

Bruce Gordon on the Meaning of Neuroscience (Part III)

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Austin Egbert:

Modern science has made many incredible discoveries about the workings of the mind, but how should we interpret these results? Our guest host, Dr. Michael Egnor, discusses the meaning of neuroscience today on Mind Matters News.

Announcer:

Welcome to Mind Matters News, where artificial and natural intelligence meet head on.

Michael Egnor:

It has been said that philosophy of mind has been the most active discipline of philosophy over the past century or so. Neuroscience certainly has been among the most active disciplines in biology. Our question really is how can we understand modern results of neuroscience from a philosophical perspective? What does neuroscience mean?

Michael Egnor:

As my guest today, I have Dr. Bruce Gordon, who is a philosopher of science and an idealist. Dr. Gordon has fascinating viewpoints on the fundamental nature of reality. I should point out, Dr. Gordon is associate professor of the history and philosophy of science at Houston Baptist University and he's a senior fellow at the Center for Science and Culture at the Discovery Institute. Welcome Bruce, it's a privilege to have you with us today.

Bruce Gordon:

It's a pleasure to be here.

Michael Egnor:

Roger Scruton, who's one of my favorite authors, famously described modern neuroscience as a massive collection of answers with no memory of the questions. What I'd like to talk with you about is what are the questions that are being answered by neuroscientists? To understand the mind, what do you think is the most satisfactory metaphysical perspective?

Bruce Gordon:

Well, it's no secret, given your introduction, that I'm an idealist. And so then I'm going to lean in that direction for saying that, immaterial consciousness really needs to be understood as the bedrock of reality. We know it firsthand subjectively from our first person perspective and its integrated unity and our experience is a fundamental datum.

Bruce Gordon:

It's a starting point from which we can move to an examination of the world and really, an examination of our neurophysiology in an attempt to understand how that affects our experience of consciousness. It's commonly thought that an idealist ontology, which would take consciousness as primary, and

understand material reality and phenomenological terms, would place consciousness beyond the possibility of scientific study.

Bruce Gordon:

I really don't see things that way at all. In fact, the access that we have to the brain is through phenomenological examination. It's very clear that the structure and function of the phenomenological brain constraints and channels our consciousness and capacity for experience of things. But I don't see that fact as standing in the way of recognizing that consciousness does not arise from the material, but is something different than the material.

Bruce Gordon:

And then provides the basis on which we try to understand what the material world really is, whether it's substantial - we're in a dualistic view - or whether it's merely phenomenological and really that, as I said at the beginning, immaterial consciousness is a bedrock of reality.

Bruce Gordon:

Not ours, of course, because most of reality is given to us, we don't create it by our own consciousness. We experience it through our consciousness. There has to be a more fundamental consciousness, then, that is the bedrock of reality. Of course, that's the ultimate direction that theistic ontic idealism is headed. God provides that ontological ground as the one who imparts structure to reality and, of course, that structure is constitutive of our experience.

Bruce Gordon:

So that, God is the vera causa, if you like, of the phenomenological reality of our experience. We can explore, then the world that he's given to us, including how our experience of our phenomenological experience of our bodies is affected by what's going on as we examine the neuro-phenomenology of the brain.

Michael Egnor:

As we've talked about, I have enormous sympathy for the idealist perspective on things, particularly in physics. I think it's a compelling framework. My own perspective has been Thomist, sort of Aristotelian. From the Thomist or Aristotelian perspective, I think there's also a great deal of sympathy for the idealist way. People have said Aristotle was a Platonist of sorts.

Michael Egnor:

I mean, he didn't completely break to Plato. One of the things that made me a Thomist was in neuroscience, we see a very clear distinction between the dependence of different aspects of the mind on the brain. Perception, sensation, memory, emotion, very clearly depend on the brain in an almost total way, that is that if someone cuts my optic nerves, I will not be able to see. Period. There's no ifs, ands, or buts.

Michael Egnor:

Somebody gives me a shot of adrenaline, I will feel anxious or fearful, or excited. No ifs, ands, or buts that's just what happens. On the other hand, there are aspects of the mind that don't seem to be nearly as tightly yoked to brain function, particularly the intellect and the will. As an example of that, one can

consider phrenology, which was a science of reading the bumps on the skull back in the 19th century and early 20th century.

