

The Unique Properties of the Human Mind

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Announcer:

Greetings and welcome to Mind Matters News. Recently several contributors to our favorite book, *Minding the Brain*, appeared on the podcast, *Humanize*, with Wesley J. Smith. Their discussion covered a wide range of topics related to the mind-brain problem that we feel is right at home on our own podcast. So today we are re-airing their conversation in its entirety. Enjoy.

Wesley J. Smith:

Welcome to *Humanize* from Discovery Institute's Center on human exceptionalism, where human rights meet human responsibilities. We speak with writers, thinkers, and newsmakers on the controversial issues of human life and human thriving that impact our daily lives. We are exceptional as creatures in the cosmos, as equal members of the human family, and as ethical beings. *Humanize* explores some of the fundamental questions. How do we thrive? How do we live well and care for what we've inherited? How do we act responsibly with one another and in the wider world? And how do we conserve the good things of this life for the future? We matter, our actions matter. Let's get into it. I'm Wesley J. Smith, and this is *Humanize*.

What is the mind? Is it a pure product of raw brain activity or is it something other that can be experienced but not measured, observed but not fully defined? A new anthology *Minding the Brain*, explores this issue in depth, both from philosophical and scientific viewpoints of how and why mind and brain are distinct things. Today I'm happy to have three of the contributors all my Discovery Institute colleagues on to discuss this fascinating topic, editor and contributor, Brian R. Krouse is a software engineer with research interests in the philosophy of the mind, computer science, and neuroscience. He has a bachelor's degree in physics from Whitman College, a master's in computer science with a focus on artificial intelligence from Arizona State University and a master's in applied Mathematics with a focus on computational neuroscience from the University of Washington. Krouse formerly served as vice president of hosting for GoDaddy.

Editor and contributor Angus J. Menuge is chair of the philosophy department at Concordia University in Wisconsin. His books include *Agents Under Fire* and he was co-editor of the Blackwell Companion to Substance Dualism. He is past president of the Evangelical Philosophical Society. Contributor Michael R. Egnor MD is a professor of neurosurgery and pediatrics at State University of New York Stony Brook, has served as the director of pediatric neurosurgery and is an award-winning brain surgeon. All three are way smarter than me. Gentlemen, welcome to *Humanize*.

Brian Krouse:

Thank you, Wesley.

Angus Menuge:

Thanks for having us.

Michael Egnor:

Thank you.

Wesley J. Smith:

Let me just start something very basic. What interested each of you in the question of mind versus brain? Let's start with Angus.

Angus Menuge:

Yeah. For me, it was the area of my doctoral dissertation. I was interested in action theory, which is that area in the philosophy of mine where we try to understand why people do things. But as time went on, I came to think that even more fundamental than explaining action, is the very nature of the mind itself. And that's because it seems to have a unique set of properties that physical objects don't have. For example, there's something it's like to be you or me, but there's nothing it's like to be a table or a book. We are capable of thinking about things beyond ourselves even if we've got no physical relation to them.

So you can think about future or fictional objects. You have goals and purposes. And there's this amazing fact that everything physical seems to be decomposable into many parts and many processes, and yet we have this unified consciousness. It's extraordinary. The more we know about the brain, the more we know there's lots of different things going on in the brain when we perceive, and yet we have a unified perception of an object. And if you perceive many things, there's this one conscious field that includes them all. And so, I'm just fascinated by what's unique about the mind.

Wesley J. Smith:

Brian, what are your thoughts?

Brian Krouse:

So I approached this as someone that grew up under a materialistic perspective, materialist metaphysic. And I became a Christian, I'm a theist in my mid-20s. And this was the time that I actually also encountered some works by Discovery Institute, including the two of you, Wesley and Angus. And in this context, I started rethinking about the materialism in a lot of different contexts, but specifically I was interested in how could I think of the human person and the human mind in terms of materialism or how could I think about it otherwise?

And one route into that, that was where I took early, kind of in my mid-20s and early 30s, was I pursued a master's degree in artificial intelligence and studied it from this kind of computational angle and was thinking about these philosophical questions in the back of my mind. But I was really studying what these various ideas in computer science that are talking about synthetic intelligence algorithms from the AI perspective. And then after that master's, I actually entered another master's at University of Washington. It was in the applied Mathematics Department. But I was interested in that actually because they were studying a field called computational neuroscience. And so this actually captured my interest because it was looking at the brain from applying computational tools to understanding the signals in the brain and trying to say, how is it the brain captures information from its various sensory inputs and how does it use that and manipulate that as part of its processing?

And so both of these were fields that were bordering on this deeper philosophical question that I was interested in. But ultimately leading up to this book, I found very convincing, the kinds of arguments that Angus was talking about, which is there seems to be some kind of a category gap between physicalist explanations and mental phenomena. And so, one of the reasons why we approached this book the way we did is because I think all of us involved have had an interest in sort of the philosophical approaches to this question, but also how does this dovetail with various scientific empirical fields, whether it's computer science or neuroscience.

Wesley J. Smith:

And that gets us, I think, to Michael who actually does surgery on brains. Michael, I can imagine you've been involved with brains basically your whole career. So what was it that made you think also in terms of the mind?

