Elon Musk's Brainphone

by Scott Snair, PhD © 2020

One day soon, the latest edition of your smartphone will include a very special protective case—your skull. Why? Because people will be standing in line to have their newly purchased devices implanted in their brains.

That's right. A few, short years from now, you will be given the option of having a smartphone-like device inserted in your brain. The social pressure for doing so will be strong, as many of your friends will be having it done, and you will not want to feel left out. Your employer might require it. Having a "brainphone" will allow you to do all sorts of things: call up the Web without needing a screen; talk to your friends through your thoughts; have a second language, such as German or Italian, downloaded into your brain where you will immediately understand and speak it; play a video game while immersed in a lifelike virtual world; or have your fear or anxiety instantly cured. Cool right?

Hmmm, maybe not so much. Unfortunately, the flip side to owning a brainphone is likely to be horrific. You will always be connected to the Web, to social media, and to the thoughts of others—even at night while you sleep. You will always be collectively judged by your family, your friends, your professional network, corporations, and, likely, the federal government. To the extent that thoughts and electronic data become

intertwined and indistinguishable, your thoughts might be deleted or changed by powerful people and entities who do not like the things you are thinking on your own. You will likely not have your own life: you will essentially be part of a collective.

During the Summer of 2019, with very little fanfare—and approximately zero outrage—high-tech billionaire Elon Musk announced plans to begin experimenting on humans with Neuralinks—brain implants offering all kinds of improvements to how your brain processes information and how it connects to the Web. Some of these promises include learning another language instantly; having Parkinson's disease or Alzheimer's disease treated through brain reprogramming; and having your bad habits cured by washing your brain of the compulsive tendencies that create them.

And so, you and your friends are about to face an important, race-changing decision: Are you so mesmerised by smartphones that you are willing to have them implanted in your brains, forever changing who you are as creatures? Or are you committed to staying who you are and resisting the allure of the technology? Again, it is not a decision for science fiction or for a distant future. Events are happening right now that are bringing the human race to this important, existential crossroads. Do people enthusiastically allow technology to be placed in their brains, making their minds work very differently (perhaps better, perhaps not)? Or do people turn their backs on this tech, perhaps even passing laws banning the merging of processors and brain tissue? Do people draw the line between humanity and machinery?

One could argue that humans have been planning their own extinction for some time. From overpopulating, to ravaging the world's resources, to building nuclear weapons, to warming the Earth with greenhouse pollutants, to poorly planning for pandemics—well, people could not have come up with better ways to write themselves off if they had designed them in a boardroom. Both scientists and science fiction writers continue to offer realistic scenarios where Earth is one day missing humans.

However, in most science fiction stories, the person of the future is very much like the person of today: the surroundings are different, but the person is a constant. That is, in the movies, when the characters face extinction, you can relate, because they are the same as you. But perhaps there is a frightening midpoint, where people still exist on Earth but where they are not at all like their former selves. By merging their brains with technology, perhaps people will become an entirely different species in a couple of decades. Perhaps the human race, in its current form, is about to end much earlier than previously thought.

How Will Your Brainphone Work?

Even the earliest version of brainphone installations are projected to be no more complicated than, say, today's LASIK surgery for correcting your vision. Later on, just as getting your ears pierced used to be a medical procedure at the doctor's office but later became a retail procedure, having a brainphone inserted might one day be something you do in a pagoda at the mall. The procedure will be fast, painless, convenient, and eventually cheap enough for everyone to afford—making having one all the more alluring. "But, mom," you might overhear someone say, "all the kids are getting brainphones!" The first iteration of brainphones, currently in design, is not terribly intrusive. A small piece of hair and skin is cut and peeled back on your head. A round, one-inch piece of

your skull is augured and removed for good, replaced by the brainphone, with the wiring interwoven into strands of your brain tissue. Your skin is reattached, and no one can see your new device. With advanced miniaturisation and further understanding of the mind, later models will be smaller and even easier to install.

So, your brainphone is installed and you're ready to go. The device contains a battery, an inductive charger (for recharging the device without having to plug it in), a Bluetooth (with modems likely in later iterations), and, of course, the electrodes intertwined with your brain's neurons. You can now see the Web in your mind, move a cursor, click, and select menus just by thinking about them, and communicate—through your mind—with other people who have brainphones. (The "talking without words" feature is, in fact, one of the earliest features revealed by Elon Musk about his Neuralink.)

