

Finding New Meaning in a World Transformed by Magic

By Shaun Johnston.

TALK 1

Principles of a new magic

This is the first in a series of four talks each, with 5 minute breaks for discussion, lasting about 60 minutes, about how, through a new magic, we can glimpse new meaning in life.

A magic like this can matter, because meaning in life matters. For us, today, facing an epidemic of suicide, it's become literally a matter of life and death. If you had to counsel someone about to commit suicide, what would you tell them? What would you say makes life worth living? I can't think of any answer we'd all agree on. Where would something like that even come from? What would it be like?

This series of four talks introduces a new way of thinking about meaning in life. Of course it comes out of my own experience, when I was young and impressionable a couple of generations ago, on another continent, very different from how things are now. But it could help you think about meaning in life, in your own way.

I'm a cut and dried, rational kind of guy, I'm not what you'd call "spiritual." Usually I look to science for answers. But when it comes to meaning in life, science isn't enough. Meaning in life is about meanings, and science doesn't do meanings, it does facts. Science may even be part of the problem. Today it seems to come with a meaning attached to it that's casting a dark shadow over us, over how we think about ourselves, over what life has come to mean. That's not supposed to happen. Once science comes with meaning like that it becomes a magic.

When meaning in life comes under threat from a magic, like that, how should you respond? With logic? In my experience, logic doesn't work against magic. Religion? Perhaps at some other time, but not here, today, not for me anyway. In the end I said to myself, the only way to solve a problem involving magic is to come up with another magic to take its place. That's what I decided to do. I set myself to counter the dark magic science comes with today with a new magic.

I started by looking at science from a new point of view, to see if I could make a new magic out of it. That's not such an unusual idea. Magic and science often go together. Astrology grew out of ancient astronomy, alchemy grew out of experience working with metals. A magic like that seems to tell us what the science really means. But that meaning doesn't lie in the science, it's something you have to add to it. You gather together a set of scientific facts and you come up with a new theory to account for them. You impose meaning on science. Then you can use that theory to tell you what other things mean. That's what I call magic. So, that's what I set out to do. I took facts from a particular field in modern science, and came with a theory about them I could use to give our own lives more meaning.

The science I settled on was modern biology. I took what I knew about genetics and evolution and I came up with a new theory to account for them. I made it up. I invented a new magic. A white magic.

For the rest of this talk, and the next, I'm going to talk about these two magics, and tell you why I think we should replace one with the other.

BREAK. Does it make sense to oppose one magic with another?

I said I invented a white magic. How could I know? What makes a magic black or white? To me, it's the principles it's based on. What do you most want to be true? I came up with my white magic by asking, what do we value most? What is it about us, today, that seems most precious? That's what any new magic ought to be about.

I came up with four principles to guide my search for this new magic. I'm going to run through them. The first involves conscious experience. Deep down, I feel, that's what matters most to us. It's conscious experience that puts us in touch with everything else, with our thoughts and feelings, our memories and our hopes for the future, art and science, and so on. It's our doorway to everything else.

But is it just that, a doorway, and nothing more? For some people I think that's true, it's enough they're just alive, there isn't anything special to call consciousness apart from that. It's just comes with being alive. When I talk about conscious experiences I'm talking about more than that. I'm talking about being conscious of being conscious. For some people, that's what happens when they meditate, they monitor what they're conscious of, and can control it and direct it. For others, it may be what they go on holiday for, a heightened sense of wonder and excitement at seeing and doing new things. Then, consciousness is what, in you, makes being alive different when you're on vacation. When you show people your vacation photos, what you want to share with them is not just what you saw or did. They've seen pictures of the Eifel Tower before. What you want to share with them is the conscious experience you had, being there, seeing or doing that. You're saying, "I was there, I had the experience of being there, it was intense." Now, imagine, once you return home you can't turn that off, that heightened consciousness. Instead of life being just a blur you have vivid conscious experiences like that all the time. And actually you probably do. Think back over just the past few days, and what stands out are particular memories that you remember because of what you were thinking or feeling. That's what I mean by conscious experiences. For me, they're what matter most in life, they're what make life most precious. We aren't robots, we're human beings, what makes us different from them is, we have conscious experiences.

For me, it's awareness of conscious experiences, first and foremost, that make human life meaningful. And not only now or in the past, but the prospect of many more conscious experiences to come. If we have on average ten conscious experiences each day, then in the next 20 years we've over 70,000 more conscious experiences to look forward to. And what is it about those conscious experiences that makes them seem precious? It's how rich and rewarding we can imagine them being, like those we have on vacation.

So the first principle of my new magic is, it must help us make our remaining conscious experiences richer and more satisfying.

For my second principle I asked myself, how are we going to do that, how are we going to make our remaining conscious experiences richer? There's only way I know of, we can enrich our future conscious experiences only by what we make ourselves conscious of in the present. That's all we have direct control over. And not just by enjoying ourselves as much as we can in the present, so we'll have some

good memories to look back on, it might mean just the opposite. It means putting those tens of thousands of future conscious experiences first. Think of it as like bundling up to take a bracing walk because of how good you know you'll feel afterwards. Or think of it as like putting money into a savings account. The Chinese have a saying: if you want to be happy for an hour, take a nap. If you want to be happy for a day, get drunk. If you want to be happy for a week, get married. But if you want to be happy for a lifetime, plant a garden. That's hard work. By sacrificing something today you can give yourself much richer conscious experiences tomorrow.

So the first two principles in my new magic are, what's most precious in life is our prospect of having thousands more conscious experiences, all of which we can enrich by what we decide to make ourselves conscious of today.

BREAK. CONSCIOUS EXPERIENCES as the primary value in life.

The third and fourth principles of my new magic involve meaning. One way we can make our conscious experiences deeper and richer over a lifetime is by gathering more and better "meanings."

Fortunately there's no shortage of them, meanings multiply like rabbits. Put a couple of meanings together and they'll combine to make new meanings. Here's an example. From the meanings "mother" and "father" we came up with the words "Mother country" and "Fatherland." Our mother country is where we were nurtured, by our mothers, Our Fatherland is the territory we'll fight alongside our fathers to defend the borders of. Because we can associate meanings like this to make more meanings, as long as we live we'll keep gathering new meanings. And it's mainly through these meanings that our future conscious experiences become enriched.

So principle number three is, to enrich consciousness we must come to understand and manage, not science, but meanings.

The fourth, and last principle, behind my new magic is about where meanings come from. It's not hard to see how they multiply, as meanings "mother" and "father" multiplied into Mother country and Fatherland. But what happens if you trace chains of meanings back the other way? Where do meanings like Mother and Father originate? I believe, when we trace chains of meaning back, we'll find they originate in our animal nature, the nature we were born with. My fourth principle is, all the meanings we gather throughout life originate in meanings programmed into us by evolution.

Look what had to happen for us to find anything meaningful. First we had to evolve ways to read space and time. Our brains grew tools for judging the distance and direction of things, our senses give those things color and shape. We evolved tools for remembering the past, for being conscious of the present, for predicting the future. Now, suddenly, with tools for reading meaning into space and time, we could read the whole world around us. Now we could use other tools, like being able to reason, to reach conclusions and make decisions. Once we'd evolved this deep framework of meanings a host of other more meanings could be laid down over it, like the sensations of fear and desire, and finally more particular meanings like mother and father. To understand meanings we'll have to delve deep into evolution.

So those are the four basic principles behind my new magic. First, what matters to us most is how rich and satisfying our future conscious experiences can be. Second, we can make those future conscious experiences richer by what we make ourselves conscious of today. Third, because conscious experiences

consist of meanings, to make them richer we have to think in terms of meanings. And fourth, to trace the origins of all our meanings we'll need to understand how we evolved.

BREAK. The meanings we're born with form a framework all our other meanings grow from.