Michael Egnor:

That's a great question, Wesley. I started out as a materialist, and I didn't start out as a Christian. I converted to Christianity about 25 years ago. And part of the reason for that was my experiences with the mind and the brain. When I started out, I was a chem major in college. I was an enthusiastic materialist, and I was fascinated by the mind-brain relationship as a medical student. And part of the reason I became a neurosurgeon was that I really thought that the secret to what makes us human, the secret to what we are is in the anatomy of the brain. And that it's kind of a youthful naivete that if I knew enough about the detailed anatomy of the brain, that I would understand something really fundamental about us, about who we are.

Wesley J. Smith:

About why we're exceptional, huh?

Michael Egnor:

Yeah, yeah, yeah, just keep cutting and keep looking more closely, and then you'll finally find out who we are. And the anatomy is beautiful and it is fascinating. But what I found once I started actually operating on people... And neurosurgeons have a unique perspective on this, even beyond neurologists and other people who are specialists in that we take people who we examine before they have surgery, then we operate on their brains in very intimate personal ways, and then we examine them after we do it. And you really get a full spectrum of what's going on before the surgery, what happens during the surgery, what happens after the surgery that no other medical specialty or scientist actually has.

For example, the vast majority of philosophers of the mind that give opinions on this, like the late Daniel Dennett and John Searle, there are all sorts of people out there who have very interesting ideas. None of them has ever seen a human brain, I would presume, certainly not in a living person. None of them has ever examined somebody before and after surgery to see what the differences were. So there was a lot of uninformed, esoteric opinions out there that don't have a grounding in reality, particularly.

What I found was that there are four things that the brain does, or five if you want to say. One of them is vegetative functions like control your heart rate and control your hormones and things like that. The brain makes you move, helps you move your arms and legs and things like that. The brain helps you feel things, so you can feel tactation or tactile sensation, or you can see and you can hear and so on. The brain provides you with emotions. So there's clearly emotional regions of the brain that when stimulated can stimulate emotions. And the brain gives you memories. There's no question that you can evoke memories by touching parts of the brain.

But there was a huge gap that I noticed decades ago in what the brain does. Notice I didn't say anything about reason. I didn't say anything about free will. That is there's no part of the brain that evokes mathematics or logic. There's no Shakespeare center of the brain where you stimulate it you think about Shakespeare, it doesn't happen. And free will, you can't invoke free will. That is you can't stimulate a part of the brain and make a person do something that they think is free. The person always knows the difference between what you evoke and what they actually choose.

And so I thought that was odd that it didn't fit my preconceived notions of how the brain worked, that only these four things was what the brain did. And then I found that other people had noticed the same thing. Wilder Penfield is probably the greatest scientist in the neurosurgical profession, back in the mid 20th century found exactly the same thing. And many other scientists have looked at these things, and most of them haven't been all that explicit about the implications. Penfield was pretty explicit. He was a dualist. He started out as a materialist. Most neuroscientists haven't gone so far as to embrace dualism, although their work clearly supports the dualist view. And that's a large part of our challenge.

Wesley J. Smith:

Let me interrupt you real quick because we're kind of getting into the substance.

Michael Egnor:

Sure.

Wesley J. Smith:

Dualism means that there is a difference between mind and brain. Is that right?

Michael Egnor:

Yes. And maybe I would leave it to Angus to give us a rigorous definition, but that dualism is the notion that there are two either substances or, I guess, sets of properties that are quite different.

Wesley J. Smith:

And from what I've read in the book, the book's point is to demonstrate that there's a non-materialistic aspect to the human mind. Is that right?

Brian Krouse:

Yes.

Michael Egnor:

Yes, yes.

Wesley J. Smith:

Okay. So Angus, that brings up a question to me. So you're saying the mind is immaterial. Does that mean it's the same thing as a religious question or are you approaching it as a philosophical question?

Angus Menuge:

Well, it's a question that will have perhaps religious implications. So that for example, to the extent that you can establish an immaterial mind, you can make a case for the soul, and then it may be possible to raise questions like life after death. And we've got a chapter there that explores near-death experiences that, in fact, provides scientific evidence that consciousness is possible when there is no detectable brain activity. The question in and of itself, I would say, is philosophical and scientific, but there's no denying that certain answers will have religious implications.

Wesley J. Smith:

But the book does not approach this as a religious text, correct?

Angus Menuge:

Yeah.

Wesley J. Smith:

It's not seeking to proselytize theism, for example?

Angus Menuge:

No, it's not. Really, what it wants to do overall is to provide scientists in various fields with an alternative to materialism as a paradigm for doing their work. So when they're looking at the brain or they're looking at artificial intelligence or anything, can they approach their discipline in a way that doesn't simply assume, from the get-go, that everything is fundamentally physical but is open to various alternatives? And as Mike suggested, there's different possibilities to dualism. There's substance dualism, there's Thomistic dualism, there's emergent dualism. Without getting into all of that, what we want to do is to simply say, look, if your research is reaching a dead end based on materialism, how about taking one of these other paradigms and seeing if that doesn't find you some better results? So we're trying to encourage scientists to not think that they have to be locked into one paradigm for their research.

Wesley J. Smith:

It strikes me. I'm a non-scientist obviously, but it seems to me that science sometimes straitjackets itself from exploring things that cannot be measured. And you're basically, Brian, I guess you're saying the mind itself cannot be measured. And what is the mind?

