a valuable social service—the intellectual effort to find the problem with something that's booming. And sometimes they're right!

Sometimes the thing is bogus. Most of the stuff that my fellow hippies tried turned out not to have legs. Communes didn't. Dope didn't!

Kelly: What do you make of the thesis—from *New York Times* reporter John Markoff and others—that there was a countercultural strain to the digital revolution? The idea that personal computers were a technological extension of the hippie “me generation” experiments in mind expansion?

Brand: It's certainly a valid sequence to trace out. There are real connections. In 1972 I wrote a piece for *Rolling Stone* about computers and hackers, in which I referred to drugs in the first sentence. Regretted it ever since.

Kelly: Why do you regret it?

Brand: It's just so dated. I think the first sentences go something like “Ready or not, computers are coming to the people. That's the best news since psychedelics.” That was stupid.



“Online behavior can be like chicken-pecking,” Brand says. “If anyone shows blood, that bird is down.”

Photo: Joe Pugliese

Kelly: But computers did come to the people, of course. And I’ve heard you say that you personally gave up psychedelics because they no longer got better every year, whereas computers did. So what about today? Does technology still have a countercultural slant?

Brand: The counterculture is aging fast and starting to die. The best counterculture now is in biology. As far as I can tell, biohackers are all adventurous young people, incredibly athletic, and they’re all traveling the world. I don’t know if biohackers are as much fun as the computer hackers were, but they’re way more responsible. They monitor their own potential misbehavior in a way that computer hackers never have.

Kelly: Twenty years ago we thought the web was going to be brought to us by big media, but it turned out to be brought to us by us—it was mostly user-generated. Is biotech going to be big business, or will it too be user-generated?

Brand: My current version is that biotech wants to be free, and of course biotech wants to be expensive. Very expensive. [*Laughs.*] And those two extremes will probably play out against each other.

Kelly: You said that the mother of all demos made you impatient. What are you impatient for today?

I am impatient for environmentalists to stop being fearmongers and to start getting excited by the fantastic news coming along. I see some evidence that this is beginning to happen. I am impatient for genetically modified organisms, and now there is a genetically engineered

mosquito to head off dengue fever. My fondest hope is for fusion power and, in the interim, modular nuclear reactors. And you?

Kelly: Cashless society. A national ID card. Mandatory national service. Electric bicycles. Self-driving cars and human clones.

Brand: The main event of the past two decades has been the playing out of Moore's law. Its acceleration has become our constant. This digital acceleration has become the culture—which was the original story of wired, so the magazine's basic hypothesis has turned out to be true.

Kelly: One other trajectory I have noticed about the past 20 years: Excitement about the future has waned. The future is deflating. It is simply not as desirable as it once was.

Brand: That's something I see around biotech these days. There's a lot of anticipatory worry—trying to head off the ignorant worriers by doing intelligent worrying. It's the responsible thing to do, of course. They saw what happened with genetically modified organisms. They saw what happened with nuclear power. So the smart people in biotech are trying to get out in front of the hand-wringing, to frame it. Because you cannot stop the worrying.

Kelly: You want to make it better worrying.

Brand: It can become really helpful worrying! At a conference, I once heard an amazing insight from a bioethicist. "When you surprise a bioethicist with an ethical question," he said, "the answer will be no." The lesson was: Never surprise them. Instead, involve them early on. That way, even if they do see some worrisome consequences to what you're doing, they'll also see how those potential consequences are unlikely and how they can be monitored if they do come up.

Kelly: For the past four decades you've been surfing the wave of digital code, but in the last few years you've shifted to the coming wave of genetic code.

Brand: I take my cue from technology historian George Dyson, who argues that, from the perspective of the real world, the digital universe is accelerating rapidly but, from the view of the digital universe, the biological world is sllllloooooowwwwwiiing doooooowwn. Since we humans are amphibians and live in both universes, we are being torn by acceleration on one side and deceleration on the other. That sounds rough, but it's actually pretty exciting.

Kelly: Your latest project is to resurrect the extinct passenger pigeon, as the first of many de-extinctions. How will you go about that?