Now we have principles for a white magic, we can more easily recognize the principles behind the dark magic modern science comes with. They're what stands in the way of our white-magic principles. Here are the main principles of this dark magic. First, all that's real is physical matter and the physical processes that act on it. Second, the laws of physics determine how everything happens. So everything we do and think in the present moment is determined by what's already happened. Third, consciousness may exist in some way--we all experience it--but it isn't physical, so it can't make anything physical happen, like tell us what we do. Any impression we have that it can, that we can decide consciously what to think or do, that we have free will, must be just an illusion. Everything we'll ever become conscious of in the future has already been decided for us, by the operations of the laws of physics.

These principles of today's dark magic completely contradict the principles behind my white magic. If consciousness isn't physical, then it can't decide what to be conscious of, and we're not free, through what we choose to make ourselves conscious of today, to make any difference to what we'll be conscious of in the future.

How can you tell if something you're presented with is a dark or a white magic? By how it feels. I'm going to give you an opportunity, now, to compare how the two magics feel.

Magic number 1: Let's experience our own consciousness for a moment. Close your eyes and listen for a moment to the sounds around you. Now open your eyes and look around. Look for whatever's colored green. Now look for whatever's colored red. Look at some distant object, focus on it as sharply as you can. What details do you see? Now widen your vision and take in the scene as a whole. Now be aware that these are just a few of tens of thousands of different ways of experiencing available to you. Can you direct your attention as you consciously decide to? Didn't you just do that? Would you like this experience to become deeper and richer the longer you live? What could you think of now, that will make your future conscious experiences richer? Can you imagine working on this and coming up with more ideas for how to make experience more rewarding?

Magic number 2: Well, really of course, you didn't direct your attention consciously just now, you directed your attention the way I told you to. You thought about those ideas only because I told you to. Everything you think is really determined ahead of time. Your conscious experience is simply a result of what's already gone on in your brain, and that's all physical and chemical. Everything you think all happens strictly according to the laws of physics, it's all determined. Thinking you can choose, consciously, what to be conscious of, that's just an illusion. It's impossible. You're as mechanical as everything else in the universe. You've no control over your conscious experiences. Thinking you can enrich your future conscious experiences by what you think today, that's just a waste of time. They will be what they will be, no matter what you think. You're better off just realizing, whatever you do, whatever you think, there's nothing you can do to enrich your future conscious experiences.

I've just tried to induce in you two different feelings about yourself and your life. Choosing between them isn't a matter of science, it's about something that matters much more, the meaning you give your

conscious self. To help you choose which you prefer, I refer you to a video of a panel discussion on the subject of free will and determinism.

See <https://youtu.be/OrjxRDMe3FA>

I side with Granddad. I think, to satisfy our needs for meaning in life today, we should replace a dark magic that tells us everything we think and do is determined with a new magic telling us we can be creative, we can choose what to be conscious of, we do have some control over our attention, and the richness of our remaining conscious experiences.

BREAK. THE TWO MAGICS COMPARED.

Know thy enemy. In the next talk we'll look at the magic underlying determinism, and how it's come to have so much influence today. Then, in search of a new white magic, I'll turn to an early pioneer of evolution. By looking at evolution afresh through his eyes I'll conjure up an entirely new actor on the world stage.

TALK TWO

Magic against magic

In the previous talk I said today's science comes associated with a magic that tells us we've no choice in what we think or do. Everything we think or do has already been determined for us by the laws of physics. That magical belief is called physical determinism. It says everything we think or do has to get worked out for us first in brain chemistry, which is physical, before it can enter our awareness. Our conscious awareness, because it isn't physical, can't act back on the brain to affect anything we think and do, any more than our shadow can. Everything we'll ever think or do is determined for us by physics acting in our brains. According to physical determinism, we're no more than robots.

In that first talk I also defined what I think is most precious to us today, all our future conscious experiences, and how, by what we choose to be conscious of today, we could enrich all those future experiences. But physical determinism says we can't do that. We can't choose what to make ourselves conscious of. So I decided to come up with a new magic because, seems to me, that old magic, of physical determinism, has outstayed its welcome.

It's had a long run. It first appears nearly three thousand years ago in Greece, as atomism. The universe, including us, consists of nothing but atoms bouncing around in space. Everything is the result of how those atoms collide with one another and combine.

Fortunately, nearly a thousand years later, Christianity saved us from that. Then, another thousand years later, came modern science. At first, all was light. But reason soon turned the universe into a clockwork "mechanism," and in that mechanistic universe, everything was determined in advance by the laws of mechanics. Once again we lost our freedom to choose what to be conscious of, it was all decided for us. Physical determinism was back again! Who will save us from it this time?

All along, the ancient magics of astrology and alchemy had been suppressed by Christianity. Then, in Italy, with the Renaissance, those magics sprang back to life, to challenge both Christianity and Newton and a couple of centuries later to inspire the Liberty, Equality and Brotherhood of the French Revolution. But the horror of the Revolution, and how it tore communities apart, made magic once again turn from seeming white to seeming very black. Ancient magic and witchcraft became what we now call "black magic."

Old history. But notice this. It's through old magics like these that people down the ages came up with the meanings that mattered most to them, and that still get passed down to us in the words we use, like destiny and fate. Magics are like furnaces forging new meanings. Without magics and all the meanings they forge we'd still be hunter gatherers on the African savannah. So magics matter.

BREAK. Magics as where meaning in life comes from.

Now, let's bring the story up-to-date. Where do today's primary meanings come from?

After the French Revolution the most pressing problem was how to prevent such horror from ever happening again. A Frenchman, August Comte, came up with a solution, a way to establish facts everyone would have to agree to. His solution was the combination of scientific experiment, and reductionism. With scientific experiment, facts you arrived at everyone else would arrive at too, once they carried out the same experiment. With reductionism you accounted for your facts in terms of ever

more fundamental scientific principles. Anything to do with human nature, you had to account for in terms of biology, anything to do with biology you had to account for in terms of chemistry, which then had to be accounted for in terms of physics and maths. Comte called this Positivism. He offered it as a new white magic. And it was very successful. Very quickly Positivism became the basis for modern science. Today's science is still referred to as Positivist science.

But inside this new way of practicing science was a seed of that old dark magic. Reductionism means that every explanation for why things happened, every theory about them, was to be reduced, ultimately, to physics and mathematics. Then we're back at physical determinism--everything in the universe, including us, must happen according to the laws of physics. Once again someone's come up with a magic telling us we can't arrive at our decisions consciously. We can't consciously choose what to be conscious of, so as to enrich our future conscious experiences. That's my goal, remember?

I doubt you've ever heard of any of this. And you may think it has nothing to do with you, you're free to think whatever you like. But almost certainly you've fallen under the spell of this dark magic. By believing in a key theory by one of Comte's followers you've almost certainly come to believe you are yourself purely physical. You've fallen for that same old magic of physical determinism that denies you free will and conscious choice.

That follower of Comte was Charles Darwin. He was so impressed by Comte's ideas he assumed even evolution must have a reductionist explanation. The explanation he came up with he called "natural selection." It may have the word "natural" in it, but the mechanism he proposed is actually purely mechanical, physical. At first, a theory giving humans a purely physical origin seemed too shocking to publish, but within just 20 years the scientific community had so accepted Comte's ideas that Darwin felt able to publish his "Origin of Species." Through it he convinced the world of science that even we humans are a product of purely physical processes, so we must be purely physical too. Ever since, Darwin's theory has made scientists feel justified in applying reductionism to every aspect of human nature. Almost single-handedly, Charles Darwin has made almost all of us acolytes of that old dark magic—because we're the product of a purely physical process, everything we think and do, can only be determined for us ahead of time by the laws of physics.