Brian Krouse:

Well, my default reaction is to turn to Angus for the technical philosophical definitions on these things but you'll hear my take. Well, when we're talking about the mind, I think usually you could think about from mental phenomena first. So we're aware of certain things through introspection that we as humans are capable of doing, which would include reasoning and thinking about, Angus was talking about this in the beginning, thinking about subjects or objects having intentionality, I suppose you'd call that.

And also there's a lot of talk in philosophy of mind circles about qualia, which is the sort of what it is likeness to, for example, when I look at the color red, you can describe the physical physics phenomena going on with the red wavelengths of light coming to my eyes, and then the biophysical phenomena of that signal traveling through my brain. But then all those things don't really account for the subjective experience of seeing red. So that's what they mean by qualia, and that applies to the other senses as well as sight. So you've got this collection of things we're familiar with from a subjective point of view that are called maybe mental phenomena.

Wesley J. Smith:

So let me interrupt. So I watched a documentary of The Beatles and Paul McCartney just starts strumming his guitar, and suddenly one of their famous songs comes out. That would be an example of creativity, which would be a mind issue, correct?

Brian Krouse:

Yeah, I would say that's definitely one of the things. For example, Bob Marks who's not here with us today, but was one of the other editors on the book, he focuses on human creativity as being a distinct aspect of the human mind and human person as a whole. That in the way of human creativity, this is something that he argues in principle computation is never going to be able to accomplish. So I would say yes, that is a part of the mind.

Wesley J. Smith:

Because I want people to get a conception here of what we're talking about. And that brings me to Michael, where I read your chapter, you said that... So let's do the Paul McCartney playing his guitar. If you were looking at his brain through your scientific methods, you could see the motor functioning parts of the brain firing when he is playing his guitar. Is that right?

Michael Egnor:

Yes, yes.

Wesley J. Smith:

But you could not see, in the brain, the part where he creates the song. Is that right?

Michael Egnor:

Yes, yes, yes. The way I look at the mind, at what mind is, I kind of take a kind of at least quasi Aristotelian view, that the soul is the fundamental entity here, and the soul in that view is just all of the activities that make us alive. So everything we do that reflects the fact that we're alive, put together is what we call the soul. So the soul is a bag of activities and the mind are certain ones of those activities. The ancients didn't really think in terms of the mind. They thought more in terms of the soul. So for example, my heartbeat is part of my soul, my pancreas working is part of my soul, my capacity for reason is part of my soul. All those are soul things, they're things that make me alive. The mind is that set of properties like perception and memory and emotion and reason. So it's a subset of the soul.

Wesley J. Smith:

But that's the part that you think, in this book all of you write, is immaterial as opposed to if I move my arm, that's a material function, right?

Michael Egnor:

The material aspects of the human soul are, number one, all the vegetative things. That is our brain controls our body's hormones, it controls our heart rate, it controls our breathing. All of those are very material. You can go in there and make a little lesion and your heart stops or you can't breathe. That's very, very material. In addition, we have powers of movement, powers of sensation like vision, powers of memory and powers of emotion that are also material. They come from the brain, there's no question about it. But there are powers of reason of abstract thought, and there are powers of free will that don't come from the brain. And that's been shown again and again and again from all different kinds of perspectives.

Wesley J. Smith:

In an elementary manner, how has it been shown not to come from the brain, real simple words?

Michael Egnor:

Sure. There are several experiments that point to that that I think are really fascinating. The first two viewpoints are that of Wilder Penfield. And Penfield asked a great question. He was probably one of the world's pioneers in understanding epilepsy. And he asked the question, why are there no intellectual seizures? That is epilepsy is the random firing of neurons in the brain. And I actually calculated just on the back of an envelope, there've been probably like a quarter of a billion seizures over the past couple of centuries that there's been neuroscience and there's not a single seizure ever reported, I've never seen one, Penfield never saw one, that involves abstract thought.

When people have seizures, they shake, they can go unconscious, but they shake, they have tingling, they can see flashes of light, they can have memories, they can have emotions, but they never think about calculus. They never think about reason or logic. There are no mathematics seizures. And Penfield asks the question, why not? If that comes from the brain, once in a while, a seizure would fire that off and you'd start doing one plus one is two, and you couldn't stop. No one ever does that. And Penfield said, the most reasonable explanation for that is that that doesn't come from the brain to begin with. That's not its origin.

The other thing that Penfield found, which is kind of a follow-up on this, is that he did a lot of awake brain surgery. And you can do this safely and without pain by giving local anesthetic in the scalp. The brain itself feels no pain, so you can work on the brain. He had to do it to map the patient's brains to treat epilepsy, but the patients were wide awake while he was mapping their brains, and he found that he could stimulate them to move by stimulating the brain. He could stimulate feelings like sensations, he could stimulate emotions and he could stimulate memories but he couldn't stimulate math. He couldn't find math, logic, Shakespeare, philosophy. None of that was anywhere in the brain. So he said, "So it doesn't come from the brain. The brain may serve as a conduit for it, but it doesn't originate there."

The third line of reasoning, which utterly fascinates me, and I think this has been neglected in the neuroscience field, is in split brain patients. Their brains are cut in half to help treat epilepsy, and it's pretty effective, and we still do the operation, been doing it for a hundred years as a specialty. And the two halves of the brain are not any longer connected, but people are unified as human beings. And there's been a series of experiments done by several researchers over the past maybe 40 years, where they take patients who've had the surgery, they present one image to one hemisphere of the brain simultaneously, another image to the other hemisphere of the brain, and they ask the patients to compare the two images. For example, they'll show arrows and say, are the arrows pointing in the same direction or different directions? The patients are always able to compare the images, but there's no part of the brain that sees both images. The brain is split in half, one half of the brain sees one image, the other half sees the other image, but the person can compare the two of them.