Michael Egnor:

It was a little crazy, but it wasn't as crazy as we think it was. They didn't have any radiology. So they couldn't actually see the brain and they didn't have CAT scans. So the bumps on the skull was about the best they could do. It was known at that time that certain functions like movement of the limbs or sensations or vision, are subserved by specific regions of the brain.

Michael Egnor:

The phrenologists just made the assumption that everything was subserved by a specific region of the brain. So mercy or justice, or all sorts of personality traits were also in the brain in certain locations. And that failed of course, that's not the case. I can point to the little group of neurons that make my thumb move, but I can't point to any group of neurons that make me able to do square roots.

Michael Egnor:

There's a difference between the intellect and as it turns out, the will and the other properties of the mind in the neuro-scientific world, and the difference is striking. Wilder Penfield, who was one of the pioneers in epilepsy surgery, asked a question - I'm paraphrasing - many years ago. He asked, "Why are there no intellectual seizures?" Seizures can have practically any content you want to think of.

Michael Egnor:

I mean, you can have movements, you can lose consciousness, you can have emotions, you can have sensations. You can even have thinking about concrete objects, force thinking that's called, but you never have calculus seizures. You never have a seizure where you have to take second derivatives, whether you want to or not.

Michael Egnor:

You also never have morality seizures. You never have seizures where you compulsively recite the 10 commandments, and Penfield says, "Why not? Why aren't their intellectual seizures, if the brain is a source of the intellect?" Of course, Aristotle and St. Thomas, thousands of years ago said the intellect is not material. It doesn't come from the body.

Michael Egnor:

It's a separate thing. Whereas sensations and perceptions do. I was amazed at how neuroscience backs that up. And that's actually probably the main reason that I'm a Thomist is that Thomism is so beautifully describes modern neuroscience, but I wanted to get your perspective on that perspective.

Bruce Gordon:

Well, there's a lot about that that seems absolutely right to me. Of course, I think you would also admit that intellectual capacity can be and is affected by what happens to the brain.

Michael Egnor:

Without question.

Bruce Gordon:

You can shut down intellectual capacities by doing certain things to the brain. But at the same time, there are no intellectual seizures as Penfield remarked.

Michael Egnor:

What you might say is that the functioning of the brain is necessary for intellectual activity, but not sufficient for it, whereas it is necessary and sufficient for perceptions, sensation, memory, emotion, things like that.

Bruce Gordon:

Well, it is necessary and sufficient in the embodied state.

Michael Egnor:

Correct. Yes.

Bruce Gordon:

Which, points to some of my reservations about going full on Thomist about the nature of the human person in that regard. I do think there is evidence from near-death experiences and out of body experiences in which, you've got vertical perception of the environment while the body is in an unconscious state or even dead that provide indications.

Bruce Gordon:

And of course, near-death experiences in the blind as well, where perception is restored apart from the body. So, that we're not observing a situation in which we've got a merely rational soul that survives death, but a soul, all of the capacities of which are restored and perhaps even heightened in terms of the vividness of their experience. This is, this is what we're seeing from the anecdotal near-death experience literature.

Michael Egnor:

Well, one of the... My understanding of the near-death literature is as you've said, that the perceptual powers in that state are very much heightened and not only heightened, but they're different. An example would be a woman named Pam Reynolds. She underwent aneurysm surgery in Phoenix with Dr. Robert Spetzler, who is a very famous aneurysm surgeon. Her heart was stopped deliberately.

Michael Egnor:

She was put on cardiopulmonary bypass so they could stop the blood flow to her brain for about 30 minutes while they fixed the aneurysms after they had cooled her body down so she wouldn't have brain damage. During this process, she reported being aware of what was going on in the operating room, even to the point of reading the serial numbers on the instruments.

Michael Egnor:

She said that she went up to the ceiling at which a lot of people would describe when they've had experiences with near-death that they'll pop up to the ceiling. But of course from the ceiling, you couldn't read the serial numbers on the instruments with normal vision. Because they're tiny. So it's a

different kind of perception. I don't think that near-death experiences contradict the Aristotelian, Thomist understanding of the mind.