Positivism promised us continual scientific progress. But standing in the way of that progress was the established Church of England, with its authority based on God as Creator. So, for the sake of progress, God as Creator had to go. Once the scientific community embraced Darwin's reductionist account of creation, down went the Church. Darwin had proved that whatever wasn't physical, like Gods and angels, wasn't real. But that meant anything else that wasn't physical--consciousness, creativity and free will--couldn't be real either. And that message, that we'd evolved through purely physical processes, with the implication that we too were purely physical, came to be taught as part of school science. Physical determinism was back with a vengeance. It's still with us.

BREAK. Darwinism as preaching physical determinism, Darwinists as acolytes.

Why is that dark magic still so influential? What keeps it alive? Some very influential people just seem to like it. They like how it feels. Take the college textbook, "Consciousness: An Introduction." Of having free will the author Susan Blackmore says "I long ago set about changing the experience. I now have no feeling of acting with free will, although the feeling took many years to ebb away." Now she wants to give up all conscious experience: "As for giving up the sense of an inner conscious self altogether—this is

very much harder. I just keep on seeming to exist. But though I cannot prove it, I think it is true that I don't." She's making physical determinism her meaning in life.

Here's another book on consciousness, *Breaking the Free Will Illusion for the Betterment of Mankind*. This author also seems to enjoy feeling he's determined, and thinks we all would. "I didn't write this book of my own free will," he says. "The need and desire to write this book to disseminate the information within to others was one that came about through long processes that stem from events I had no control over." And of us, readers of his book, "Of course whether (or not) people listen to the reasoning in this book won't be freely chosen. Rather it will be determined..." So he had no conscious choice in what he wrote and his readers have no conscious choice but to read it.

Here's the eminent American philosopher Daniel Dennett, author of several influential books on consciousness. "Our minds are just what our brains non-miraculously do.... We are each made of mindless robots and nothing else, no non-physical, non-robotic ingredients at all." He seems entirely comfortable with this magical belief, and has devoted his career to promoting it.

Are they right? Do they have science and reason on their side? Popularizers promoting this dark magic all base their belief on science. According to Brian Green, general relativity means there is no universal present moment, and the future, including everything we're about to think and do, already exists. For Massimo Pigliucci, supposed expert on telling real science from pseudoscience, because consciousness isn't physical it's purely hypothetical, no more real than a triangle in a geometrical proof. Sean Carroll, a spokesperson for physics, says our experience of having free will is simply how atomic determinism emerges at the human scale, how it "feels." That we're determined in everything we think and do, he assures us, is a scientific fact.

How does it feel to be a physicalist, like this? Let's take Sam Harris as an example. He wrote a book titled "Free Will" in which he happily concludes that "the facts tell us that free will is an illusion." So he believes he doesn't have free will, what he's conscious of will have been determined by physics. There's no way he could make himself conscious of something to enrich his future conscious experiences. Anyway, since for him consciousness isn't physical, there's no way for his brain to know anything about it, about his conscious experience, such as whether it feels richer at some times than others. He believes we don't even have a self, to consider these issues, all we have is a succession of experiences in the present moment. "All we have is now—and now—and now" he says in a youtube video (Search youtube.com for "Why you're wasting your life away.")

To me, physicalism is like a psychosis. Look at what he's saying. First, everything he's telling us is as physically determined as a shower of pebbles tumbling off a cliff—there can be no conscious judgment behind it. Second, since communication can pass only from the brain to consciousness, not from consciousness back to the brain, there's no way the brain can know what consciousness is like. So what does he think he's doing, standing at a lectern telling us about free will and consciousness?

This seems to me a very dark magic. Yet it's heavily promoted. Is that effective? A recent Scientific American survey found almost half of readers responding--49%--believing we don't have free will. By now, a few years later, probably a majority believe everything we think and do is determined according to the laws of physics. The dark magic of determinism is widespread and growing. You may not be aware of it, but it's spreading like a parasite throughout our universities.

BREAK. How influential is physical determinism in our lives today?

Eventually even the most powerful magic wears out. A magic that solves one problem at one moment in time at another time becomes a problem that you need another magic to undo. That's what I see happening to Comte's Positivism. A white magic that solved a problem two centuries ago, enforcing agreement on facts, has become a problem for us to solve with another magic today.

Where can we go, to find inspiration for a new magic?

While the horrors of the French Revolution were discrediting the ancient magics of astrology and alchemy, the first account of evolution was published in England by Erasmus Darwin, grandfather of Charles Darwin. In it, Erasmus suggested several ways living creatures could evolve. Three of them were later championed and published by others to become the main theories of evolution we know today, including the natural selection of his grandson Charles. But one of his suggestions has remained unexploited. We've only recently been able to make sense of it.

This is how he puts it, "... in the great length of time, since the earth began to exist...would it be too bold to imagine, that;"

1. all warm-blooded animals have arisen from one living filament
2. possessing the faculty of continuing to improve by its own inherent activity,
3. delivering down those improvements by generation to its posterity.

In other words could there be a "living filament," able to direct its own evolution, and to pass the characteristics it evolved down to future generations to contribute to the creation of a new species.

Today his "living filament" seems an astonishingly accurate prediction of something that wouldn't be discovered for another two centuries, the genome. By "the genome" we mean all a creature's genes, in us all the information needed to grow a human being from a single cell into an adult. A microbe's genome is a single molecule, a single "filament," made up of a string of DNA subunits. But as living creatures evolved and became more complicated the genome grew too, from just a few hundred genes to tens of thousands. In us it comes divided into a few dozen much longer DNA molecules, lodged in the nucleus of every cell in our bodies. It's by the genes making up their genomes that we tell species apart, that's how we define them.

Notice what Erasmus says about the genome. He calls it a filament, and that's true. It is a filament or a collection of filaments, long linear molecules. And as he said, it is alive, it's part of a living cell and it reproduces each time a cell divides. And, as he said, improvements built into it, in the form of changes to genes, will get passed down through successive generations, to eventually define new species. So all this is literally true of the genome. But note what else he says—the genome itself can "improve," and it can do so "through its own inherent activity." In other words, the genome can direct its own evolution, it can all by itself be what makes species evolves. Genomes could be what drives evolution.

What does this have to do with our magic? Remember the four principles I've already proposed? What's most precious in our lives is conscious experience. We can enrich our future conscious experiences by what we consciously choose to make ourselves conscious of today. Doing so will involve managing meanings. Most of our meanings and what's involved in managing meanings, such as consciousness and

creativity, must lie in how we evolved. Erasmus Darwin's fourth great insight may be the theory of evolution we need to understand how those meanings could have evolved.

In the following video on youtube.com: The Red Queen Theory of Everything, I make Erasmus's living filament idea the basis for my new magic.

VIDEO: RED QUEEN. Erasmus's idea made the basis of a new magic.

I know this may not make much sense at first. But here's some of the logic behind it. What we know, above all, about ourselves, is that we can be conscious and creative. That tells us something not only about us but about the World we live in. It tells us the World we live in is such that consciousness and creativity can exist in it--if consciousness and creativity can exist in us they can exist elsewhere in the World too. If so, they could exist in the genome, too. Otherwise where do we get them from? We don't make ourselves conscious and creative. We don't know how, it's just something that happens to us. That suggests that the genome already has something corresponding to our consciousness, our being creative, our having free will, that it passes on to us. That's where we get them from, we get them from whatever they correspond to in the genome.

Where else in the universe could we have got them from? There is nowhere else.

Looking at evolution this way, what's really important about it isn't what happened to us, it's what happened to the genome. First the genome has to evolve, to become intelligent, conscious and creative. Only then could it create us, in the process embedding in us some of its own talents, what in us we experience as our minds.

And our meanings? What does logic say about them? That they originated as parts of the genome's own wisdom that it built into us for us to think with, like Lego blocks an adult gives to a child for it to play at constructing something.