Wesley J. Smith:

In a way that could not be explained by brain functions?

Michael Egnor:

It's not in the brain. And that, I think, is the most fascinating chilling, creepy finding in neuroscience. It fascinates me.

Wesley J. Smith:

Is this what you called in the book, the mind-body problem?

Michael Egnor:

The mind-body problem, I think, is a deeper philosophical question that people have asked. Is how can you get things like intentionality or meaning out of matter? How can a thought have a meaning? Because matter doesn't have meaning per se. And how can you have quality, how can you have an experience from a piece of meat? The mind-body problem is a deep, logical philosophical problem. My observations are more just on the basis that there are aspects of our minds that there's a ton of neuroscience that points to those aspects not coming from the brain. The brain may mediate them, the brain influences, but they don't come from the brain and specifically the intellect and the will.

Wesley J. Smith:

Brian, you discussed, in your chapter, the mind-body problem. Is that a pretty accurate description for a lay audience?

Brian Krouse:

Yeah, yeah. I do think that's an accurate description. I was going to add in this theme of striking empirical evidence that suggests and supports this idea that the mind is not totally reducible to the brain. Angus mentioned this in the intro, I believe, is there's some striking examples from the near-death experience studies. And one of my favorites, there's so many that are interesting. We have a chapter written by Gary Habermas where he's done a lot of work going to... Apparently there's a lot of journals that are dedicated to collecting these studies, and they've been going for quite some time.

And what Gary did is he collected a subset of these that he calls Veridical near-death experiences. And so what's meant by this is near-death experiences where it's not just, for example, an interesting subjective experience that the person reports on having when they come conscious after on the table in the operating room, but there's something in their near-death experience that they relate that can be verified from a third-party perspective. So an example-

Wesley J. Smith:

Give me an example of that.

Brian Krouse:

Yeah, you got it. This is one of my favorites. I'll be doing a little bit of paraphrasing here, but there's a gentleman who in his life had a characteristic of maybe an OCD-ish kind of tendency of memorizing long numbers. And he finds himself having one of these near-death experiences. He's in the operating room and it's got the familiar story of looking down on his body from the corner of the surgical room. And so, he's up high looking down on his body and the surgical team, and he sees on the top of one of these tall machines, 10, 15 foot tall machines, he sees a barcode with a long number on it. I can't remember exactly how many digits, but let's just say 15 digit number and he commits it to memory.

And then he is resuscitated, comes back into his body, and one of the first things he does is he tells the nurse, say, "Write down this number. I saw it on the top of the machine." And I believe the story goes that the head surgeon, the doctor was listening and he had a janitor come in and put a ladder up against this tall machine and just to check this out, he's just got to see. So they go up and they look and sure enough, it matches all 15 digits.

Wesley J. Smith:

Now let me interrupt here. First off, it would be impossible for this guy to have ever seen those numbers before he went into surgery.

Brian Krouse:

Oh, yeah.

Wesley J. Smith:

Second, he is seeing these things when he is no longer able to use his eyes-

Brian Krouse:

Exactly.

Wesley J. Smith:

... which is pretty remarkable, and third he's been-

Brian Krouse:

And his eyes are down on the table, not up in the corner of the room.

Wesley J. Smith:

Not up on the corner. And third, he's committing something to memory when, as my understanding is, the brain has gone flat line in the lay term. Is that right?

Brian Krouse:

That's right, yeah. Yeah, it's remarkable. And he's got also a sense... I think there's more you could unpeel there. Is that there's the sense of the same personality. He's still the guy that memorizes long numbers.

Wesley J. Smith:

So he still had his OCD when he was no longer in the material sense.

Brian Krouse:

Yes. And there's some kind of a continuity of memory between those. And it's also fascinating that, okay, if he's immaterial, but he is got a specific vantage point from the corner of the room. It's not like seeing everywhere all at once. Although there are some interesting stories where people describe how vision is very different, that they have almost like a 360 degree of view of things, and they can see colors more brightly.

Wesley J. Smith:

But it's not through their eyes.

Brian Krouse:

Maybe. And I guess, as I understand, there's been more of these in recent decades as medical technology has progressed because we've been able to bring people back from the brink of death or post physical, what would've been death. And so, the number of these cases seems to be increasing, but that's just scratching the surface. There's a lot that are very interesting. And so that's an empirical bit of evidence. And then you have to decide what metaphysical framework does this fit best with? And that's one of the things we were trying to do in the book is present, not say this is the one right metaphysical

model, but present a range, two or three of non materialist models. And then you can kind of consider, with these various empirical evidences, which one of these, maybe multiple, fit better with different sets of evidence?

Wesley J. Smith:

Well, let me ask Angus to step in the shoes of a physicalist, somebody who would say that there's nothing outside of the material and we just haven't yet discovered the part of the brain that actually controls these things. What would the physicalist say the biggest problem for the dualist position is, Angus?

