BRAVE NEW WORLD DEPT.

CAN WE LIVE LONGER BUT *STAY* YOUNGER?

With greater longevity, the quest to avoid the infirmities of aging is more urgent than ever.

By Adam Gopnik

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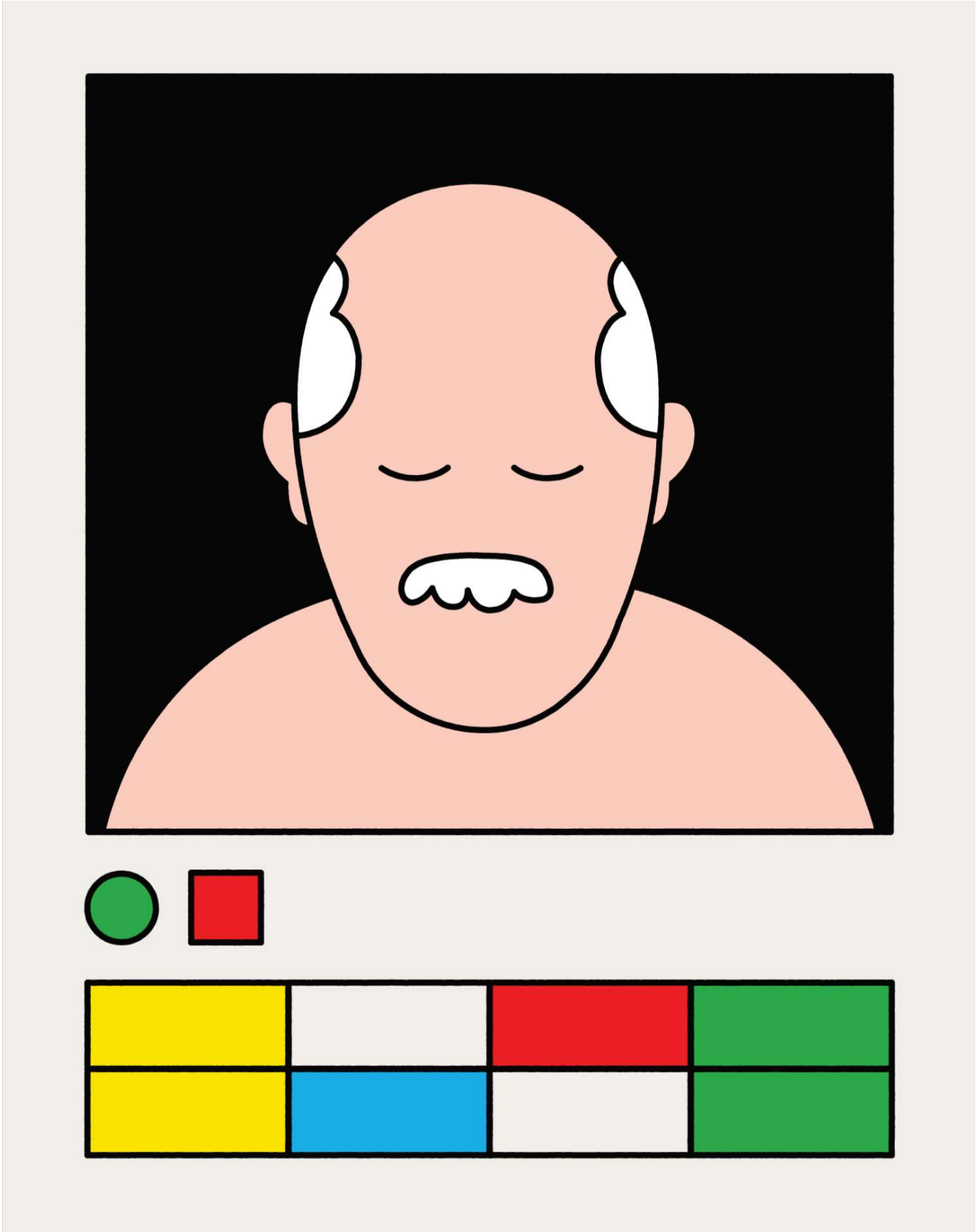


Some view old age not as a fact to be endured but as a disease to be cured. Illustration by Igor Bastidas

Aging, like bankruptcy in Hemingway's description, happens two ways, slowly and then all at once. The slow way is the familiar one: decades pass with little sense of internal change, middle age arrives with only a slight slowing down—a name lost, a lumbar ache, a sprinkling of white hairs and eye wrinkles. The fast way happens as a series of lurches: eyes occlude, hearing dwindles, a hand trembles where it hadn't, a hip breaks—the usually hale and hearty doctor's murmur in the yearly checkup, *There are some signs here that concern me*.