If the world really is like that, then there are two kinds of processes active in it: physical processes acting on matter, and evolutionary processes acting on living creatures. Then, what about thinking? If a thought isn't something physical involving physical forces, it must involve the only other kind of process there is in this world, something to do with evolution. What that suggests is, thinking is thoughts evolving into one another. And what is consciousness? It could be an experience automatically conjured up when thoughts evolve into one another--as our thoughts evolve into each other we experience that as consciousness. And because it isn't a physical process, consciousness needn't be determined by laws of physics. Then both we, and the genome, can be genuinely creative, can have free will, can choose what to think about today for the sake of what we want to be conscious of tomorrow.

That's the worldview of my new magic. It's a new plan for how the world is put together.

What else does this new magic suggest? If thinking is an evolutionary process, what does that suggest about how species of living creatures evolve? What's going to happen when the genome thinks? When we think--when we remember something for example--we make changes to our brain cells, later from those same cells we can recall the memory back. Conscious experiences can read themselves into physical matter--brain chemistry--and those physical changes can be read back into consciousness. We do it all the time. Suppose something like that is true of the genome--when it thinks it makes changes to its "brain." But its brain is the genes it consists of, and genes are what define a species. So logically,

merely by thinking the genome can make changes to the genes it corresponds to, bringing a new species into existence.

I know at first this seems implausible. Mere thinking can drive chemical changes? But that does seem to be how our thinking works, we can deliberately, consciously, think memories--think chemical changes--into our brain cells. If that process can take place in us, there's no logical reason why it can't take place in the genome. Imagine the genome bringing to mind, recalling, the genes that make up a species, re-thinking them, and storing them back as changed genes, then we've solved an old mystery—what is a species? In this universe species turn out to be, in essence, thoughts in the minds of genomes.

A mere molecule supporting a mind? Well, our brains are made of molecules, and they support minds. So the genome having a mind isn't logically impossible. I'll have more to say about that in the next talk. For now, let's just say, it logically possible.

We're used to making a distinction between matter and mind. In this new worldview that distinction remains. But now there's a new kind of mind, the mind of the genome. Which genome? This one, or that one? I'm going to suggest to you, it's all of them working together, they can read each other's "minds" and arrive at decisions together, at every level from the nucleus of a single cell, up through an organism's various tissues, to the organism itself, to species and all the way up to entire Kingdoms of life. All of life, at every level, is maintained by the intelligences of genomes, working together.

This may seem crazy at first. But the living world is hard to explain otherwise. As a whale grows from an infant to an adult 100 feet long it stays in perfect proportion. We know the information needed to do that exists as the genome in every cell of that whale's body. But how can all those genomes separately direct the growth of an entire living creatures, over distances of many feet? What else but a community of genomes? What else could maintain a whales' two flippers in perfect symmetry? And they must, otherwise if those flippers grew at different rates we'd see young whales swimming in circles, and we don't. Here's another puzzle: Mammals and crustaceans come from very different branches in the tree of life, yet they developed very similar eyes. How could that happen unless information could be exchanged between intelligences belonging to those very different branches of the tree of life? How the living world looks, it's as if it's directed by a community of intelligence operating at every level from the individual cell up to entire living Kingdoms.

So in this new natural philosophy, there are three kinds of thing, those we're already familiar with, matter and individual creatures' minds, and the minds supporting the collective intelligences of genomes.

This may seem like a hodge podge of ideas, put together at random. But together they provide us with a coherent account of everything we experience. Here's a quick summary--the purely physical world, that remains as science tells us it is. But the evolved world is very different. First the genome evolved to become conscious and creative, then it created species of living creatures in its own image. Into each of us it built consciousness, creativity, memory, intuition and anticipation. It also built into each of us a framework of meanings, meanings that make up the rails consciousness runs on. Consciousness consists of experiences generated by thoughts as they evolve into one another. Just as our thoughts evolve in our minds, species of living creatures are ideas that evolve in the mind of the genome.

Notice, what's new here is just what physical science has the most difficulty accounting for. It's much easier to discuss in terms of the new magic. And just having a way to talk about something may be enough, it may in reality be all it means to "understand" something. Science may give us greater understanding of the physical world, these new ideas may give us greater understanding of the living world, including ourselves.

Our new magic has conjured up a new player. Where science tells us there's only one kind of thing in the world, things made purely of physical matter, the study of evolution has revealed at least two more, genomes created by the process of evolution, and the wonderful creatures they dream up as their vehicles. How wonderful they are, and we are, we explore in the third talk. It is by acknowledging how wonderful we are that we will find meaning in life, in talk number four.

TALK THREE

How wonderful we are

In these talks I am acting as the magician. With one hand I animate a puppet that represents the self. With the other I set the stage on which the puppet is to work out its destiny. Which of these two must my magic transform? The puppet? Ourselves? No. It's the world we find ourselves living in today, defined by determinism, that we must transform.

What is it in this world that most needs transforming? What most needs transforming is how we think we evolved, and what kind of creature that will have made us. Are we a creature capable of making our future conscious experiences wonderful?

Most of us learned at school that we evolved through the mechanism of evolution, called "natural selection" discovered by Charles Darwin. Later, to provide the variations Darwin's natural selection needed to do its work, genetic mutation got added. The combination was called "the modern synthesis."

Let's start with genetic mutation. Because chromosomes are enormously long molecules they're constantly breaking and suffering random damage. Chromosomes are the blueprints for how we're made, so damage to them will nearly always be harmful. As, with each new generation, new damage accumulates, creatures become less and less fit and the species quickly goes extinct.

That's the logic of genetic mutation—damage to genes accumulating generation by generation rapidly lead to extinction.

That's the logic. But I left out the magic. Here it is. It goes by two names. One is "beneficial mutations." It's possible that when you damage a very complicated blueprint, at random, the results will occasionally be an improvement. What scientific evidence is there for that? "It may reasonably be supposed to happen," said the theory's author. That's all the proof there is for them. In other words, it's magic. It's magic introduced to make the theory work. Introduce this magic, then set against all those harmful mutations, you'll expect every now and again there'll be a beneficial mutation.

By itself that won't make any difference, there'll still be a great preponderance of harmful genes and the once again the species will rapidly go extinct. To change that preponderance of harmful genes into a preponderance of beneficial genes you need another piece of magic, a process that's 100% efficient at eliminating the harmful genes, while leaving behind all those that are beneficial. According to science, that process is Darwin's natural selection.

Unfortunately natural selection is only about 1% efficient. Harmful genes will remain in the majority and the species will go extinct, just 1% slower.

Obviously, without those two magical principles--some mutations being beneficial, and natural selection being 100% efficient--the theory doesn't work. But that's OK, we're employing magical principles too.

But the problem with Darwinism is, even if it did work, we wouldn't like the kinds of creatures it made us. Here's the logic behind natural selection. In each generation the same number of creatures will survive to mate, all the rest having died off. So the genes getting passed on to future generation will be those that help the creatures carrying them survive, and those are going to be genes for murdering one's fellow creatures, for rape of potential mates, and infanticide of other's young. Logic tell us it's

those genes that will define future generations. But that's just not how living creatures are. Even wolves aren't like that, they collaborate in hunting and tenderly care for each others' cubs. Living creatures just don't show signs of having been created according to the "just so story" of the modern synthesis. We just don't seem to be what you'd get if we evolved according to science's purely physical and deterministic theory.

I know, for many of you, once you realized I didn't believe in Darwinism, you'd have concluded I'm just a crackpot. Well, I may be a crackpot, but not just because I reject the modern synthesis. Many of the world's top evolutionists are starting to question it. Listen to this: "Below, you will find a list of researchers and authors who have, in one way or another, expressed their concerns regarding natural selection's scope and who believe that other mechanisms are essential for a comprehensive understanding of evolutionary processes." Top of that list of authors and researchers are three of the world's most renowned evolutionists: Denis Noble, James Shapiro, and Eva Jablonka. They're joined by over 50 others, all respected scientists. Of genetic mutation the site says "The DNA record does not support the assertion that small random mutations are the main source of new and useful variations." Bang! There goes the modern synthesis!