You can now drive with an interactive, transparent map overlaid in your vision on the actual highway. You can call and text or talk to your friends without losing sight of the road while you drive. You can take photos and videos and store them just by looking and thinking. If you're in school, you can do calculations in your mind. Better yet, you can ask your desk neighbour for the answers to the pop quiz without talking or moving your eyes away from the quiz—in other words, without your teaching knowing what you're up to. Pretty cool, huh?

But the real fun is with gaming. You can pull up your favourite games just by thinking about them. The other characters in the game are other people with brainphones, connected via the game's software and the Web and fully existing in your head. The game's setting is a 360-degree, virtual, extremely realistic, alternate world. You can look like anything you want and have any weapon or powers you want (within the game's parameters, of course). Watch out, though—when a competitor hits you with his or her weapon or powers, you will get knocked down, and it will feel real. Depending on the game, it might even hurt.

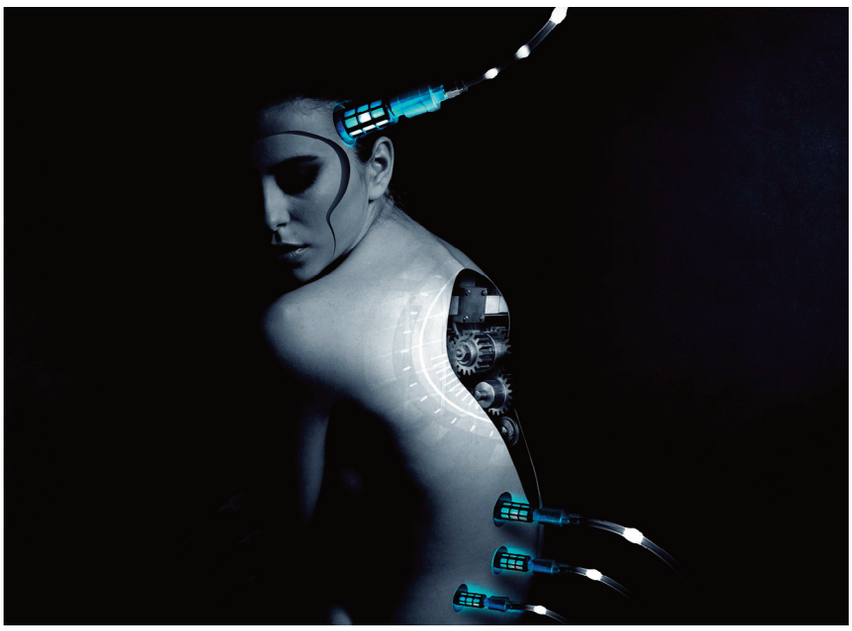
Back to the real world. The new girl who just moved in next door is very attractive, but she seems to speak primarily Spanish. No problem. You order Spanish via the Web. The language gets inserted via your brainphone directly into your memory, and you're instantly able to speak Spanish and carry on a conversation with her. You can also instantly purchase and download into your mind the knowledge you need to repair your car or knowledge on martial arts to defend yourself (kind of like Chuck on that old television show).

Social media will be a whole new world, as you and your friends with brainphones completely immerse yourselves into each other's thoughts, opinions, life happenings, and existences. People without brainphones will feel (and be) completely left out. Too bad for them! Want to take out that new girl next door? If she has a brainphone, too, then your first date could be virtual. You two can see the Eiffel Tower and take a boat ride down the Seine river, cuddling like all the other young lovers in Paris.

Not everything about your brainphone is fun and frivolous. There are some genuinely good, life-changing things about it. For example, if you have epilepsy, a program administered through your brainphone will essentially rewire your brain and rid it of the disorder and the seizures that come with it. A program might be able to find alternate brain pathing to cure blindness and deafness. Older people with brainphones might have their dementia or Alzheimer's cured. Your new brainphone is really something.

How Will Corporations Sell You on the Idea of an Implant?

For the younger generation who never knew life without a laptop or a smartphone, the decision to get a brainphone will be, well, a no-brainer. Anecdotally, the buzz in schools and online over Musk's Neuralink is already positive, as the notion of being one with one's technology sounds very appealing. After all, the physical detachment of today's smartphones is already a hassle: people die every day from texting while driving; they die every day from crossing the street while staring at their smartphone screens instead of watching out for cars; hundreds die every year from taking selfies while standing on the edge of cool cliffs or scenic bridges. Having the technology wired into one's brain would make



texting, photographing, and looking things up on the Web infinitely easier while driving, crossing the street, and rock climbing.