To get a sense of what it would be like to have the slow process become the fast process, you can go to the AgeLab, at the Massachusetts Institute of Technology, in Cambridge, and put on AGNES (for Age Gain Now Empathy System). AGNES, or the "sudden aging" suit, as Joseph Coughlin, the founder and director of the AgeLab describes it, includes yellow glasses, which convey a sense of the yellowing of the ocular lens that comes with age; a boxer's neck harness, which mimics the diminished mobility of the cervical spine; bands around the elbows, wrists, and knees to simulate stiffness; boots with foam padding to produce a loss of tactile feedback; and special gloves to "reduce tactile acuity while adding resistance to finger movements."

Slowly pulling on the aging suit and then standing up—it looks a bit like one of the spacesuits that the Russian cosmonauts wore—you're at first conscious merely of a little extra weight, a little loss of feeling, a small encumbrance or two at the

extremities. Soon, though, it's actively infuriating. The suit bends you. It slows you. You come to realize what makes it a powerful instrument of emotional empathy: every small task becomes effortful. "Reach up to the top shelf and pick up that mug," Coughlin orders, and doing so requires more attention than you expected. You reach for the mug instead of just getting it. Your emotional cast, as focussed task piles on focussed task, becomes one of annoyance; you acquire the same set-mouthed, unhappy, watchful look you see on certain elderly people on the subway. The concentration that each act requires disrupts the flow of life, which you suddenly become aware is the happiness of life, the ceaseless flow of simple action and responses, choices all made simultaneously and mostly without effort. Happiness is absorption, and absorption is the opposite of willful attention.

The annoyance, after a half hour or so in the suit, tips over into anger: *Damn, what's wrong with the world*? (Never: What's wrong with me?) The suit makes us aware not so much of the physical difficulties of old age, which can be manageable, but of the mental state disconcertingly associated with it—the price of age being perpetual aggravation. The theme and action and motive of King Lear suddenly become perfectly clear. You become enraged at your youngest daughter's reticence because you have had to struggle to unroll the map of your kingdom.

The AgeLab is designed to alleviate this progression. It exists to encourage and incubate new technologies and products and services for an ever-larger market of aging people. ("Every eight seconds, a baby boomer turns seventy-three," Coughlin observes.) Coughlin, who is in his late fifties, is the image of an old-fashioned American engineer-entrepreneur; he is bald in the old-fashioned, tonsured, Thurber-husband way, wears a bow tie and heavy red-framed glasses, and, walking a visitor through the lab, suggests a cross between Mr. Peabody and Q, from the Bond films, showing you the latest gadgets. His talk is crisply aphoristic and irrigated with an easy flow of statistics: each proposition has its instantly associated number.

"Where science is ambiguous, politics begins," he says. "In the designation of some states, an older driver is fifty, in some eighty—we don't even know what an older driver is. That ambiguity is an itch I wanted to scratch. Over the past century, we've created the greatest gift in the history of humanity—thirty extra years of life—and we don't know what to do with it! Now that we're living longer, how do we plan for what we're going to do?"

Having picked the mug up, the suit wearer finds that setting the mug down gently on a nearby table is also a bit of a challenge. So is following Coughlin from room to room as he narrates all that the AgeLab has learned.

"Here's a useful model for you," he says. "From zero to twenty-one is about eight thousand days. From twenty-one to midlife crisis is eight thousand days. From mid-forties to sixty-five—eight thousand days. Nowadays, if you make it to sixty-five you have a fifty-per-cent chance you'll make it to eighty-five. Another eight thousand days! That's no longer a trip to Disney and wait for the grandchildren to visit and die of the virus you get on a cruise. We're talking about rethinking, redefining one-third of adult life! The greatest achievement in the history of humankind—and all we can say is that it's going to make Medicare go broke? Why don't we take that one-third and create new stories, new rituals, new mythologies for people as they age?"