That website is called "The Third Way of Evolution," referring to something other than the modern synthesis and Creationism. So what is this third way? They've no idea. They all agree on doubting natural selection and genetic mutation, but they've no idea what to replace it with.

What we need in place of today's scientific theory is a theory that results in creatures being as wonderful as living creatures really are. That's what the rest of today's talk will be about. Once we have a theory like that we can believe that we too are wonderful. Then we can work at making our future conscious experiences wonderful too.

If our best modern minds can't come up with such a theory, let's turn to one of the greatest minds of all time, a giant of the Italian Renaissance, born in Pisa, Italy, shortly after the passing of the great Leonardo. Galileo. Here's a brief extract from a recent conversation between Galileo and Charles Darwin, up in Heaven.

VIDEO: DARWIN VS GALILEO.

In the spirit of the Renaissance let's take inspiration from Galileo, ask hard question and apply cold logic. What questions would he ask?

Those chromosome, they're just long molecules. Could molecules like that support a mind? Well, I imagine Galileo saying, a human brain is made just of molecules, yet it supports a mind. The genome isn't as complex as our brains but it's been evolving for a thousand times as long as our brains took to become so complex, so it's hard to set a limit to how complex it can have become, and what kind of mind it might support.

Are the genome's molecules long enough to support a mind? Well, they are extremely long. If you took the few dozen chromosomes that make up my genome and joined them up end to end, they'd make a molecule longer than I am tall. Think of that, a molecule 6 foot long. That's hard to get one's mind around, even a mind like Galileo's. Here's how I think he'd tackle that. Our genes are written out in units of molecular code acting like letters of an alphabet. Now imagine translating the letters in my 6 foot of genome into beads, one bead for each letter, and stringing them into a necklace of beads strung eight to

an inch—that's a pretty tightly strung necklace. In that form the phrase "have a nice day" would take about four inches of the necklace. The US constitution would take about 100 yards, what a trained athlete can travel in 10 seconds. By comparison my genome would stretch 6000 miles, from New York to Tokyo in Japan, 14 hours travel by air. It'd be hard even for Galileo to imagine any limit to what that could code for.

How does the genome store information? We know how it codes for each of the 20,000 proteins in our bodies. You can translate it, three letters at a time, into the corresponding 20 amino acids, that join together and then fold up to become proteins. Three molecular units of code at a time coding for each of 20 amino acids, that makes mathematical sense. But could a process like that code for something like consciousness? Could any molecule, any sequence of molecular letters, code for consciousness?

Well, let's look at what we know genomes can code for. In a web-spinning spider, for example. That spider knows how to drop down on a line of silk but to get back up it knows it has to climb back up that line. It doesn't need to be taught that, it comes into the world knowing about gravity. It also knows about space—it has to locate point all lying in a single plane to place attachments points for its web. It comes knowing how to spin its species distinctive web, and how to hide, and then rush out when it detects movements in the web indicating it has trapped some prey, and how to inject it with poison and immobilize it with a silk wrapping. It knows how to recognize members of its opposite sex, and what to do to mate and have its eggs hatch. All this information must come coded for in its genome, it has no other source of information. So the spider comes into the world knowing a great deal about the world that it's hard to imagine being coded for the same way proteins are.

How is information like that coded for in the genome? Science doesn't yet know. Could the genome be a hologram? You can record information on a single sheet of film so as you walk past it you see what looks like a continuous video. Could the genome be a one-dimensional hologram, like that, with all kinds of messages overlapping along it? Probably not, but something like that has to be true for living creatures to be as wonderful as they are. All the ways they're wonderful when they're alive come already written on their genomes.

Let's get some idea how much information the genome codes for. Let's look at just how the fur lies on the head of a cat. Cats need unobstructed vision both into the distance to hunt and close up to eat their prey. So that their vision is unobstructed, hairs around their eyes are short and lie flat against the skin, all pointing away from each eye. Hairs thin out in front of the ears, are absent inside the ear, are short and lie flat on the back. On the cat's nose, hairs are absent and they're short around the mouth, except for a few long whiskers.

So the cat genome codes precisely for the length, lie, density, and stiffness of hairs all over the cat's face. Now bear in mind that this precision and complexity of form applies to everything about the cat's body—its eyes, its sense of smell and taste, its heart, lungs, kidneys, liver, digestive enzymes, claw production, muscle attachments to bones and so on. That could be more information than you'd need to run the US army.

Finally, time. What controls how an animal grows from a single cell to the full-size adult? An adult whale can be as much as 100 feet in length. At school I was told that growth was directed by a succession of chemical gradients, each one inducing the next. But just by swimming all the time, a whale would be continuously stirring up those chemical gradients, they wouldn't last very long. So for want of any other

explanation I assume it is the genome that somehow manages how it grows throughout its tissues, over distances of 100 feet in length and 30 feet from the tip of one flipper to the tip of the other, and all of it precisely in accordance with a tight schedule. So the genome can manage time as well.

And how things work? Take a whale's heart, it can be as big as a small car, the valves in it can be as big as garbage-can lids, it can pump half a bathtub-full of blood at a time into an aorta that's a foot across. Now, bear in mind, all that heavy equipment had to grow through every stage involved in growing from just a few cells to that enormous size, without stopping for a second, or the whale would die! What kind of specs would you write into a genome for engineering skill like that! You may not know, but those specs are there.

Finally, take us. To get an idea how complicated we are, compare us to a robot. To control a robot you depend on a succession of computer languages, each one building on the one before. Only with that stack of programming languages in place can you say to the robot "grasp the green globe and drop it in the black box." Just writing language to get that far has taken scientists decades of intense study.

Yet a mother can tell her child "Pick up all your toys and drop them in the box behind you" and he'll understand. That gives us some idea of the complexity of programming that each of us comes with, built into us by the genome. Just being able to pick something up and put it down is a miracle. Yet we can do so much more. The engineering built into our genome is way more awesome that we can comprehend.

Now think of other talents we come with—we can arrive at decisions about what to do. And we experience feelings. We all become capable of experiencing orgasm, so even that feeling has to be somehow written in the genome.

Creation of a creature like us is a staggering achievement. We are wonderful, each of us, for being such a creature, and the genome is wonderful for being able to create such creatures. That is the truth that only today can we appreciate, that all philosophies must from now on take into account. Only today can we appreciate the brilliance of Erasmus Darwin's proposal involving a "living filament" over two centuries ago.

So we are wonderful. But do we feel wonderful? If not, why not?

Galileo can inspire me to follow the path of clear cold reason wherever it leads us. But he in turn was inspired by Ancient Roman humanism, to see human nature as magnificent, full of wonderful possibilities. I think, if we want, by what we make ourselves think today, to enrich our future conscious experiences, in ways that will seem wonderful, we too need to be inspired to believe human nature can be magnificent today. Let me say that again, if we want our future conscious experiences to be magnificent, as the great figures of the Renaissance believed they could make theirs, we must begin by believing today that human nature once more appearing magnificent is possible.

Where can we turn for our inspiration? To the magnificent book of life, as written all around us by the genome. Let's look for a measure of how wonderful we are in how wonderful the genome's' other creations are.

For a sample of this magnificence let's turn to insects. A lot of the machinery that makes an insect work it carries as part of its skin. That's the hard rigid skeleton that most of its muscles are attached to and pull on. That skeleton has holes in it for air to diffuse through a network of passages throughout its

tissues. Skin covers its antennae and frames the lenses for its eyes. Yet some insects every so often shed that skin. Then they regrow it, they regrow their skeleton, along with new attachments for muscles, new holes for circulating air, coverings for its antennae and the lenses covering its eyes, all its bristles and hairs, even its wings and attachments for the muscles that power them.