Angus Menuge:

Well, basically they think it's a threat to the completeness of science. They try to use in principle arguments and they say, "Well, look, we have these purely physical explanations of all kinds of other things in chemistry and physics and in biology and elsewhere. So why think that the mind should be this special frontier?" And once they get into that mindset, then they advance a thesis. It's called the causal closure of the physical. And put simply what that says is every time you have a physical effect, you should expect there to be a physical cause. And of course, in a way, that might seem quite plausible, because if something is going on in your brain or your body, you can generally trace it back to something else that's going on in your brain or body.

But the deeper question that doesn't address is can you always do that or can you get to the point where there's a difference? So to buttress what Mike and Brian have been saying, one thing that fascinates me is if physicalism is true, we ought to behave like a computer. And if a computer is in a given state and you give it a particular input, there will always be one and only one output. But human beings are not like that. They've done experiments, for example, that involve downward suppression of emotions. So you present subjects with some stimuli that would normally make you feel really sad or unhappy, and if you do nothing, that's how you feel.

But then they ask the patients to suppress that emotional response and they can do it. And this kind of thing is used in therapies for depression or obsessive compulsive disorder and a bunch of other psychological problems where you can, through changing your conscious focus, make a difference to how your brain processes that information. So the physicalist will always try and say, "Oh, well, that's just one part of the brain getting a hold of another part of the brain." They'll always try and push it back to a physical explanation. But I think that we can show that if you are open, if you say that no, maybe the physical is not causally closed, then you can allow these explanations to compete.

We are not saying you always have to pick an immaterial explanation. In some cases, a purely physical explanation is just fine. It's just a matter of brain chemistry, let's say. Right? But we're saying there in some cases where that just seems a very implausible explanation. Whereas saying that, no, it's because you made a conscious choice. So in these therapists for depression, you've got, there's a kind of a waterfall model where if you allow yourself to go down this waterfall of thoughts, you'll end up in a bad place. So when you realize you're on the brink of the waterfall, you consciously attend to something else that will stop you from going down that waterfall, right? Those results really tend to show that there is some independence of the mind. And I think that's what it comes down to. If you're a physicalist, do you believe everything about the mind is ultimately dependent on the physical? If you're a dualist of any kind, you say no, some things at least are in the control of an independent mind.

Wesley J. Smith:

And that independent mind, which has been called the soul, I think by Michael, can't be measured. Is that right?

Angus Menuge:

Well, it can't be located in the way that you can locate a standard physical object. So you can, for example, see brain scans of people where there's a lot of activity in the limbic region. You can correlate that with them having highly developed emotional responses. So they know there's a correlation between certain kinds of brain activity and certain kinds of feelings or thoughts. But that correlation does not enable you to say, "Oh, just there in the brain is where that thought or the emotion is." So thoughts cannot be pinned down in that sort of way where we can give a definite location in space and time.

Wesley J. Smith:

Can one be a dualist believing that the mind, at least certain aspects of it, comes from some immaterial place, which is unknown at this point, and not be a theist?

Angus Menuge:

Oh, yeah.

Wesley J. Smith:

Any one of you who wants to answer that?

Angus Menuge:

Yeah. I'm sorry, I shouldn't have jumped in there.

Wesley J. Smith:

Yeah, go for it.

Angus Menuge:

But in philosophy, there are dualists who are not theists. They've just come to the conclusion, many of them in sort of Mike's tradition, Aristotelians, they just think it's obvious that there are mental functions that don't reduce to brain functions. But some of them have a completely secular outlook. So it isn't intrinsically tied to being a theist.

Wesley J. Smith:

That's the point I wanted to make in terms of potential readers of the book. Is that you have observed this phenomenon of mind that can't be defined, that can't be located in the brain, which is where one would think it would be found, that clearly exists. Materialists would say the mind exists, they just haven't found where in the brain. And that that might have philosophical or religious implications, but that's not the point of the book, is to prove any kind of outcome from the implication. Is that right?

Brian Krouse:

Yeah, that's correct.

Wesley J. Smith:

Well, let's talk about free will. There are people who, and I read in some of the chapters, who deny free will. And I think Michael's chapter discussed this where they had an experiment where it said if they tell you to push the button, the brain fires before the finger pushes the button, and I'm being very rough here, you can fill in the blanks, and that to these physicalists proves that actually what we think is free will, our choices are actually dictated in a sense by the brain through some kind of unconscious means. Is that correct, Michael?

Michael Egnor:

Yes. There's a researcher named Benjamin Libet who worked in the mid-20th century who did some fascinating work on this, and he found that if he asked people to sit at a desk, these otherwise normal people, and just push a button, whenever the thought came into their mind to push the button and he had a special clock that they could record within like 20 or 30 milliseconds, the moment they had the thought to push the button and he could record the time the button was pushed and they had electrodes on their scalp. So he was constantly monitoring the brainwaves. And he found, as other people have also found, it's a very well-established phenomenon, that about a half a second before the person would have the conscious decision to push the button, there was a spike in the brain that often seemed to correlate with that decision, but it happened before the person was aware of the decision.

And that was originally interpreted as meaning that we don't have free will. The brain is driving the whole process unconsciously, and what we think is free, we're really being forced to do by our brains. But Penfield was a brilliant researcher, and what he did is he asked these people to occasionally veto their decision. So they would start to push the button and then stop. And what he found was that there was no brainwave activity that was new that was associated with a veto. That is that the original decision had its brainwave activity, but the veto was silent in the brain. And he said, what people really have is free won't, that is they can veto what their brain tells them to do unconsciously, but the veto itself is not from the brain. The veto is a decision we make that's not in the brain, or the acceptance is also not from the brain.