Michael Egnor:

It simply says that the subsistent soul has a different perception, which of course St. Thomas would say, "Yeah, sure." Angels, which are separated minds have a perception, it's just different from what we have.

Bruce Gordon:

Well, that brings me to some questions about the Thomistic hylomorphic dualist position with respect to the constitution of the human person. I mean, I'm sympathetic to a duality of structure and content, if you like, in an idealist phenomenology, but when it comes to understanding the constitution of the human person.

Bruce Gordon:

I mean, if we go back to Aristotle, and we can regard Thomas as baptizing Aristotle and injecting an element of Plato in there through Augustine to try to preserve a Christian metaphysics of the human person, because it's not possible and straightforward Aristotelian metaphysics.

Bruce Gordon:

The soul doesn't exist apart from the body in Aristotelian metaphysics, it's the form of the body. And it is that form matter composite, that hylomorphic composite, that constitutes the human person. Human beings, then don't possess an immortal soul. The form departs and the body dies and that's the end of the individual. Of course, Aquinas said, "No, that's not what happens."

Bruce Gordon:

We know that's not what happens in the Christian understanding of the human person. So he has to regard the Aristotelian form as substantial in some way, he has to Platonize it so it survives the dissolution of the body, but nonetheless, correct me if I'm wrong, he emphasizes the substantial unity of the human person as an integrated form matter composite.

Michael Egnor:

Yes. I think he put the immortal power of the soul, so to speak, in the fact that the soul had intellect and will, that the human soul and intellect and will, so it would not cease to exist when the matter of the body became disorganized because it was never completely, it wasn't from the matter of the body, whereas the soul of an animal that didn't have an intellect and will, would cease to exist when the matter of the animal became disorganized.

Bruce Gordon:

What was his view? I don't see it as necessarily following, just because you've got a sensate soul doesn't mean that you haven't got a memory and a sense of being that would allow the persistence of the soul independent of the body. I don't see sensate souls as necessarily being dissolved with the dissolution of the body.

Bruce Gordon:

I don't think that follows as a necessary consequence. What I'm more concerned about though, with the Thomistic hylomorphic dualism, is in the embodied state, it is the composite, that is the person that thinks that is the entity that is whole. I'm trying to get at the idea that the thinking subject in the Thomistic dualist case is the hylomorphic fusion of the soul and the body.

Bruce Gordon:

But in the disembodied state, it's just the soul. It would seem that Thomas's metaphysics isn't really hylomorphic and Aristotelian. It's a good portion of the way to being a form of substance dualism, in which the soul is the true expression of the person that it can exist independently of the body.

Michael Egnor:

Yes. I think that's always been a tricky aspect of Thomistic dualism is the immortality of the soul, that it's a subsistent form. Of course, Saint Thomas and Aristotle would say that the form and matter of the body are not substances in and of themselves. They're principles, principles of intelligibility and principles of individuation.

Michael Egnor:

So that the notion that they're separate substances, I think St. Thomas would say that the human soul can exist apart from the body, but that's not its natural state. That's not the way it was created or meant to exist. I guess it would be a substance in that capacity, but normally it's not a substance.

Michael Egnor:

It's a principle of a body. The body itself, matter and form, is the substance in the living human being. I mean, there's a little tap dancing going on there.

Bruce Gordon:

Yeah and some tap dancing that I don't find terribly convincing.

Michael Egnor:

Maybe if I danced faster, it would be. Yes. I would agree, but the difficulty with idealism in this context is that first of all, it's an enormously powerful and beautiful way of looking at things. I think that it is basically true, but there is a granularity to the Thomistic view that to me, comports beautifully with neuroscience in ways that idealism, is almost too vague.

Michael Egnor:

As I said, idealism doesn't speak to Penfield's question, why are there no intellectual seizures? Thomism speaks to it eloquently. That's what gets me is that as a practicing scientist, at least a biologist, as opposed to a physicist, Aristotle and St. Thomas have a lot more to say to me than Plato does.

Bruce Gordon:

Or Berkley.

Michael Egnor:

Or Berkley. Yes.

Bruce Gordon:

Well, perhaps, I don't find the idea that the intellect in particular is less tied to the body than the senses particularly a reason to embrace a Thomistic hylomorphism as over against idealism. I think certainly there's an interesting correspondence in the Thomistic case.