At first the new skin is soft and the insect can't move or breathe but in a few hours the new skin hardens and works just like the old skin. That's like a swiss army knife every so often shedding all its tools and blades and growing a new set, larger but otherwise exactly the same. It's hugely wonderful.

Now let's examine some of the ingenious machinery behind these wonders. In some insects a caterpillar transforms into a larva, which then transforms into an adult with fully-formed legs and wings. Buried in the larva are small flat disks that carry, in a series of concentric circles, all the information needed to form a leg or a wing. When they're needed those disks move to where they belong and pull out from the center to one side to form all a leg or a wing's segments. That's like a vanilla ice cream coming as a small disk like a dime with a brown center and a white surround, you'd make the ice cream by pulling the brown center out to become a cone, followed by the white surround expanding to become the ice cream. It's a wonderful piece of engineering. Now, bear in mind we're full of engineering as wonderful as that. As bodies, we are wonderful.

Like those flat disks in larvae, this logic has all along been implicit in the discovery that we evolved, but because it wouldn't conform to a reductionist explanation it's lain untapped in favor of purely physical and chemical theories. To take advantage of the discovery we evolved, we have to start over from scratch.

Compared to our wonderful bodies, which have evolved over hundreds of millions of years, our consciousness evolved only recently, over the past few thousand years. It's still very primitive. It's like those larval disks, it holds wonderful potential but it still needs to be pulled out and expanded to be fully realized. In our case, we don't know what such an expanded consciousness would feel like. We won't know until we achieve it. And to achieve that we first have to believe ourselves capable of having such enriched conscious experiences. To believe that we first have to believe evolution could have made us capable of experiencing them. And to do that we have to banish the scientific origin theory that tells us we're the product of a crude physical process, and there's nothing wonderful about us at all.

Well, are we wonderful, at all? Compared to insects, that look so marvelous from the outside we don't look very wonderful. Besides a lot of skin and a little hair there's not much to see from the outside except our eyes. So let's see how wonderful they are, and assume that everything else about us is as wonderful as that. What we want to find out is, are we as wonderfully equipped as we'll need to be to make our conscious experiences wonderful too?

How wonderful is the eye? Mostly it's filled with a kind of jelly and light goes straight through it. For light to form an image at the back of an eye it gets bent twice, once at the cornea at the front of the eye, and again by a lens inside the eye. Amazingly, although all this is living tissue it's transparent. That's amazing for a start. Then, although images made by a glass lens have colored fringes, because the lens in the eye grows more dense in the center the image it makes has no fringes, it's sharper. The lens grows as we age, but as it grows it becomes less dense in the center so the image it forms remains sharp. That's also amazing. The body constantly replaces most of the chemicals it consists of and the cornea, which does

most of the bending of light, gets replaced every few days yet, again, our vision stays sharp. This is all wonderful.

But something even more amazing involves fine muscles that run from the rim of the lens to the inside surface of the eye. By the tightening and relaxing of these muscles the lens becomes more bunched up or flatter, changing how close or far away the lens focuses. And what I find most wonderful of all is, we have conscious control of these muscles. As we consciously shift our attention from one object to another, these muscles tighten or relax, bringing what we're paying attention to into sharp focus. Something physical in our bodies, these fine muscles, all the time track and respond to what we consciously make ourselves aware of. Our physical bodies have evolved to respond to how we make ourselves aware of things. The processes of evolution know about consciousness, they make us able to be conscious, and they've equipped us with bodies responsive to what we make ourselves conscious of. Free will results from this fusion of body and mind.

This response of the muscles around the lens of the eye to our conscious attention illustrates another principle of the new wisdom we've already hinted at—that the processes of evolution “knows about” consciousness. We see it in how these muscles respond as we consciously choose what to look at, moment by moment, focusing close, then focusing at a distance.

Above all, we see it in how wonderful is the process that created us, in how creative evolution has been over billions of years. Nothing could be more creative than the evolution of new kinds of living creatures, for example in a few million years a creature like a cow evolving into an ocean-going whale.

Experiencing this is as simple as entering a garden and meditating on a plant, how it grows, but also knowing that the leaves it spreads to catch sunlight are filled with chloroplasts carrying out strings of elaborate processes to turn that energy into chemical energy, for further growth. Read textbooks on nature. I have three textbooks at home on botany, three on insects, two on birds. Watch a bird sitting on a telephone wire, suddenly it flips around and is facing the other way. But it happens faster than the eye can see. Imagine what it must take for that to happen, what muscles must be involved. Is it using its wings to swing itself around? It happens faster than our eyes can take in. We are as wonderful, as nature made us, as these creatures are. To embark on enriching our future conscious experiences we must feel that wonderfulness, and want to make it true of our consciousness as well. For some of this feeling read William Paley's *Natural Theology*. He's another of the British enlightenment figures, who had not let scientific specialization cramp their intellect. Read the middle half, which is about the wonders of the human body.

Our body is the product of millions of years of evolution. Consciousness originated perhaps only a few hundred thousand years ago, perhaps with the evolution of mammals. Our consciousness is different from theirs, it runs on meanings, most of which are a function of language, a creation of just the past fifty thousand years. The recording of thinking in alphabetic writing, is just three thousand years old, only 30 times as long as a single human lifetime. The evolution of meaning and consciousness is just begun. Over the course of a single lifetime today the evolution of consciousness is likely to advance by another one thirtieth, or around 3 percent. How will we contribute to that?

Like some insects, we need to shed a skin we've grown up within, leave ourselves naked and unprotected for a while, while we grow a new skin. Next week I'll suggest how to do that. The puppet,

the self, must learn to take advantage of the new world revealed around it, transformed as it is by our appreciating the creative powers of the genome.

TALK FOUR

The new magic in practice

Recap: I started out looking for new meaning in life. I found it in the prospect of all our future conscious experiences, particularly as we could enrich them by what we choose to be conscious of today. At once I ran into physical determinism. Claiming to speak for modern science it said everything about us, now and in the future, was already determined by the laws of physics, it wasn't up to us to choose what to be conscious of. Turned out, physical determinism wasn't science at all, it was an ancient magic once again pretending to be science, this time claiming to account for how we evolved through a purely physical mechanism, Charles Darwin's "natural selection."

Wasn't there a corresponding ancient magic that opposed determinism, I asked myself, that we could reconnect with and update? I found that in Charles' grandfather's "living filament." In this living filament I found an entirely different picture of how the world is put together—including a new agent that drove evolution, that like us was intelligent, conscious and creative. The genome.

That's the magic. Now, finally, how to apply it to find meaning in life. This talk comes in three sections. First, consciousness and what we can expect of it. Second, an ancient wisdom tradition opposed to atomistic determinism that we can connect to and update with new wisdom. And where, in the processes of evolution, to find that new wisdom.

Let's start with consciousness. The first principle of my new magic is, what's most precious in life is our prospect of having many more future conscious experiences. To me that now seems obvious, but when it first occurred to me it felt unfamiliar. Why? Why wasn't it just part of everyday common sense? Haven't people always thought conscious experience was what matters most in life. Or are we different?

We are different. And in several ways. Here's one. For nearly two thousand years, people in the West got used to consciousness being a gift from the Christian God that didn't need any accounting for. For them, meaning in life came from their relationship with this God and whether, when they died, they'd qualify to enter heaven or hell. It was only a couple of centuries ago, when Christianity began to break down, that people started needing a new way of accounting for consciousness that didn't involve God.