The AGNES suit is one of many instruments and appliances—or "cool toys," as they are more technically known—that can be found in the AgeLab's glass-walled halls and cubicled corridors, ready to entertain visiting writers, and to instruct visiting entrepreneurs. There is the driving simulator, specially fitted to track the driver's eye movements as they flit back and forth from the dashboard to the horizon. ("With its new technologies, like navigation systems, the automotive industry is asking people to change fifty years of driving habits in ten minutes without instruction," Coughlin says.) There is Paro, a robotic baby seal, from Japan, which bleats and moves its head, and is designed to act as a comfort to aging people, particularly Alzheimer's patients struggling with the "sundown" moment at day's

end, when confusion and restlessness become acute. ("It's a seal, rather than a dog or a cat, because people have great experiences with dogs and cats, and even Alzheimer's patients can spot the eerie non-resemblance," Coughlin says. "Having no experience of seals, we accept Paro as he is.") There are mobile robotic nurses made for elderly care, and broad red upholstered chairs made for elderly rears. There are large research displays showing photographs of drivers, their faces embedded with sensors, and the varieties of "Glance Classification" that can, when analyzed, lead to "Crash Avoidance." ("The ratio between confident decisions and *correct* confident decisions can be a story of life or death on the highway," Coughlin explains.) And there are displays of word clouds associated with aging, showing the significant difference between the terms with which women imagine their post-career lives (Freedom, Time, Family) and those which men use (Retirement, Relax, Hobbies).

The work of the AgeLab is shaped by a paradox. Having been established to engineer and promote new products and services specially designed for the expanding market of the aged, the AgeLab swiftly discovered that engineering and promoting new products and services specially designed for the expanding market of the aged is a good way of going out of business. Old people will not buy anything that reminds them that they are old. They are a market that cannot be marketed to. In effect, to accept help in getting out of the suit is to accept that we're in the suit for life. We would rather suffer because we're old than accept that we're old and suffer less.

This paradox is, well, old. Heinz, back in the nineteen-fifties, tried marketing a line of "Senior Foods" that was, essentially, baby food for old people. It not only failed spectacularly but, as Coughlin puts it, poisoned an entire category. The most perverse of these failures is perhaps that of the PERS, or personal-emergency-response system, a category of device—best known for the hysterically toned television ad in which an elderly woman calls out, "I've fallen and I can't get

up!”—designed as a neck pendant that summons emergency services when pressed. It is simple and effective. “The problem is that no one wants one,” Coughlin says. “The entire penetration in the U.S. of the sixty-five-plus market is less than four per cent. And a German study showed that, when subscribers fell and remained on the floor for longer than five minutes, they failed to use their devices to summon help eighty-three per cent of the time.” In other words, many older people would sooner thrash on the floor in distress than press a button—one that may summon assistance but whose real impact is to admit, *I am old*.

“We buy products not just to do jobs but for what they say about us,” Coughlin summarizes. “Beige or light-blue bracelets or pendants say ‘Old Man Walking.’ ”

"Don't let this beautiful weather fool you into thinking everything's fine."

Open cartoon gallery

The AgeLab has rediscovered the eternal truth that identity matters to us far more than utility. The most effective way of comforting the aged, the researchers there find, is through a kind of comical convergence of products designed by and supposedly for impatient millennials, which secretly better suit the needs of

irascible boomers. The best hearing aids look the most like earbuds. The most effective PERS device is an iPhone or an Apple Watch app.
Such unexpected convergences have happened in the past. Retirement villages came to be centered on golf courses, Coughlin maintains, not because oldsters necessarily like golf but because they like using golf carts. It's the carts that supply greater mobility in and around the village. The golf comes with them. This process of "exaptation" has now accelerated. TaskRabbit and Uber and Rent the Runway —services that provide immediate help for specific problems—are especially valuable for an aging population.

"The dominant paradigm is that older people don't want new technology," Coughlin says. "But take the microwave oven! It couldn't have been better designed for people who live by themselves. It's a perfect example of what I call 'transcendent design'—not made for older people, but ideal for them. We're doing a lot of work in the on-demand economy, which was made for millennials but is working better for boomers. Meals are delivered—these are amazing, assisted-living services that can come to anyone's house. Older women in particular are saved from microdeficiencies in their diet. So, while the millennials want them for convenience, the boomers want them for care for their parents, or themselves."

Coughlin hates what he calls "the narrative," according to which new tech appeals to newer people: "Startup money goes to youngsters because that's what startup entrepreneurs are supposed to look like, and the products are designed for kids because that's what startup products are meant to look like." In his view—detailed in his book "The Longevity Economy"—the narrative, more than any rational calculation of profit, accounts for the technological gap. "There's no reason for this enormous prejudice in favor of youthfulness in Silicon Valley and the tech industry," he says. He also hates the misallocation of resources based on mere myths. "We have a belief that we send out our elderly to institutions. The fact of the matter is that less than ten per cent of the elderly go into nursing homes or assisted living. The senior-housing industry is building inventory meant for

seniors, but eighty-seven per cent of retirement-age people want to stay in the same home where they have the three 'M's: marriage, mortgage, and memories. The problem is that they can't. Not when the model is a two-story house with a bedroom and the bathroom upstairs. If we can solve the stairs problem, we won't need new housing."