Indeed, it is the connectivity of the home computers and smartphones that made them so popular. Although home computers were initially marketed for their processing capabilities and for the owner's ability to look up information on the Web, it was email, America Online instant messaging, and chat rooms that made the computers a sensation. Similarly, although smartphones bring a myriad of apps and capabilities, it is the texts, short-video messaging, and facilitating of social media that makes them so alluring.

There is, however, a pre-smartphone generation—already mildly wary of technology—that says, "No way in hell am I getting something put in my skull!" And this generation tends to have a lot of the purchasing power in America. So how will corporations get the older crowd on board? They likely will borrow a few pages from the playbook described in Naomi Klein's book, *The Shock Doctrine*, which explains how corporations and governments sometimes use major tragedies to gain new controls over people. Klein's thesis is compelling (and, incidentally, it's a great read). So, to follow Klein's template, people otherwise hesitant to have a piece of hardware placed in their brain will come around in a time of tragedy. As an example, Americans, who used to be passionate about their civil liberties, accepted all kinds of infringement of their privacies after the terrorist attacks of September 11, 2001. They became comfortable with full-body scans at airports, having their personal computer activity monitored by the federal government, and having their travels tracked by corporations and governments via their smartphones. That is, people were willing to turn over a lot of autonomy to other entities, on the notion that it would keep them safer—protected, so to speak—and that it would prevent another horrible cluster of terrorist attacks.

The most likely scenario is that, one day, a pandemic similar to polio will hit humanity, crippling hundreds of thousands of people. The brainphone, with its brain-rewiring capability, will be presented as the cure. And, suddenly, millions of people who swore up and down that they would never allow an implant in their brains will do so gladly. The controversy will be gone (if it ever really existed in the first place). From there, corporations will use the "frog in a pot" approach. The old saw refers to the idea that if you toss a frog in a pot of hot water, it will hop out. But if you put a frog in a room-temperature pot of water, it will stay put. Then, you slowly increase the temperature, until, by the time the frog realises what's happening, it's too late and he's frog stew. And so, corporations will start by enticing people with convenience-related brainphone applications, such as calling up the Web simply by thinking about it and seeing the "screen" and moving the cursor in one's mind. They will gradually move to the scarier stuff, like monitoring people's thoughts or downloading the desire to purchase things, later on.

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Another way corporations will sell you on the idea of a brainphone is to make your life very difficult without one. Imagine in today's world if you tried to work for a company while refusing to answer your emails. You wouldn't last long. Now project that predicament onto a future with brainphones. Your employer might, indeed, require you to have one. The brainphone might be used for security reasons, such as to allow you access into your building and to keep track of you in the event of emergencies such as fires or workplace shooters. It might be the way you virtually meet with your team. It might be the way you check in with your boss and sign your timesheet. It might be the way you order goods, services, shipping, and business travel. It might be the only way you can purchase a soda in the cafeteria. In sum, your life

might be very, very tough without the implant.

So, along with the teenage FOMO ("Fear of Missing Out"), there will also be the adult and breadwinner FOMO, and it will be a powerful persuader in having everyone get a brainphone. From there, corporations—and, likely, governments—will connect, direct, and control people. It will allow for a relatively small number of people to become extremely rich and controlling.

Perhaps just as frightening is how this arrangement will change the very nature of who you are on both biological and behavioural levels. In most ways, you will no longer be the creature you once were.

How Will Your Brainphone Mutate You as a Human?

Admittedly, you're not physically the same as humans from as recent as a few hundred years ago. You're likely taller because of better nutrition and better health. Your teeth are larger than those of even your recent ancestors because of fluoride and how it thickens and strengthens teeth. And believe it or not, because of evolution, your mouth is likely slightly larger than those of your relatives from just a generation ago, because global warming has created a genetic need for lips that better evaporate moisture and cool down your face. (No kidding!) And so, the word "mutate" to describe how the brainphone might change you is a bit unfair: we're always changing and evolving.

However, to delve into how dramatically and hideously brainphones might begin to alter our appearances, it is worth taking a look at how smartphones—which are not even physically attached to us—already have begun transforming us.