What have philosophers said about this since then? Not as much as you might expect. Emmanuel Kant thought learning through science what the world is really like would make life meaningful. No, said Hegel, we can't find out from science what the world is really like. All we can do is keep coming up with ideas that help us feel at home in the world, each idea building on the one before. That's like my magics each getting invented in turn, slowly turning from white to black and being succeeded by another. Hegel called that the dialectic process.

Out of that came the phrase "self-conscious"—becoming aware of how we make reality real through our conscious experiences. That phrase—"self conscious"—entered the English language just 200 years ago. So maybe what we call consciousness today is really this self-consciousness, and it's only needed accounting for in the past couple of centuries.

Next, Karl Marx. What most powerfully shapes our self-consciousness, he said, isn't either science or what we think about, it's the work relationships that dominate our lives. Soul-destroying work in factories taught people to see themselves as replaceable cogs in huge machines, that became their reality. A century later, as people got used to office work, housewives would equip their conscious awareness with address books and diaries, clocks and calendars, and their own personal filing systems.

More recently, we've begun shaping our identities around our skill sets. We sign up with LinkedIn to market our skill set under "the brand of you." In Facebook we spruce up our non-work self with the fake-news tricks of public relations, to rack up armies of followers and appear popular. On Instagram we enhance our selfies using photo-retouching tricks once confined to advertising agencies. And next? Perhaps in the future there won't be any jobs, and we'll have to find our identity elsewhere. So much for Marx.

What else is there? As far as modern philosophy is concerned, that leaves only existentialism, and according to existentialism life doesn't have any meaning, we have to make it up for ourselves. So much for modern philosophy.

So, if meaning in life in terms of conscious experiences seems like something we should have been told about but weren't, the main reason is because nobody else knows what to tell us.

But there's another way we're different from how people used to be. Our lives are just longer. Human life used to be very precarious and your meaning lay mainly in your own survival and that of your children. But in just over the past century life has become much less precarious. The human lifespan has doubled. A child today soon takes for granted that he or she is likely to live for close to a century. It's one of the most dramatic changes in human history. So instead of mere survival, of ourselves and our families, we naturally seek some other way to make our longer lives feel worth living.

So we are different from generations before us. We're out in front. We're on our own. To find meaning in life we have to come up with it for ourselves.

For the first principle of my new magic I began by identifying meaning with "self-consciousness," with us being aware of our conscious experiences. But notice I settled not on just conscious experience, but on our remaining future conscious experiences. I got that from reading "Thinking, Fast and Slow" by Daniel Kahneman.

As a thought experiment Kahneman asks the reader to think about "your next vacation." It can be an enjoyable as you like, but:

At the end of the vacation, all pictures and videos will be destroyed. Furthermore, you will swallow a potion that will wipe out all your memories of the vacation.

How would this prospect affect your vacation plans, he asks. How much would you be willing to pay for it, relative to a normally memorable vacation?

At first, for me, having no memory of the vacation made it seem valueless, I'd pay nothing for such a vacation, no matter how enjoyable it promised to be. And I was not alone. "My impression from discussing it with people," Kahneman says, "is that the elimination of memories greatly reduces the value of the experience.... some people say that they would not bother to go at all."

But then I realized with a chill that, since I believe all consciousness ends when we die, the same could be said of life itself--after death I would have no memory of any conscious experiences I had while I was alive, just like taking that potion after the vacation. Did that make all of life's conscious experiences worthless? That was unacceptable. So I changed my answer. Yes, I would value that vacation not only for conscious experiences as I had them but also for the memories I would have each day of what I had enjoyed the day before and for my anticipation of what I'd do in the vacation days still to come. That could give meaning to the vacation, and ultimately to life itself.

But there's a crucial difference between the two situations. The vacation would be too short for one day's consciousness to have much impact on the next, but in the course of a long life what one chose to make oneself conscious of in each present moment could enrich all one's future moments. It was this prospect, of ever-more enriched future conscious experiences, that in the first talk I said could make life seem precious.

BREAK. Despite them eventually dying when we die, anticipating our future conscious experiences becoming ever-richer over time can give meaning to life as long as it lasts.

My second principle is, we can enrich those future conscious experiences by what we choose to make ourselves conscious of today. How would we do that? And what effect will doing it have on us, as we go along? What kind of person will we turn into?

How I see us doing that, is by managing our meanings, both those built into us by evolution, and those we pick up as we go along. Becoming aware of all these meanings will tell us what will give our future self most satisfaction. This will be purely individual, as our genomes are individual, different for each of us. And it's going to change as we go along, as our conscious experiences fail to satisfy us as much as we expected and we adjust our goals. The task facing each child will be to predict what will most satisfy his or her future selves, a task that will continue throughout life, with the payoff of ever-richer conscious experiences. And, incidentally, with the understanding that the consciousnesses of older people are that much richer for having become shaped so much more precisely, for so much longer.

That's all I have to say. No, really. I can't say any more, because we don't yet know how to manage meanings, or how to probe into the multitude of meanings embedded in us by evolution. But maybe practice will help. Imagine getting used to asking yourself, what could I think of today that would make next week more satisfying? Next year? My old age? Over time, as we help each other with this task, a practice will emerge.

What is this practice likely to do to us? I think it will lead to—and here I'm going to use an old fashioned word—integrity. But I'm going to give that word a new meaning. Instead of integrity meaning how consistent and reliable we seem to other people, I'll use it to mean how we'll come to seem to ourselves as we keep on choosing to make ourselves conscious in the present of what will give us greatest satisfaction in the future. That process of choosing what to be conscious so as to enrich our future experiences will become a form of training of the self.

Now I'm no model for anything, but here are two ways I try to shape my integrity. If a drama has someone being killed, or even someone drawing a weapon with intent to kill, I stop watching. I experience killing as entertainment as damaging to my sense of self. Another example: I shield my

attention from advertising, not because it's less important than what I'm looking at, but so my attentions maintains a coherent path, not every so often distracted something irrelevant.

This must sound to you a very stern notion of what life is about. But I think we owe it to ourselves to monitor what claims our attention, for how it could affect our future experiences. A Wall Street Journal/NBC News poll in 2019 found 82% of Americans thought social media waste our time compared to only 15% that they help us use our time well. That's almost six times as many people feeling social media are a waste of time as think social media are a good use of time. My new magic prompts you to ask yourself of any social media message, will it enrich my future conscious experiences?

Aren't our remaining conscious experiences worth making an investment in today?

BREAK.

As I mentioned earlier, there've all along been traditions of wisdom opposed to atomism and physical determinism, that our magic might help us connect us to. For example, our magic is very similar to how the Stoics in Ancient Rome thought about themselves and the world around them. Generally they were materialists, as we are, but they believed that running through all matter was an extra material substance that they referred to as the World Spirit. It was this World Spirit that made nature creative and kept it going, maintained order in it. They believed that inside each of us, this World Spirit had embedded a small share of its own wisdom, to guide and inspire us. For us to become modern Stoics all we need do is replace their World Spirit with the intelligence of the genome that, I'm saying, has embedded in each of us some of its wisdom, too. Where the Stoics believed in fate we believe in laws of physics, where they believed in reason we believe in being able to choose consciously what to be conscious of. "Live according to nature" they said, meaning according both to the laws of the universe, and to how those laws expressed themselves, in us, as reason and free will. This is very similar to belief in my new magic.

The Stoics didn't worship their World Spirit, it wasn't a religion,. It wasn't social, Stoics didn't meet to practice Stoicism. They might go to classes for instruction in stoicism, but being a Stoic seems to have been an individual thing, like us subscribing to a classical music station. And their goals were different. Life was much harsher then. Rather than caring about conscious experiences people cared more about coping with pain and loss. In the long run that wasn't enough, and Stoicism gave way to Christianity, with its more intense spirituality in this life and promise of eternal joy in the next.