Coughlin says that having simple answers to two questions can determine whether you're going to age well in place: "Who's going to change the light bulb, and how are you going to get an ice-cream cone? Little tasks become sources of high friction. It's not that you can't climb the ladder to change the light bulb. But for the first time you are going to have someone yelling at you, 'You're going to fall and break your neck!' That's the problem of aging we have to tackle, not building more old people's homes or senior villages." It's the failure of industry and engineering to address the actual problems of aging—the problems summed up by the aggravations of the AGNES suit—that makes Coughlin impatient with scientific speculations about extending life. "We've already extended life! What we need is not to put off death a little longer but to write a new narrative of aging as it could be."

Aging has no point; it is the infuriating absence of a point. Having reproduced ourselves externally, we fall down on replicating ourselves internally. The processes of cellular replication that allow us to be boats rebuilt even as they cross the ocean cease acting efficiently, because they have no evolutionary reward for acting efficiently. They are like code monkeys in a failing tech business: they can mess up everything, absent-mindedly forget to code for the color of our hair or the elasticity of our skin, and no penalty is exacted for the failure. We've already made all the kids we are going to make.

That, at least, is the classic explanation of why we age, proposed by the British Nobel laureate Peter Medawar, in the nineteen-fifties. Once we have passed reproductive age, the genes can get sloppy about copying, allowing mutations to

accumulate, because natural selection no longer cares. And so things fall apart. The second law of thermodynamics gets us all in the end. The car or the Cuisinart works for a decade, breaks down, and can't be fixed; rust never sleeps, and we do.

And yet some trees go on for centuries, collecting rings, growing older without really aging. Some species—though those are often hard-to-track creatures, like Arctic sharks—may live for centuries. Even if aging at some speed is ultimately inevitable, what happens when we age is far from self-evident.

It may be that the real trick is not how much we age but how much we don't. Human beings are outliers: we live much longer than other creatures of our size, defying the general truth that smaller animals live shorter lives than bigger ones. (Not that we should take too much pride in our defiance; another great defier is the naked mole rat, the world's ugliest animal, which often lives for absurdly long periods and scarcely seems to age at all, although one might ask how anyone but another naked mole rat could tell.) Those extra thirty years of life, though won by advances in medicine and public health, are winnable because, given a little chance, we just go on. The big question of human aging then becomes not why we fall apart but why nature lets us hold together for so long.

One evolutionary rationale is that there is something essential to human groups, with the slowly unfolding infancy of their young, in keeping the old folks around even when they can't make more young folks. Old folks are repositories of extended cultural memory: it would seem to be advantageous to have a few senior citizens around who know what to do, so to speak, when winter comes.

Evolutionary biologists tend to doubt whether nature cares about the fitness of groups, rather than the fitness of individuals, but the model of "kin selection"—which gives weight to the fact that helping my relatives helps preserve my genes—suggests that there might be evolutionary advantages in having grandmothers around to take care of kids and remember where the fish go every twenty years. (Then again, people who do have grandparents around to remind them what they're doing wrong would probably suspect that killing off the oldsters early

might actually make for more success, or at least more serenity.) People might not have a death sentence in their genes.

And so elsewhere in Cambridge, notably in certain genetic labs at Harvard, the chairs and seals and exaptated services of the AgeLab are regarded as mere Band-Aids on the problem to be solved. Here, there are whispers of undying yeast, tales of eternally young mice, rumors of rejuvenated dogs, and scientists who stubbornly insist that age is an illness to be treated like any other.

Where fifty years ago it was taken for granted that the problem of age was a problem of the inevitable running down of everything, entropy working its worst, now many researchers are inclined to think that the problem is "epigenetic": it's a problem in reading the information—the genetic code—in the cells. To use a metaphor of the Harvard geneticist David Sinclair, the information in each cell is digital and perfectly stored; it's the "readout," the active expression of the information, that's effectively analogue, and subject to occlusion by the equivalent of dirt and scratches on the plastic surface of a CD. Clear those off, he says, and the younger you, still intact in the information layer, jumps out—just as the younger Beatles jump out from a restored and remastered CD. (It would not be the first time in the history of science that the way we think about a phenomenon has been affected by the kinds of man-made models we're acquainted with. When a telephone switchboard was our most impressive knowledge-bearing mechanism, people thought that the brain was like one; when Xerox copies, growing less legible as generation passed to generation, were familiar to everyone, the image of a cell ceasing to replicate itself effectively in that manner was self-evident.)