Bruce Gordon:

I don't see it as something that lacks sense from an idealist perspective either, because consciousness is integrally tied to the senses in the embodied state, whereas the rational processing need not be. What I find puzzling in the Thomistic sense is the perpetuation and heightening of the sensory capacity apart from the body in near-death experiences.

Bruce Gordon:

When, I don't think that's what Thomas would have expected. I think he would have expected the rational intellect to descend into sensory darkness.

Michael Egnor:

Well, I don't know. I mean, certainly St. Thomas wrote and thought a great deal about angelic intellects, angelic lines. Angels are perfectly capable of perceiving things. They perceive at a much, much higher level than we do, but they perceive differently. They have a different way of knowing.

Michael Egnor:

My suspicion is - St. Thomas never spoke about near-death experiences that I know of - but my suspicion is that he would say that in the near-death state, that the human mind is acting more like an angelic mind because it's disembodied. The other perspective on this, that I think is very, very interesting is that one may say that, of course, when a person reports what he experienced in a near-death experience, he is always doing the reporting from an embodied state.

Michael Egnor:

That is it's his looking back on what happened and try to explain it using language that makes sense as an embodied person. Maybe that language describes as perceptual. An actual experience that was not perceptual in a purely materialistic way. That is that's the most sense he can make of it.

Bruce Gordon:

Perhaps it points to the fact that finite beings must experience things from a finite perspective, which implies a locational one, in a way. I see this as, as fitting well with an idealist conception of what goes on, such the death is not so much a separation of the soul from the body, so much as a change of perceptual environment in which the initial embodied state is left behind. There's another state of consciousness, but the thing that is consciousness remains constant throughout. In fact, if you want to take it to a full-blown Christian metaphysics, you've got an experiential environment, 1.0, 2.0, and 3.0.

Bruce Gordon:

That would be associated with the initial experience of this world, then death and... I wouldn't necessarily want to describe death as a disembodied state - maybe it's an otherly-bodied state, and then the resurrected state. So anyway, I think there's a seamlessness of the metaphysics of the subject in

idealism that's easy to understand, that is certainly very difficult if you're a physicalist, and if you're dualist involves other puzzling aspects that we haven't gotten into.

Michael Egnor:

Another example that I think is really fascinating of the salience of the Thomistic view of psychology is the work of Roger Sperry. Sperry was a neuroscientist who studied split brain surgery patients. These are patients who had epilepsy and whose corpus callosum, which is the fiber bundle that connects the two hemispheres of the brain were severed to control the epilepsy.

Michael Egnor:

He studied these people in great detail and won the Nobel Prize for his work. He found that there was a perceptual splitting that often occurred where, for example, the right hemisphere would perceive the visual field on the left side of the visual field and vice versa for the left hemisphere. And the right arm was controlled by the left hemisphere, right arm controlled by the right, by the opposite hemisphere and so on.

Michael Egnor:

They're all fascinating, but very subtle perceptual changes that went on, but he didn't find any, he didn't comment much on this, but if you look at his work, he didn't find there was any splitting of the intellect or of the will, which goes along again with Penfield's observation about no intellectual seizures.

Michael Egnor:

From a Thomistic standpoint, Sperry's results are very understandable. The material brain was cut, so you're going to have the sensations and perceptions and things like that are also cut and can be divided, but you can't divide the intellect and will in the same way.

Bruce Gordon:

What about the memory?

Michael Egnor:

Sperry didn't look at memory. Penfield looked at memory. Penfield found that when you stimulate the brain, he could easily stimulate memories. He had thousands of memories that he stimulated. Curiously memory, although I think there is some debate about this within the Aristotelian Thomistic world, memory is considered part of the sensitive soul, part of the material soul, not part of the intellectual rational soul.

Michael Egnor:

Memory is very easily elicited and seizures can involve memories. People would argue that when you remember something abstract, you can say, "Well, I remember calculus. Doesn't that mean that calculus must be sensitive?" People would argue that remembering calculus is simply knowing it.

Michael Egnor:

It's not the same thing as memory, like remembering your grandmother's face, remembering the smell of apple pie, something like that, which is a different thing.

Bruce Gordon:

Sure. Our identity and our sense of self is intimately bound up, not just with rational memory or knowledge, but with sensory memory as well.