What can we bring to stoicism? Joy through enriched consciousness. What can we gain from it? How to cope with loss. Acceptance of death as something not to be troubled about. A sharp distinction between what we have control over, that we can change, and what we don't have control that we must figure out how to accept. Above all, though, a model for how to develop "personal integrity," for whatever goal we have in mind, whether it's to do what's right and just on every occasion, which was their ideal, or to enrich future conscious experiences, as we want.

By personal integrity I mean personal habits of thinking that help you achieve your own goals. In our case that would mean, as a matter of habit choosing to be conscious today of what will enrich conscious experience tomorrow. This is the exact opposite of how most of us think and act today. We think, I do what I'm told to earn a living, to earn time for relaxing with whatever comes along--the internet, TV, shopping. If we decide to learn some new skill it's usually for work, not for some kind of personal

integrity. The Ancient Stoics believed the opposite. They believed you had to train yourself to make life the best it could be, to earn other people's respect, to do the right thing. They trained themselves strenuously to be the kind of person they wanted to be. In a consumer society it's hard to understand their need for this. But if we're serious about finding meaning in life we may need something of the same self discipline. Our goals aren't the same as theirs but we can learn from them how to train ourselves in personal integrity, to achieve our own goals.

You can get a sense of what that's like from the training manuals left us by the Stoic Epictetus. Or from the exercises the Roman Emperor Marcus Aurelius jotted down as a practice of self discipline. Here are extracts from the website dailystoic.com by Ryan Holiday and Stephen Hanselman.

Be tolerant with others and strict with yourself.

To live a good life learn to be indifferent to what makes no difference. Give small things no more attention than they deserve.

It's silly to try to escape other people's faults. They are inescapable. Just try to escape your own.

An impediment to action advances action. What stands in the way becomes the way.

If it's not right, don't do it. If it's not true, don't say it.

Waste no more time arguing what a good man should be. Be one.

It's all in how you perceive something. You're in control. You can dispense with misperception at will.

The best revenge is not to be like your enemy.

Just do the right thing. The rest doesn't matter.

Your mind will take the shape of what you frequently hold in thought, for the human spirit is colored by such impressions.

You shouldn't give circumstances the power to rouse anger, for they don't care at all.

Take a good hard look at people's ruling principle, especially of the wise, what they run away from & what they seek out.

Accept the things to which fate binds you and love the people with whom fate brings you together and do so with all your heart.

Dig deep within yourself, for there is a fountain of goodness ever ready to flow if you will keep digging.

For an eye-opening life-coach experience read the entire text. I recommend a new translation titled *The Emperor's Handbook*.

You weren't brought up with Greek and Roman scholars as your tutors, as this Stoic was, you weren't trained from an early age to be emperor of Rome. So you may think it's too late now for you to start developing your own personal integrity. Here's what our emperor said about that. "Think of yourself as dead. You have lived your life. Now take what's left and live it properly." What's left? And how can you live it properly? What does it mean in our place and time to live properly? Perhaps it means consciously

deciding what habits we'd need to enrich the conscious experiences left to us, and resolving to do and think what it takes to acquire those habits. Or, in my terms, developing personal integrity.

That's the end of the second of this talk's topics—finding us a solid home in one of the ancient traditions opposed to physical determinism. Stoicism has become popular again, with active societies and an international Stoicism week. We can think of ourselves as an offshoot of modern Stoicism, bringing to it a new natural philosophy.

BREAK. STOICISM AS A GUIDE TO LIVING

What do we bring to Stoicism to update it? First, with modern physics we can account for everything that's purely physical, such as the tides and weather, we no longer need a World Spirit for that. So we begin by limiting the reach of the World Spirit to the living world. And there in place of that World Spirit we put the conscious creative genome, as I described it in the previous three talks. It's this genome that brings creativity to the living world and maintains order in it, and embeds in each of us a small portion of its own wisdom. Through what we've discovered in the past 2000 years, we can update ancient stoicism, and arm it in its fight with physical determinism.

All along, I've been calling all this "magic." Really, it's more like a science, just one we haven't developed yet. I've had to imagine it for you. But by pointing to the possibility of it I help make it real. And that's all I can do for you now, point it out.

I see evolution's wisdom coming in three steps. First, wisdom available to us from the study of individual creatures. We can learn from bats how to move around in the dark, we can learn from spiders how to make pliable materials stronger than steel. From the creatures the genomes have dreamed up we can borrow a host of engineering tips. But ways to enrich consciousness, not so much..

Step two is what we can learn about genomes themselves. Why do almost all flowers that are pollinated by insects strike us as beautiful? Why do we find beauty in almost all the mating displays of male birds? Is there a single standard of beauty running through the entire tree of genome intelligence that the genomes built into us? Until science tells us otherwise, we can believe that in beauty in nature we share some of the genome's own delight in its creative powers. Perhaps, how the genomes express that delight in beauty, we can make part of our own nature. By doing this we could hugely enrich our conscious experience.

Step three will be taking what we learn about the genomes themselves, and deducing from it what must be true of the process of evolution itself, through which they evolved, the ultimate source of the creativity we see in nature. Perhaps we identify in the genomes a delight in joking, in play, in creating senses such as vision, far in advance of what creatures need for mere survival. Perhaps from these we find in the process of evolution a constant urge to know its surroundings. Perhaps the ancient myth about humanity having fallen in love with the Earth and set out on a quest to discover it and merge with it was all along an intuition about evolution. Genomes, and the creatures they'd create, were all along a way for evolution to reach out and know the purely physical world. Perhaps that's what makes us plan to visit other planets, we're fulfilling evolution's quest to know matter on other planets. Each of us, in our own ways, can learn to train our senses and our capabilities to the utmost, each day, knowing that's the most we can do, today, to equip ourselves for making our future conscious experiences wonderful.

So my magic is not really magic, nor a science. So is it really a religion? Are the genomes gods? No. As far as we know they exist only here on Earth, so they're not infinite. And they're not eternal, they've existed along with the Earth, for only a third as long as the universe has existed. And they certainly aren't infallible, 99% of all species of creatures have gone extinct, their genomes along with them. And, most of all, genomes' main uses for their creatures are for them to be vehicles carrying the genomes around, and to be food to sustain other genomes' creatures, to be fodder for each other. So genomes don't care about their creations individually. They don't want to save us. So, all in all, they're not anything like what we think gods should be.

Instead of being a science or a religion, what I've been talking about is what I like to call an "as if" theory. The way evolution looks, to me, it's "as if" my magic is true—that's an "as if" theory. Richard Dawkins meant something like that when he titled one of his books "The Selfish Gene." He didn't mean that genes really are selfish, he meant that the way evolution looks to him it's "as if" genes are selfish, competing with one another to appear in following generations. That's a "heuristic," a helpful way of thinking about something. That's what my magic is. I can't prove it's true because we don't know how consciousness could evolve, and it could be centuries before we find out. So within our own lifetimes we must make do with "as if" theories, and simply admit when we challenged that, for now, they're magic. OK?

To sum up, what these talks have been about is natural philosophy, asking how is the world put together? Christianity had one answer—God's responsible for everything, modern science came up with another—everything's determined by physical laws. I'm proposing a third—finding in the process of evolution a source of creativity responsible for first the genomes' creativity in making living creatures, and via the genome our own consciousness and creativity.

That's as abstract as could be. What does it translate into, personally? First, be assured we ourselves are wonderful because we're the product of a wonderful process, and we're as wonderful as that process itself, that we see demonstrated all around us in living creatures. Second, be assured we can choose what to be conscious of, what we used to call free will, making us if we wish able to enrich future conscious experience. Third, in place of passive consuming develop your own personal integrity. And fourth, oppose any kind of physical determinism, including today's purely physical mechanism of evolution. If you've any influence in the matter, see that Darwin's natural selection, along with its denial of human free will, is no longer welcome in the school science classroom.

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