We don't have to micromanage the repair, the Harvard molecular biologist George Church observes: "If we think epigenetically, we can see that we can make the cells industriously do the repair themselves." Already a legendary figure for devising genomic-sequencing techniques—it must help that he's a scientific eminence who has the aura of one, with a grand Darwinian beard and a slow-

spoken orotundity—Church gained further attention for his experiments in trying to resurrect extinct species, particularly the woolly mammoth. (One of his standard jokes is that the fifth floor of his lab is off limits to visitors, because that is where the mammoths and the Neanderthals live.) He is also among a group of engineer-entrepreneurs who are trying not to make better products for aging people but to make fewer aging people to sell products to. Perhaps aging is not a condition to be managed but a mistake to be fixed. Sinclair, for one, has successfully extended the life of yeast, and says that he is moving on to human trials. He is an evangelist for the advantages of what he calls "hormesis"—the practice of inducing metabolic stress by short intense exercise or intermittent fasting. "Every day, try to be hungry and out of breath" is his neatly epigenetic epigram.

Anti-aging research, in its "translational," or applied, form, seems to be proceeding along two main fronts: through "small molecules," meaning mostly dietary supplements that are intended to rev up the right proteins; and, perhaps more dramatically, through genetic engineering. Typically, genetic engineering involves adding or otherwise manipulating genes in a population of animals, often mice, perhaps by rejiggering a mouse's genome in embryo and then using it to breed a genetically altered strain. In mice studies, genetic modifications that cause the rodents to make greater amounts of a single protein, sirtuin 6, have resulted in longer life spans (although some scientists think that the intervention merely helped male mice to live as long as female mice).

Church and Noah Davidsohn, a former postdoc in his lab, have engaged in a secretive but much talked-about venture to make old dogs new. They have conducted gene therapy on beagles with the Tufts veterinary school, and are currently advertising for Cavalier King Charles spaniels, which are highly prone to an incurable age-related heart condition, mitral-valve disease; almost all of them develop it by the age of ten. Using a genetically modified virus, Church and Davidsohn's team will insert a piece of DNA into a dog's liver cells and get them to produce a protein meant to stop the heart disease from progressing. But the

team has larger ambitions. It has been identifying other targets for gene-based interventions, studying a database of aging-related genes: genes that are overexpressed or underexpressed—that make too much or too little of a particular protein—as we grow old. In the CD replay of life, these are the notes that get muffled or amplified, and Davidsohn and Church want to restore them to their proper volume.

Many problems cling to this work, not least that there are surprisingly few "biomarkers" of increased longevity. One researcher makes a comparison with cancer research: we know a patient's cancer has been successfully treated when the cancer cells go away, but how do you know if you've made people live longer except by waiting decades and seeing when they die? Ideally, we'd find something that could be measured in a blood test, say, and was reliably correlated with someone's life span.

Church is optimistic about the genetic-engineering approach. "We know it can work," he says, "because we've already had success reprogramming embryonic stem cells: you *can* take a really old cell and turn that back into a young cell. We're doing it now. Most of the work was done in mice, where we've extended the life of mice by a factor of two. It isn't seen as impressive, because it's mice, but now we're working on dogs. There are about nine different pathways that we've identified for cell rejuvenation, one of which eliminates senescent cells"—moldering cells that have stopped dividing and tend to spark inflammation, serving as a perpetual irritant to their neighbors.

"We're already in clinical trials with dogs," Church says. "If all goes well, we should have that accomplished within two years, and be overlapping that with human clinical trials within the next five years. My guess is that dog trials will go well. Based on the mouse trials, we're hoping that the effects are general and independent of species—we're using the same gene therapy in mice and dogs and humans."

Church is aware that the Food and Drug Administration, among other regulatory bodies, may not be crazy about weird new therapies that address what we customarily take to be a natural process. "Our emphasis is on reversal rather than longevity, in part because it's easier to get permission from the F.D.A. for reversal of diseases than for prolongation of life," he says. "Longevity isn't our aim—we're just aiming at the reversal of age-related diseases." Noah Davidsohn enthusiastically seconds this: "We want to make people live better, not necessarily longer, though obviously longer is part of better." But Church makes it plain that these are adjoining concerns. "How old can people grow?" he says. "Well, if our approach is truly effective, there is no upper limit. But our goal isn't eternal life. The goal is youthful wellness rather than an extended long period of age-related decline. You know, one of the striking things is that many super-centenarians"—people who live productively past a hundred years—"live a youthful life, and then they die very quickly. They're here, living well, and then they're not. It's not a bad picture."