- The American Academy of Pediatrics says young people always on their smartphones are more likely to become obese. They are more likely to engage in risky behaviour resulting in physical injuries.
- According to studies conducted by American psychologist Jean Twenge, young people on their smartphones and on social media are not getting enough sleep, creating all sorts of physical and mental health problems. They are dramatically more likely to feel lonely and are more likely to feel useless and to view themselves as failures. They are 50 per cent more likely to be clinically depressed. And, most disheartening of all, Twenge's research suggests that a heavy smartphone user in his or her young teens is twice as likely to commit suicide as a similar-aged person from a previous generation without smartphones.
- In Australia, sports scientists are monitoring small bone spurs, resembling horns, growing out of the backs of some young people's skulls, and are considering the possibility that the spurs are caused by young people staring down at their smartphones all the time. (The findings have been met with enormous controversy and pushback, although the data and methodology have been shown to be sound.)

So, multiply the above conditions by 1,000 as your phone is sewn inside you and physically made one with you. As your brainphone begins interacting with the brain functions that control your growth, healing, body-systems monitoring, and physical and mental well-being, you might find yourself changing in very dramatic ways. Furthermore, if your personality worsens substantially, it might alter your face, as your eyes might become wider with paranoia or your mouth bends down with constant sadness or anger. Compared to how you are today, you might become a real physical and mental mess.

There are possibilities that, as you're tapped into your brainphone for long periods of time, you might curl into a ball in the corner of a room, or you might display all kinds of severe contortions. As people, aware of these conditions, go off somewhere to access their devices, dark rooms full of people contorting in paralysis as they travel the Web in their minds could become the new human "hives".

Another problem with today's smartphones that surely will be amplified by having them implanted is the tendency of people to become addicted to their phones. Yes, that kind of addiction—the kind that results in people losing their jobs, friends, and family. In its most recent version of the Diagnosis and Statistical Manual of Mental Health Disorders (DSM-5), the American Psychiatric Association caught everyone's attention by identifying brain-produced dopamine as a potentially addictive natural substance. As it turns out, the sounds and visuals of smartphones, video games, and social media sites are meant to generate mini-shots of dopamine in your brain. When you post something on a social media page and it receives a like or any other type of positive acknowledgement, the dopamine rush is wonderful—and

potentially addictive. Apps are designed that way, to keep the dopamine dripping as if from an IV bag, and to keep you hooked.

The American Academy of Pediatrics observed in 2016 that between four and eight per cent of children and teens who try to control their social media use aren't able to do so. They suggested that the number might approach 10 per cent for online gamers. Any way you slice it, at least one generation of smartphone users is becoming addicted to their devices, and this addiction, like a disease, is eating away at their lives and their bodies. In some cases, the disease is killing them.

The distinction is important: Do you simply crave your smartphone and its many features and applications, or have you, like many, entered a period of addiction? You only have to look at the before-and-after photos of people addicted to methamphetamine to see what humans are willing to put themselves through to avoid the physical and mental pains of tolerance and withdrawal. Even among young users, meth addicts experience dramatically high rates of poor health, heart disease, asthma, and facial/dental disfiguration, and yet many of them continue on for years and years taking meth and suffering through these symptoms as they pick at their faces and watch their teeth fall out. Will the person with a piece of iGen machinery inserted in his or her skull be any more damaged than, say, the meth addict in that ghastly Year Four photo?

In 2013, medical professionals in South Korea began attempting to treat smartphone addiction in young people in clinics similar to drug clinics. Researchers found that therapeutic recreation, exercising, music therapy using drumming activity, and art therapy helped young people to keep from returning to compulsive use of their smartphones. As with the addicts who fight against corporate alcohol, corporate tobacco, and corporate narcotics, these young addicts resisting smartphone and social media addiction are up against the power of the corporate entities that want to keep them hooked.

One of the many potential problems with the brainphone is that there will be no epiphany moment to step back and turn yourself away from what's causing your tech addiction, because what's causing the addiction is attached! The scenario is similar to someone hooked up to an automated insulin pump dispensing liquid nicotine instead. How could anyone ever give up nicotine addiction while connected to such a device? And what corporation would want them to?

How Will the Brainphone Alter Human Culture?