Michael Egnor:

Sure, absolutely.

Bruce Gordon:

Certainly, that is something that we would carry with us presumably through death in a near-death experience or a permanent death experience. I'm just wondering in that respect, because Thomas, and I'm coming back to a theme that I mentioned earlier, Thomas would seem to think that animals do not ever survive death.

Bruce Gordon:

That their sensate souls are so integrally bound up with their body is that the dissolution of the body means the end of them. Again, I don't see that necessarily as following metaphysically speaking from-

Michael Egnor:

The way I would understand it is that if one understands the soul as the substantial form of the body, the soul is essentially an organizational principle. When the body is disorganized, when the matter of the body is disorganized, then the organizational principle is gone. Whereas, there are aspects of the human soul that are not linked to matter in the same way, that are not organizational principles of matter.

Michael Egnor:

The human soul thereby is capable of surviving the disorganization of the body. I see it as a matter of organization, disorganization, that when you disorganize an animal, there's nothing left, where you disorganize a human and you have the intellect and will, which were not part of the body's organization to start with. So, they aren't lost when you disorganize the body.

Bruce Gordon:

Okay. Well, I think that, then that difference... Would you say, the human soul then in Thomistic perception is a rational, substantial, formal soul?

Michael Egnor:

Yes.

Bruce Gordon:

Whereas, there is... Of course this is getting back to the form is the principle of the organization of the body and the combination then forming the substance. Apart from human beings then, there has to be this rational substance that is part of humanity, but you see as not being part in any respect of, or at least Thomas didn't, of lower animals.

Michael Egnor:

Correct. Basically, I think a nice way that I think of it I think it's true to what Aristotle and St. Thomas felt was that animals cannot think of things that are not concrete, that animals can only think of things that are perceptions, but they can't think without perceptions.

Michael Egnor:

Humans can think without perceptions. I can think of the square root of negative one as a concept, but there is no object in the world that is the square root of negative one. A very good example is my dog loves his dog biscuits. It's all he thinks about. He wants more dog biscuits because he loves them, but he never thinks about nutrition because nutrition is abstract.

Michael Egnor:

I think that that was the big distinction that animals must have concrete objects to think about. Humans can think without concrete objects.

Bruce Gordon:

I would still say the grounds for concluding that there is no substantial animal soul, while I understand the Thomistic reasoning and the constraints that are placed upon it, don't seem definitive to me. Of course, if one is not a hylomorphic dualist of a Thomistic variety, but rather a substance dualist or an idealist, of course, none of those conclusions follow.

Michael Egnor:

I believe that St. Thomas believe it, or certainly modern Thomas have said, I think St. Thomas himself believed it, that if God chose, he could recreate the animal soul. If you want to be with your deceased puppy in heaven, you could if God is willing to do you a favor. So, there's no reason why the animal can't be recreated. However, the soul is lost at the disintegration of the body in the animal.

Bruce Gordon:

Yeah. You hit up with the same questions that physicalists who are Christians and see us as being reconstituted at the resurrection, but not existing in between. You wind up with problems of gap the existence, in this case for animals.

Michael Egnor:

I think that the Thomist view and I do agree with you, there is a paucity of rigor in this. It doesn't have the kind of rigor we'd like to see, but the Thomist view was that due to the rational abstract nature of the human soul, there is a power in the soul, that tends to make it immortal, in a way that an animal soul lacks.

Bruce Gordon:

I understand that's what's being said, yes.

Michael Egnor:

Anyway, so that is for me, that's a lot of the appeal of Thomism, is that I see it remarkably corresponding to neuroscience. Just takes my breath away. The idea that St. Thomas pre-saged what Penfield found and what Libet found, or what Sperry found, what the phrenologists ultimately found.

Michael Egnor:

All of that was said a thousand years ago. Well, Bruce, It's been a privilege. It's been fascinating to talk with you. I'd love to do this again. We've opened up avenues each of which could take up many, many podcasts. Thank you very much for speaking with us.

Bruce Gordon:

You're quite welcome. I'm happy to continue the conversation when we have opportunity to do so.

Michael Egnor:

I'd love to do so. Thank you so much. And to our listeners, thank you for listening to Mind Matters News.

Announcer:

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