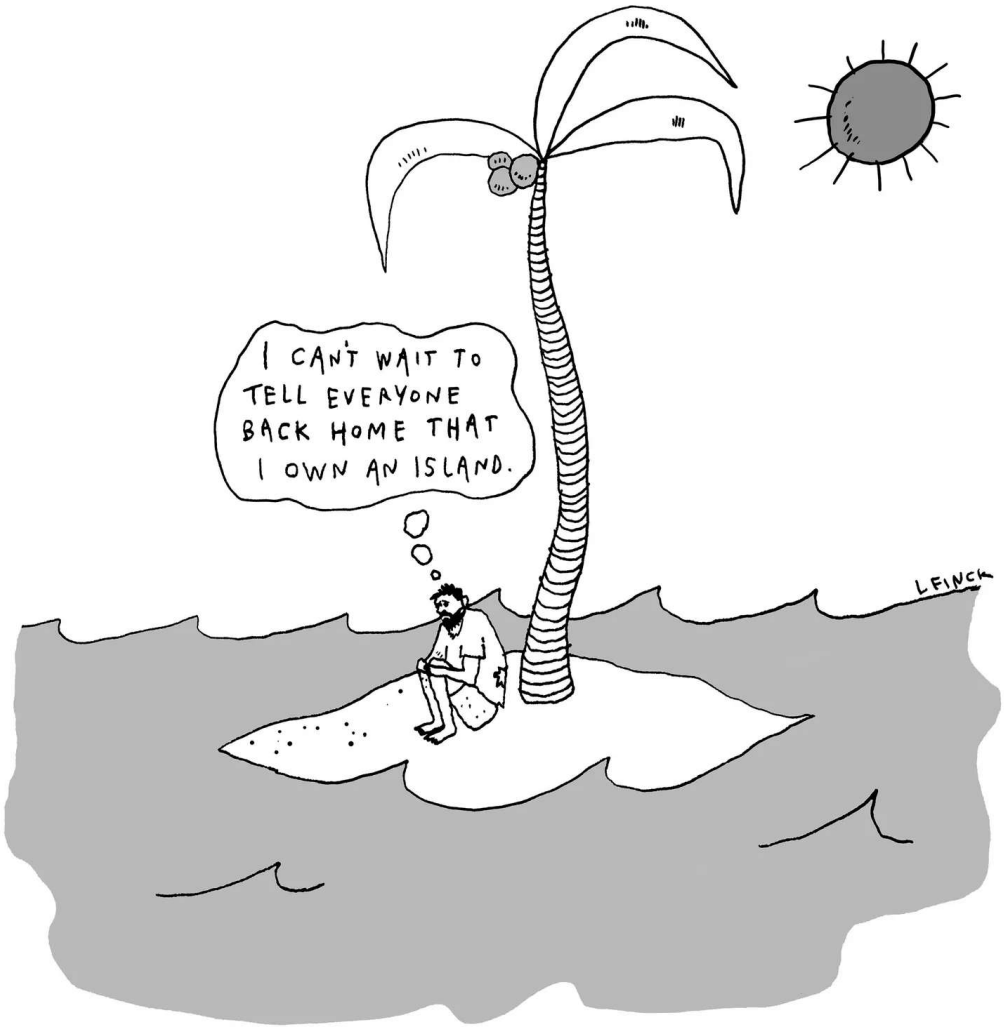
There are many skeptics among scientists who wonder how much, or how soon, this kind of work will really affect aging. Church gets shares for serving on the advisory board of Elysium Health, which markets an anti-aging supplement called Basis, and though the literature is careful to say that, "rather than endorsing a specific product, this network of scientists, clinicians and health professionals advises the Elysium team on product identification and development," how one distinguishes between advising on the product and endorsing the product seems to many a bit mystical. Others may recall the enthusiasm, in the early twentieth century, for implanting monkey glands in people, a procedure that was held out as a scientific solution to the problem of aging. (W. B. Yeats had a related procedure.) The fountain of youth is always splashing away somewhere.

Behind the optimistic promise of heading off aging in spaniels and, soon, in their owners lies a sadder reality: that even foundational research cannot always cure a fundamental problem. Despite what had seemed to be groundbreaking discoveries in the basic genetics and pathology of dementia, no cure or even promising

treatment for senility, as it once was called, is in sight. Increasing numbers of people enter old age not merely reduced but ravaged by Alzheimer's or another form of dementia, now epidemic in the richer countries that have greater life expectancies. Old Lear's primary fear is not of age but of madness, which he imagines precisely as dementia: as the loss of mental control, of memory, and of cognition, seeing his fate mirrored in that of Poor Tom, the ranting homeless man impersonated by Edgar.