In a 2017 TEDx talk, soft skills trainer Bailey Parnell tells an interesting story about being on vacation in Jasper National Park of Canada and trying to go without posting photos, along the way, on her social media. In her lecture, she discusses finding herself feeling anxiety and withdrawal symptoms from not accessing her social media. She says those feelings didn't begin subsiding for nearly four days. And those feelings were from being off her social media. They don't include the common stressors Bailey notes having from being on her social media, to include unfairly comparing one's real life with the highlight-reel nature of other people's postings; worrying about not having enough social currency through likes, comments, and shares; fear of missing out; and being harassed online by others.

One of human culture's current problems with the smartphone is the device's utter interconnectedness. This full access allows friends, family, bosses, corporations, governments, and mobs of people to monitor your movements, actions, conversations, and opinions. If a larger, controlling entity becomes privy to these things, it can conceivably manipulate them—and you. American psychology pioneer Abraham Maslow argued that, after food, shelter, procreation, and safety, there is no human need more basic than the need to belong and be accepted. Other entities recognise this inherent need in you, and they use it to their advantage.

Whether the need for belongingness, as a human cultural trait, is a strength or a weakness, its impact will come down like a hammer when our phones go from our hands into our skulls. Always on. Always connected. At first, people will be able to tell what you're thinking by looking into the search history inside your brain. But, as the technology progresses, they'll eventually have full access to your opinions, thoughts, and desires. On the plus side, lying to people will become much more difficult. When you sign a contract, the person across the table will instantly know if you plan on honouring that contract, and you will know it of him of her—which is nice. But lacking the ability to lie also means lacking the ability to use social tact and diplomacy. When someone asks you, "Does this business suit make me look fat?", you won't be able to politely say that it looks fine. For that matter, the person wearing that suit will be able to know what everyone thinks about it, instantly, as he or she walks down the street and receives instant thought transmissions from everyone around. Imagine someone

who is not physically attractive being told such a thing, through the collective thoughts of others, every single day of his or her life. Or imagine someone who has always been beautiful realising, via mob thought, that he or she is now getting older and no longer possesses that beauty.

Collective, Interconnected Thought Is Not a New Concept

In the science fiction television show *Star Trek: The Next Generation*, the crew of the starship Enterprise-D faces The Borg—alien creatures who hijack different species across the Universe, assimilating them and bringing them into their collective, hive mind. With the addition of each culture, they become a little bit smarter and a little bit more invincible. Like zombies, only with wires and circuitry coming out of their heads and faces, they move deliberately as they come for you. They are Starfleet's most formidable enemy, and they are scary as hell.

In some ways, today's technology has already brought us closer to collective thought. Instant access to information and, through social media, the reactions of other people seems to be magnifying our outrage and creating a new, human hypersensitivity. In their book *The Coddling of the American Mind*, Greg Lukianoff and Jonathan Haidt lament that even on college campuses—places where a debating of the issues and a wide variety of opinions should be celebrated—the culture has become "ideologically uniform," with administrators and faculty expected to toe the line. Lukianoff and Haidt also draw attention to social media as the platform for callout culture, where anyone can be instantly and publicly shamed for saying anything, even something clearly well-intentioned but negatively interpreted by the collective. We're already at a point where people can lose their jobs because of the rush to judgement of The Hive, even if the immediate outrage is not based on all the facts, or, sometimes, any facts at all. How will collective judgement and collective hypersensitivity be amplified when we become forever tapped into the thoughts of those around us?

An offshoot of callout culture is cancel culture. Rather than simply group shaming someone online, cancel culture goes the extra step of encouraging others not to support or do business with that person. For example, if a local business owner is cancelled, people within an online group of contacts boycott his or her business, and they persuade others—through social media—to do the same. The shaming might be applied to a celebrity or a large corporation for not toeing the line of what social media groups consider politically correct or appropriate. A recent example includes comedian Kevin Hart's stepping down from hosting the Oscars after online backlash for homophobic jokes he had made ten years earlier. Another example is posts on social media encouraging patrons of Equinox fitness clubs to give up their gym membership over company chair Stephen Ross's fundraising for Donald Trump's re-election campaign. Now imagine the intensity of cancel culture when everyone is wired into your thoughts. People will not only be able to tell if you support a "cancelled" corporation: they'll be able to tell if you've done business with that company recently. They'll be able to tell if you've recently watched a "cancelled" pop artist. If they see too much in your brain that they don't like, you might find yourself "cancelled" as well, unable to be a part of certain online groups; unable to attend certain real-life clubs; unable to work for certain companies where political correctness is paramount. You will forever be watched and judged.