So he said he really hadn't proven free will, but he proved free won't. That is that we do have the ability to stop ourselves, and that stopping ourselves isn't from the brain. Wilder Penfield also did some excellent research on this where he would ask his awake brain surgery patients to raise their arms during the surgery at any time they felt like. And he would stimulate their brains to make their arms raise anytime he felt like it and the patient couldn't tell what he was doing. And he would ask them when their arm would raise, "Did you choose to do that or did I choose to do that?" And the person always knew the difference. He did tens of thousands of repetitions of this, and people never lost the sense of free will. That is he could stimulate the person's brain in a way that they couldn't feel, they didn't know it was being stimulated, and they would do something, but they would know that they didn't choose it. It was done to them.

Wesley J. Smith:

That's very interesting too. But I think that the people who say there are no free will, and this gets into human exceptionalism, and I've done some writing on this, not in a scientific manner, but in my usual plodding along, I guess, free will isn't about pushing buttons. It seems to me free will is about making moral decisions or being creative. It's not mechanistic. And the people who are arguing, and I've read various bioethics journal articles and so forth, denying free will, seem to have a very reductionist view of the human person. Any of you want to comment on that?

Michael Egnor:

Well, if I may, I've rather strong feelings about this because I think the denial of free will, first of all, has terrible social implications.

Wesley J. Smith:

Yes, it does.

Michael Egnor:

It turns us into cattle, like livestock. It has terrible-

Wesley J. Smith:

It means that Hitler's not responsible for the Holocaust.

Michael Egnor:

Right, right, right. And in fact, the denial of free will in a sense was an implicit motive for atrocities like the Holocaust, because at no point did the Nazis believe that, for example, Jews freely chose to do this or that. They were simply punished because they were Jews. That is that the whole human aspect of being free was denied to them. So the denial of free will is a perfect setup for a totalitarian society. I think there are several reasons, I give five, for insisting that free will is real. First of all, every society, and as far as I know, practically every person that has ever lived implicitly believes in free will. That is the denial of free will is way outside way of human experience. Everybody in one way or another accepts choices to some degree as being free.

Logically, it doesn't make any sense to deny free will because if you say that your electrochemistry in your brain is driving your decisions and driving what you do, then the very claim that free will doesn't exist is driven by electrochemistry and not by logic. So that then your claim-

Wesley J. Smith:

It's self refuting.

Michael Egnor:

Yeah, it's self refuting. What you're basically saying is, I'm a meat robot, so take seriously what I'm saying, which is nonsense. If you really don't have free will, you're just a bag of chemicals and I don't take opinions from bags of chemicals. The third thing is that determinism, which is sort of the cornerstone of the denial of free will. Almost all free will deniers are determinists who believe that the way the universe is at one moment determines exactly what will happen the next moment. And that's just bad physics. That's clearly proven wrong.

A couple of years ago, a bunch of Nobel prizes were awarded to physicists who showed that determinism is not true. So that's just wrong neuroscience points to free will. And I actually like Wittgenstein. And one of the perspectives that he suggested on questions like this is when a person says, "I don't believe freewill is real," you have to look at what they do, not just what they say. And even freewill deniers, if you deliberately dent their car, they will blame you. So I've made this joke online that if you really want to find out if someone believes in freewill, walk up to them and pour your coffee on their laptop. And then if they say, "Why did you do that? What a horrible thing." Say, "Hey, I had no choice."

Wesley J. Smith:

That's right, "My brain made me do it."

Michael Egnor:

"I had no choice at all. You can't blame me." A freewill denier must believe that if his car is dented in a parking lot, that the car that did the denting is every bit as much responsible for that as the person driving the car, because they're both just machines.

Wesley J. Smith:

That's interesting. And Brian, that brings up computer issues. A computer can't think, can it? It follows a program, but it can't think.

Brian Krouse:

Yeah, at the basic level, it's algorithmic. It's proceeding from one step to another step. It lacks. At the core of the CPU, there's no I, there's nothing intending, no sense of self at the core of that.

Wesley J. Smith:

And the computer differs from humans because we can have, for example, an epiphany that opens up whole new areas of discovery, of art, of perhaps personal lifestyle choices. But a computer can't do any of... A computer cannot have an epiphany by definition, am I right?

Brian Krouse:

I would agree with that. There's been a lot of talk about these recent developments in AI large language models where they're able to do some pretty impressive looking things. But really ultimately at the core, it's basically a sophisticated... You could think of it, this is crude, but it's like a sophisticated text completion algorithm where they're taking things... It's inferring structure and patterns from the input data and sort of filling in missing gaps that look similar, but it's not creating in the way that we do with sort of new ideas and new concepts.

Wesley J. Smith:

So when I read stories about AI ChatGPTs or whatever they're called lying to-

Brian Krouse:

Like the hallucinations?

Wesley J. Smith:

Yeah.

Brian Krouse:

That's really fascinating. And it can be pretty darn funny too, some of the examples. And it's basically a phenomena where it's doing its algorithmic steps and it's filling in the gaps according to the prompt and all these internal structures that it's built up in its internal models, and it's not really concerned with what's true or not true or what corresponds with reality or doesn't, just what's most likely supposed to fit there. And then you end up getting these strange phenomena that they call hallucinations.

Wesley J. Smith:

Is there anything like what you just described in the human brain? Is the human brain, at least in some aspect, a computer?