Brand: It's becoming possible to take the ancient DNA of specimens now extinct and revive their genome and maybe revive the species and return it to the wild. They almost managed to do this with an extinct ibex in Spain. If we can revive the passenger pigeon, that may be a further reason to fully restore the whole eastern deciduous forest that was its habitat.

Kelly: I imagine that might worry many people.

Brand: I want them to know that de-extinction is coming. And I also want the eventual semi-amateur de-extinctors, as they start doing this out in the barn, to understand that there's a framework of norms about ethics and transparency.

Kelly: What we all need is a manual on how to worry intelligently.

Brand: Right! There are reasons that you and I are technology enthusiasts. We've been rewarded for our enthusiasm. But the world also needs good worriers—people who watch the evidence and know when to stop worrying, to move on to something else. Good enthusiasts do the same.

Senior maverick Kevin Kelly (kk.org) is the author of What Technology Wants.

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Peter Duke • 4 days ago

Question #1 Does that mean we can get rid of the whole "endangered species" thing? and #2 Stew, where'd you get that jacket?

2 ^ | v • Reply • Share >



Stewart Brand • 4 days ago

The leather hoodie is from Carbon2Cobalt. The whole endangered-species thing becomes more acute than ever once it becomes clear how nearly impossible it is to reverse extinction. An ounce of prevention versus a ton of cure.

1 ^ | v • Reply • Share >



Yoshi_1 • 7 days ago

FIRST repair the reasons for their extinction. Restoration of the eastern forests is very unlikely. Perhaps preventing more habitat loss and pollution control, thus, preventing current species extinction would be a more rational and worthy pursuit. One I practice now, and could get behind more of.

2 ^ | v • Reply • Share >



caribis2 • 7 days ago

I like the interview; I've always liked Stewart Brand.

Generally speaking I'm all for reintroducing extinct species, but the passenger pigeon? First, the forest it thrived in was one quarter American Chestnut. The first Europeans said the forest floor was deep in chestnuts every year. Almost none of these trees survive today because of disease. There are efforts to bring them back, but can the passenger pigeon survive such a change in the forest? The second problem is that passenger pigeons were not hunted to extinction. Hunting decimated their numbers, but hunting them stopped when there were still thousands, perhaps tens of thousands (instead of the original billions) left. It seems likely you need a very large critical mass of passenger pigeons unless your only goal are curiosities for a zoo.

2 ^ | 1 v • Reply • Share >



Mark Allen • 2 days ago • parent

If American Chestnuts have disappeared, wouldn't it therefore be permissible to assume that plant species are encompassed within the desire to bring back species? I didn't

see fauna evolutionary is that : 1

I say go for Jurassic Park first, though. Maybe a Mastadon at the Cleveland Zoo? Please?

0 ^ | | v • Reply • Share ›



Arthur Johnson • a day ago • parent

Passenger pigeons ate a variety of nuts besides chestnuts, plus seeds, berries, worms and insects. As long as there are forests of reasonable size, I'm sure they'd find enough to eat. The big issue is whether a large enough flock of them can be cloned to enable them to reproduce successfully.

All of this is moot, though, until the complete genome sequence of the passenger pigeon is obtained. So, first things first.

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Arthur Johnson • 3 days ago

Speaking as someone who's been involved in genome research for a number of years, the idea of resurrecting the passenger pigeon is intriguing. The scale of such an undertaking is enormous; obtaining the full genome sequence from preserved specimens is just the beginning. And if the project is successful, can enough of them be cloned to allow them to independently reproduce? My understanding is that they were extremely social animals, and needed to be together in very large groups (10,000? 100,000?) to successfully reproduce, otherwise they became too stressed. I can't help but wonder if caribis2 is right; if the project isn't done just right, you're limited to a few curiosities suitable for the Cincinnati Zoo. No small accomplishment, for sure, but still a long way from meaningful resurrection of the species. Planning for this project has to be comprehensive. It's not a seat-of-the-pants affair, by any means.

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