To pass from the Harvard rejuvenators to the laboratory of Patrick Hof, at the Icahn School of Medicine at Mount Sinai, in Manhattan, is to sober up a little. Here, there is talk not of imminent innovation but of discouragingly minute work proceeding on many slow-moving fronts over decades. Where the Harvard crowd see quick fixes in the near future, Hof, an expert on the neuronal underpinnings of aging and Alzheimer's, sees the exposure of ever more confounding complexity.

His tenth-floor office is filled with reproductions of Blake illuminations and Whistler portraits, while photographs of his children cycle on the screen saver behind him, blended with images of whales and dolphins, a particular interest of his. His nearby lab is an open space with small chapels off it, in which researchers —postdocs, junior faculty, skilled technicians—study the youthful and aged brains of many kinds of animals, with what looks like every kind of microscope: smaller viewing ones, mid-sized high-resolution ones, and a single massive electron-scanning microscope that lets his researchers see neural structure down to a dendrite's tiny terminal spines.



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"My career started at the beginning of digital microscopy," Hof says. He is white-haired, with the soft accent of his native Switzerland. "Now we can collect terabytes of data—we can collect entire networks of neurons within a single animal brain. We do tissue staining, taking a piece of brain or an entire brain—slicing them into very thin sections, which we incubate with an antibody that labels a specific population of neurons, and we collect that. Or we can load neurons with a fluorescent dye—inject it, using a very thin glass pipette that runs right into the neuron—so then we have a fluorescent neuron!"

Hof's laboratory is full of brains. In a large common lab outside the microscopy rooms, there are shelves holding rows of what look like hinged, dark-wooden cigar boxes. "These are all brains," Hof says casually. He takes a box down and opens it; inside, there's a slide with what looks like a small profile of a brain on it. "That's a human brain. It's a section, sliced like bread. It looks small, because it was incubated in a chemical process—we started with the entire hemisphere and then incubated it in an alcoholic treatment, and it shrinks by two-thirds. Then you stain it, and there you go." The brain sections are kept indefinitely, Hof explains, and loaned out, like library books, from lab to lab.

Hof, who has taken to studying the brains of whales and dolphins, likes to bring visitors to an open, chilled "brain room," a sort of rare-book collection of brains, to see a few beautiful instances. The brain room is a revelation. Here they are: human brains, monkey brains, dolphin brains—the space between brain and mind never seems so large as it does when you actually see the material of mind, curved and segmented, as ugly as an intestine, floating in a fixing solution.
The room even contains a sperm-whale brain—"the largest brain known to the planet," Hof says. (It looks beautifully broad, with nobly large-spaced convolutions.) Finding the brains of senile cetaceans is hard, he says. "The ones that beach are young adults, and the seniors tend to die quietly at sea." Hof hopes that insight might be found in studying neurodegeneration in the cetaceans' more expansive, differently structured cortexes.

The study of Alzheimer's became Hof's special preoccupation because of its insidious destruction of normal minds and normal character. "You can't tell any difference, even under extreme magnification, between an aging non-demented brain and a younger human one," he says. "You have to have really fine levels of resolution to see any loss in neural organization just through aging without illness. But, holding an Alzheimer's brain in your hand, you can see the atrophy."

Three decades ago, Hof explains, research in Alzheimer's linked two key proteins with the terrible dissolution of selves: beta-amyloid, which formed plaques

between neurons; and tau, which formed tangled fibrils within neurons. The relative importance of the two was disputed, but many scientists concluded that those plaques and fibrils clog the brain as coffee grounds clog a drain. It seemed likely that there would be therapeutic benefits if they could be cleared away. "Now, we know that these are really downstream effects," Hof says. "What's happening upstream to cause them is much, much more complicated."

With the causes unclear—debate continues over which anomalies are better seen as culprits or as bystanders—and the cure evidently far away, Hof can only enumerate the "co-morbidities" for Alzheimer's, the conditions that correlate most strongly with its onset. They are the old-fashioned sins: obesity, a lack of exercise, bad diet—and the diabetes that these can produce. For all the cascades of research into longevity, the new science often seems to distill into old wisdom: be fit, stay thin, and you will look and feel younger longer.

"The disease is diverse and heterogeneous enough that treatment and prevention will have to move on several fronts," Hof says. "First, just promoting healthy aging, what can you do and what can you avoid? Every elder is unique, and will have had life experiences and habits that are unique. So we're going to have to look at that aspect, in ways that prevent or treat, to a degree, the development of something worse. Then we need to have a better understanding of the causative factors. There are leads that point to a number of interesting markers. There are proteins that play cellular roles that effect a cascade of reaction inside the cells, but it becomes very difficult to target specifically without altering other functions. None of it is easy."