Angus Menuge:

Maybe I may mention a couple of things, but then we should turn it over to the guy that actually cuts brains on a daily basis. So one of the things that I encountered in... This is maybe kind of an anecdotal response to this, but one of the things I encountered in when I was around the computational neuroscience research is just to realize how little we really understand what's going on in the brains, especially when you think about them in terms of the actual computational level steps of things going on.

And there's an example organism that's studied in computational neuroscience. It's this little nematode worm called *C.elegans*. And this is a worm that does just a few things like wiggles left, wiggles right, eats, turns around, does very little things, and it's just almost exhaustively studied. They know from the first cells it starts to divide. They can number all the cells through its various... From single cell or from embryo to fully developed organism. They know there's something like 312 neurons. I might not have that exactly right, but they can really number them all. They know this organism inside and out sort of in terms of its parts. But when they study the neural signals that are the inputs and the outputs, where the outputs would be the motor movements, the inputs would be like sensory data, they still don't have a complete computational description of how this system works.

And so sometimes you get the sense, I think, from listening to popular neuroscientists, that we really understand the brain and what it's doing at a deeper level than in fact we do. If we don't understand a simple little organism like that, *C.elegans*, we sure as heck don't understand what's going on inside our brain with trillions of connections instead of 312 neurons. So that's maybe my first reaction, is to say that I don't think we really know how our brains compute and how analogous it is to computers. The neural networks, which that large language models is this built off of that, that category of algorithm, they originally were loosely inspired by hierarchical organization of neurons in the brain. But beyond that, my understanding is it's left the brain behind. It's just doing its own thing. So I maybe turn it over to Mike to see what he thinks about that. How does the brain compute if we have any information at a granular level about that or not?

Michael Egnor:

It's a very important question and a fascinating question. And I think the first thing is that it's two questions. One question, is the brain a computer? And the second question, is the mind a kind of computation? And those are kind of different questions. Is the brain a computer I think is a dangerous question in science to ask. And the reason it's dangerous is an observation made by Werner Heisenberg, one of the pioneers in physics. And Heisenberg was a very, very good philosopher. And he made a comment that nature reveals herself to us according to our method of investigation. That is that nature answers our questions, but the questions determine the answer we get so that if you study the brain as if it's a computer, lo and behold it'll kind of look like a computer. If you study the brain as if it's fire, it's kind of warm and you think, Hey... In fact, that's what the ancients thought. They thought that the brain was like a heat source.

If you study it as if it were just a machine with gears and so on, there are ways you can look at it that way. That's what people in the early modern period thought. So neuroscience reveals itself according to how we study the brain. And we use all these computational models, which are beautiful models, and it's no surprise, it kind of seems like a computer. So maybe it's a computer in a way. In other ways it's not a computer. It depends on how you study it. The second question is, is the mind a kind of

computation? And I think the answer there is emphatically not. And the reason it's emphatically not a kind of computation is that what characterizes a thought that distinguishes it from a physical thing is that every thought has something called intentionality, which means it has an aboutness or a meaning to it.

And physical things by themselves never have meanings by themselves. If I hold up a pen, the pen doesn't mean anything. My thought about the pen means something, but the pen is just a pen. A computation cannot have meaning of its own, or it could not be used for other purposes. For example, if I use a word program to type an essay and argue in the affirmative for a particular argument, I can use exactly the same program to type an essay that argues in the negative for that argument. The computational process couldn't care less about the meaning of the essay. Word, it doesn't monitor the meaning of what you type. If it did monitor the meaning, you'd have to buy a different program for every opinion that you type and Bill Gates would love it. But the whole reason that computation is useful is because it's a blank screen. It's blind to meaning. So the mind always has meaning. Computation never has meaning. So not only is the mind not computation, the mind is the antithesis of computation. The mind is everything that computation is not.

Wesley J. Smith:

Is there any indication, because meaning, I think, is one of the things that makes human beings exceptional. Is that we determine meaning. We crave meaning in many regards. Is there any indication in animal studies that there is meaning in the sense of that we seek it in the animal world?

Michael Egnor:

Sure. Yes, definitely. My dog appreciates the meaning of bacon on a much deeper level than I do. So animals can have intense meaning. Meaning doesn't have to be rational. It doesn't have to be abstract, intellectual thought. It can just be an animal that likes the smell of something or an animal that's afraid of something. Animals have intense emotions, but animal thinking never involves abstract thought. Animals don't reason. My dog thinks about how delicious her food is. She doesn't think about nutrition.

Wesley J. Smith:

Yes.

Michael Egnor:

So animals never think abstractly and that's the difference-

Wesley J. Smith:

And she doesn't think about whether the food was obtained in an ethical manner.

Michael Egnor:

Precisely, precisely. My dog doesn't have ethics. She doesn't have abstraction, she doesn't have math. She likes her food. She has powerful emotions. Her emotions about many things are much more powerful than mine, and she certainly has meaning, but her meanings are never abstract. They're always tangible, physical meanings. "This smells good. This feels good. I like this. I don't like that."

Wesley J. Smith:

We're running out of time, but I want to ask Angus, what difference does any of this make?