One symptom of cancel culture is that, since communication on a topic is so swift, uniform, and accessible to the masses, there is no time for people to take a breath and, as the saying goes, "let cooler heads prevail." There won't be any cool heads at all, as the processors in our brains will be heating things up, both literally and figuratively. We'll always be getting fed talk of new controversies, new conspiracies, and new outrages, and we'll always be in a state of collective agitation, ready to pounce.

Some forms of philosophy suggest that reality and truth are external to human thought. In other words, if there's a rock on the ground, it exists, whether or not anyone sees it and whether or not anyone thinks it is there. Furthermore, if a group of people decides, say, in a conference, that the rock is not there, their decision doesn't alter the truth—the truth that the rock is there. But how difficult will it be to seek external truths when

everyone is in each other's heads. What will reality be? What will truth be? Perhaps The Hive will decide, and that will be that. The result, of course, will be disastrous. If everyone collectively decides that a bridge will hold a certain weight—and ostracises the engineer with a calculator telling them that they're wrong—they will proceed across the inferior bridge and it will collapse. Then, in some bizarre twisting of events as they happened, the engineer who warned of disaster might somehow be collectively blamed and prosecuted!

The condition of having everyone wired into one another at all times might change the very definitions of culture and community, which usually pertain to people with shared attributes and experiences. Rather than these commonalities forming the communities, it may eventually work the other way around, where the communities form the commonalities, and you have to embrace and take on those traits if you want to be accepted into the fraternity. Finding people with your like-mindedness and hanging out with them will no longer be a thing. There will be no one like you. You will examine the requirements and hallmarks of the collective, and you will, as the Rush song says, "conform or be cast out."

Is This Really a Good Idea?

There are undoubtedly hundreds of questions to be asked about the physical and psychological side effects of having a brainphone. Many—if not most—of these questions have to do with a device that might not be properly vetted or that doesn't work. But maybe these are the wrong questions. Perhaps the more appropriate questions have to do with a brainphone that does work. Perhaps that is the question: Is a brainphone that works exactly as designed really a good idea?

An existence with brainphones seems likely to be an existence without individuality, as The Hive decides what's appropriate and shames you if you don't play along. Civil liberties, particularly those involving freedom of privacy and expression, will cease to exist.

Corporations, eager to keep collective opinion in support of their business plans, will control the dialogue and keep track of where you are and what you are purchasing. Furthermore, many of those companies that produce brainphones will flourish, as they form large monopolies over parts, maintenance, access to information, and big data regarding what billions of people in The Hive are thinking and doing. And it will gladly—for a fee—provide electronic realities that help their billions of clients to escape. As former Google product philosopher Tristan Harris mentioned on PBS Newshour in 2017, the smartphone "puts a new choice on life's menu that's sweeter than reality." And this cyber-reality is sure to be all the sweeter once it's inside your head.

In the early stages of brainphone technology, corporations will be able to assess your thoughts and preferences by tracking what websites you call up in your mind and what types of purchases you make (much like they do now by tracking your smartphone activity). But there is a later iteration, where those who run the science will be able to read your actual thoughts. Companies will like that. Governments will love it. The ability of an oppressive, federal government to constantly monitor the inner thoughts of its citizens for any signs of revolution—or, really, any type of non-compliance—is a fascist's dream. It is an idea that even George Orwell could not comprehend when he wrote *1984*.

Speaking of later iterations, an old philosophical question is worth examining: How much of a person can be replaced and have it still be a person? That is, once all of our brains are part of The Hive, and once robots become advanced enough to take over and accelerate our brainphone technology, how much of us will be us, and how much of us will be artificial intelligence (AI)? Will there be any "us" left?

There is an argument out there, among AI enthusiasts, that, once robots begin to outpace humans in how they think and advance, humans shouldn't fight their secondary status and should willingly merge with the robots, creating a sort of transhumanism. In discussing his Neuralink on "The Joe Rogan Experience" in May of this year, Elon Musk admitted that his device might be a first step in this merge. Instead of fighting self-aware technology, he suggested, we should, "go along for the ride [with AI]."

Is Musk concerned about how his version of the brainphone might someday dehumanise the human race? You'll have to someday ask his son, born recently and named X Æ A-12.

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