As you take off the AGNES suit—piece by piece; the boots and then the wrist weights and the impeding gloves—the feeling is disconcerting. It's the return of flow, the feeling of choice and possibility as you begin to move again through the world, that makes you recall that what it is to be young is not to be in a state of ecstasy but merely to be unimpeded, to be in the world without having

undue consciousness of your own muscle and bone within it. It's the same thing we experience when we remove a splinter from our foot; what we get is not happiness in a positive sense but a return to not having to think about the prison and the fact of our flesh. We forget our insides, and fold ourselves back out.

The true condition of youth is the physical ability to forget ourselves. A friend who is still creative in his eighties points out what he calls the geriatric possessive: people past eighty, he says, are expected to say, "I'm going to take my bath," "I'm going to take my walk." We can counterpoise that to the pediatric possessive: "You're going to take your bath," "It's time for your nap." Only in midlife do we feel secure enough to enumerate actions as existing individually outside our possession of them: "I'm going to take a bath," "I'm going to take a nap." A bath and a nap exist, briefly, outside our possession of them—they're just around for the taking, we suppose, and always will be.

Glenda Jackson, now playing Lear on Broadway at the age of eighty-three, captures the indomitable egotism of the aged. Watching her onstage, we are asked to recognize not just the anger but also, eventually, the wisdom of age. The old, Shakespeare says, can become, or assist us to become, God's spies. A decade and a half ago, a Presidential council chaired by the bioethicist Leon Kass produced a report raising questions about research into extended longevity. "Might we be cheating ourselves," the report asked, "by departing from the contour and constraint of natural life (our frailty and finitude) which serve as a lens for a larger vision that might give all of life coherence and sustaining significance?" We do turn, after all, to the imagery of the old for comfort; we turn to work marked by the frailties of aging for consolation and enlightenment. Matisse, his hands crippled by arthritis, picks up scissors and painted paper and finds a new world of purity; de Kooning, on the edge of Alzheimer's, paints some of his greatest pictures just as renewed simplicity breaks the hand of excessive excellence.

Swift, in "Gulliver's Travels," invented the race of the Struldbrugs in order to imagine what eternal life would be like. Eerily, they were given a precise phenotypic marker, a blemish above the left eyebrow, and were given, too, the ill temper associated with age. Promised eternal life, they were cursed with ever-progressing aging, and were the most miserable people alive. What we want—Swift's point—is not eternal life but eternal youth, and what the new science seems to promise us is more like permanent middle age. We may indeed already be converging as a population—irascible millennials who feel dated at twenty-five and determinedly upbeat boomers who insist on feeling young at seventy—on a single American age, a kind of shared perpetual middleness, where we will dye our hair and take our pills and suddenly collapse in the midst of the dance. Right now, we live well, and then we don't live well, and then we die. The most that science seems to offer us is this: We'll live well, and then we'll die.

In the past, as science and medicine annihilated old curses, we worried about losing the corresponding compensating benefits. And yet pain in childbirth, which some thought to be foundational to what we call Judeo-Christian morals, could be largely subdued without any loss to mother love; consumption was cured without lessening the romance of romantic poetry. Perhaps the loss of aging will be one more in that series, where, like all the other super-centenarians, we will dance and make love and ski, sharp-eyed, right to the edge of the still inevitable cliff. In the word cloud of concepts associated with aging that hangs in the AgeLab, the word "death" appears only in a tiny balloon, associated with the stray and bubbling thoughts of younger men—much smaller than the other words, lost among larger clouds of hope. ♦

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Many facilities are using nostalgic environments as a means of soothing the misery, panic, and rage their residents experience.

By Larissa MacFarquhar

DEPT. OF HUMAN RESOURCES

Why Ageism Never Gets Old

The prejudice is an ancient habit, but new forces—in Silicon Valley, Hollywood, and beyond—have restored its youthful vitality.

By Tad Friend

THE FRONT ROW

The Nineteen-Seventies of "The Holdovers" Is Conveniently Sanitized

There's something appealing about the nostalgia of Alexander Payne's film, but also something contrived.

By Richard Brody

UNDER REVIEW

The Longest, Least-Remembered Great American Novel

In "Miss MacIntosh, My Darling," Marguerite Young held a mirror to the country's ambition, delusion, and insatiable quest for perfection.

By Ryan Ruby