Angus Menuge:

Oh, it makes all the difference in the world. I like what Mike says about the computer. There's no intrinsic intentionality. We get the illusion that there's intentionality because the patterns mean something to us for our purposes. And so when we're talking about the mind, we're talking about something that has certain intrinsic powers. It really has goals, purposes. It's really thinking about things. It can think about abstract propositions that actually go beyond anything that you'd ever experience in this world. Because you can think about things which are necessarily true, like a equals a or other laws of logic.

And so what you see is that with the mind, you have a way of transcending the contingent limitations of the world. You're only ever going to interact with a finite number of things. Every human being, in total, will only interact with a finite number of things and yet we can think about universal things. Somehow we can get beyond our physical limitations and we can think about the whole cosmos. So that dream of the theory of everything that Stephen Hawking had. We can think about these grand questions and we can think about ourselves and our place in the cosmos, so we get beyond the limitations of our physicality. And I think that is the most important thing for us to focus on.

Wesley J. Smith:

Well, this issue is so deep, frankly, we've only scratched the surface. But I want to ask all three of you, is there anything I haven't asked that you think should be included in an introductory view of the questions that we've been discussing?

Angus Menuge:

Yeah, this is Angus. I'll mention one thing. The main thing about our book, we try to be very generous. We are just trying to help people to open their mind to alternatives. So we don't want to have anyone think, "Oh, don't read the book, because they'll be pushing a view that I don't like." Actually, we try to canvass a variety of alternatives, and it's just for them, "Explore this, see if it helps you or not." We're confident that if they do that with an open mind, they'll find that there are some helpful alternatives and that will be good for their research. So in no way should they think of this as a threatening book. It's really there to encourage free of thought, new directions in research.

Wesley J. Smith:

But that's what science and philosophy should be. It should be an open discussion, and I would love to see a conference, for example, where you gentlemen and maybe some physicalists were on stage together and discuss these things.

Angus Menuge:

That would be great. That would be wonderful.

Michael Egnor:

I would love that. I don't think the physicalist would like it, but I'd love it.

Wesley J. Smith:

So any questions I haven't asked Brian that you think I should have mentioned?

Brian Krouse:

No, no. I think you covered it quite well. Maybe I'll just add the book too, is for folks to not think this is... It's a large volume, but it's not unapproachable in the sense that you can dive in at any spot that you might be interested. It's an anthology of separate chapters.

Wesley J. Smith:

You can find the kind of aspects that might interest you more than others.

Brian Krouse:

Exactly, exactly.

Wesley J. Smith:

Yeah, that's very true.

Brian Krouse:

Yep, yep.

Wesley J. Smith:

And for anyone who... Mike.

Michael Egnor:

I'm a big fan of the book because it really is a deep dive into the philosophical issues, into the neuroscience issues in a way that... My mind has been open to other people's viewpoints on dualism and so on that I hadn't realized, or idealism and so on. It's absolutely fascinating book.

Brian Krouse:

This has been one of the, for me, most fun parts about the whole project is the conversations of bringing everybody together. The philosophers might not be as current on some of the scientific issues and some empirical scientists might have all kinds of insights but feel a little uneasy taking a stance on the philosophy. And when you get everybody into a conversation where they can share the ideas and then you see light bulbs going on and Ahas between folks, it's pretty, pretty neat.

Wesley J. Smith:

And the book, again, is *Minding the Brain* and the subtitle is *Models of the Mind Information and Empirical Science*. There will be a link in the program notes if people are interested in obtaining the book. My last question is a question I ask all my guests. What next for Angus, Brian, and Mike?

Michael Egnor:

Well, I mean Denyse O'Leary, who's a wonderful colleague, who is a Canadian science journalist, and I, are publishing a book. It'll come out in June called *The Immortal Mind: A Neurosurgeon's Case for the Soul*. And it really is a book-length expansion of the chapter in *Minding the Brain* that I wrote.

Wesley J. Smith:

Well, you'll be back, I hope, on *Humanize* when that book is published. Brian, what next for you?

Brian Krouse:

Yes. Even after this book, I feel like I've just scratched the surface of this topic, and I'm looking forward to facilitating and being involved in more conversations between different experts and just seeing how we can take some of these ideas that we've started in the book and push forward and deeper and see if it could inspire empirical research programs, I think would be a really a great test of the usefulness of involving the different philosophical models and seeing if it helps form conceptual clarity that inspires new empirical research ideas.

Wesley J. Smith:

Angus?

Angus Menuge:

I agree with everything Brian said, but also my own special focus for the next year or two, I want to get to the bottom, philosophically, of what the difference is between what these large language models are doing and what humans are capable of. So I'm going to try to apply metaphysical analysis to see if I can figure out what that is. And in fact, I have a student working on this right now. We're doing this together, and it's a very exciting topic, but at the end of the day, I think it's going to be possible to defend a distinctive kind of human creativity. And I think it's terribly important because otherwise we're going to tend to down-assess. We are going to start to believe that we are no more than there are machines.

Wesley J. Smith:

And that's very dangerous. And human exceptionalism, I won't go into my lecture, but it's really the fundamental requirement for having liberty and freedom and human thriving. And to say we're just a computer is to dehumanize our species. Well, gentlemen, thank you very much. Listeners will agree that you're all smarter than me, and I really appreciate you being on Humanize.

Angus Menuge:

Thank you.

Brian Krouse:

Thank you for having us.

Angus Menuge:

Thanks Wes.

Michael Egnor:

Thank you, Wesley. Thank you Brian.

Angus Menuge:

Yeah, thank you.

Wesley J. Smith:

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