Dear Christof Koch:

In recent interviews by Robert Lawrence Kuhn, you admit that an explanation of consciousness will require something more than the natural world as described by physics. Earlier, you described your goal as merely discovering the neural correlates of conscious states, and you have helped discover parts of the brain that are clearly responsible for conscious states. But now you point to Descartes' Cogito as having shown that the reality of something that must somehow be part of the natural world but is not physical. Clearly, you do not want to follow Descartes in holding that consciousness is a mental substance that interacts with the physical world. But you are puzzled about how the existence of consciousness can be explained as part of the natural world. That is called the hard problem of mind. I believe that physicists are on the verge of a discovery that will make it possible to solve the hard problem—and explain why Descartes believed that mind is a substance that interacts with the body. It will sound unlikely, but when you hear my reasons, you will know that it is possible and wonder whether it will happen.

I predict that the problems of modern physics will be solved by the discovery that space is a substance that interacts with matter. This possibility has been hidden from physics for centuries by its assumption that laws of physics are the deepest possible knowledge about the natural world. The secret sauce that has made physics so successful for centuries is the use of mathematics to formulate its laws. But it has trapped physicists inside a box, and they will not solve the intractable problems in modern physics caused by it until they wonder about the "unreasonable effectiveness" of mathematics in discovering laws of physics and think outside that box by questioning whether it is known by a faculty of rational intuition. When they consider the possibility that the natural world is constituted by substances that

endure through time, they will discover that mathematical truth can be explained by its correspondence to the world. Given that change is what happens as substances interact with one another, they will infer that the natural world is constituted by space and matter because their interactions can generate only quantitatively precise regularities, because that is the best explanation of the "unreasonable effectiveness" of mathematics in discovering laws of physics. They will confirm that mathematical truth depends on its correspondence to the natural world when they discover specific powers by which interactions of space and matter generate the regularities described by laws of physics because that will solve all the problems of modern physics.

I predict that this ontological discovery by the basic branch will trigger a revolution in science. The way that interactions of space and matter generate the regularities described by laws of physics will reveal a second kind of efficient cause, and recognition of what I call geometrical efficient causes will give biologists a more complete understanding of the cause of evolution that enables them to show that a series of inevitable of stages of evolution, caused by a series of levels of geometrical organization, brings beings like us into existence on suitable planets throughout the universe. The level of geometrical organization responsible for the stage at which mammals evolve will reveal that the function of the basic structure of the mammalian brain is to serve as a faculty of naturalistic imagination. That will enable neural scientists to use the homology between the anatomically distinct hindbrain, midbrain, and forebrain of the reptilian brain and three distinct thalamocortical circuits in the mammalian forebrain to explain how the mammalian brain serves as a faculty of imagination for guiding behavior.

The explanation of how consciousness is part of the natural world depends not only on this explanation of the mammalian brain but

also on another consequence of the discovery that bits of matter coincide with parts of space.

Since matter is a substance, scientists can assume that a purely phenomenal way of existing in itself is part of its essential nature. That is, the existence of a primitive qualitative property of some kind is what it is like to be every bit of matter in the world, though such “qualia” are presumably primitive in the case of the simplest bits of matter. No such assumption enables physicalists to explain how consciousness is part of the natural world because physicalism is atomistic, and even if physical particles had phenomenal intrinsic properties, they would not explain the complex phenomenal properties that are immediately present. But this assumption does enable spatio-materialism to explain how consciousness is part of the natural world because bits of matter coincide with parts of space. Since species of matter will be distinguished by the spatiotemporal structures of their coincidence with space, a single bit of matter can have a kind of spatiotemporal structure that is complex enough to explain the configurations of sensory qualia in phenomenal space that are immediately present when we perceive the natural world. If the faculty of imagination is responsible for their structure, there is one and only one bit of matter helping constitute the mammalian brain that fills this bill. It is the species of field matter that mediates the electromagnetic interactions among ions accelerated in the firings of neurons. Their firings in serving as a faculty of imagination impose a spatiotemporal structure on this field matter (called the electromagnetic field in physics), and since matter has a phenomenal intrinsic property, what it is like to be that particular bit of matter can explain the immediate presence of configurations sensory qualia in phenomenal space. In sum, consciousness is what it is like to be a bit of field matter that helps constitute the mammalian brain.

This explanation of how consciousness is part of the natural world is a form of panpsychism. But it is not a complete solution to the hard problem of mind because it entails epiphenomenalism, and that poses a problem about how we know that we are conscious. What it is like to be a mammal is just the immediate presence of phenomenal properties, and since that can't cause anything to happen in the brain that is not fully determined by efficient causes, everything we know and say about consciousness is caused by brain states.

With this ontological explanation of consciousness, however, there is a way to explain how we know we are conscious. The problem of epiphenomenalism points to an illusion inherent in consciousness that can cause our knowledge of consciousness.

The unity of consciousness makes it seem to that we are inside consciousness. Since we are mammals, everything we know and describe seems to be a phenomenal property, so we naturally assume that the immediate presence of phenomenal properties is what causes our knowledge of them. This is false. But it is not just a belief that we can give up when we learn that it is false. It is an illusion, like an optical illusion, that persists after recognizing that it is false. Being located in a phenomenal world is what it is like to be consciousness. I call it the illusion of intuitionism because what is false about it can be described as the belief that knowledge depends on objects given in faculties of intuition. While the immediate presence of phenomenal properties cannot be the cause of what we know and say about consciousness, the illusion inherent in it can, and surprisingly, knowledge of consciousness turns out to have a historical cause.

Ontological scientists will use the illusion of intuitionism to explain the history of Western philosophy as an exchange of metaphysical arguments that leads to the discovery that we are

conscious. But the discovery was made in the problematic form of mind-body dualism. When Descartes argued, I think, therefore I am, he was describing the illusion of intuitionism, and since the illusion is caused by the unity of consciousness, he concluded that unity was essential to the substance he called mind. He offered proofs of the existence of a world external to mind, and since he used the clear and distinct ideas of mathematics to describe its nature, he discovered that it has a divisibility that is just opposite to the unity of mind. The substance constituting mind had to be radically different from the substances constituting a world in which substances exist outside one another in space, and since their ontological incompatibility precluded explaining how mind and body interact, it doomed modern metaphysics. But it was the discovery that we are conscious.

This historical explanation of our knowledge of consciousness also explains why the problem of mind is so hard for physicalists. They start with the external world discovered by Descartes because scientists are naturalists who assume the existence of the natural world, and since a science based on physics is atomistic and cannot explain how consciousness is part of the natural world, it cannot explain knowledge of consciousness. So, when physicalists claim to know they are conscious, they must be falling for the illusion of intuitionism, and the belief that knowledge is caused by the immediate presence of phenomenal properties is incompatible with the completeness of physical causes. Ironically, physicalism is also caused by the illusion of intuitionism. The use of mathematics as a language for describing regularities about change depends on the assumption that it is known by a faculty of rational intuition (which can also be traced to Descartes), and the assumption that mathematically formulated laws of nature are the deepest possible knowledge of the natural world entails monism and the kind of divisibility that is incompatible with the unity of mind. That is the obstacle that this explanation of consciousness

overcomes by starting with the prediction of the discovery about space being a substance.

The lesson to be taken from this historical explanation of how we know that we are conscious is that all the confusion about its nature comes from failing to distinguish between consciousness and reflection. Consciousness is what it is like to be a bit of field matter that helps constitute a mammalian brain, while reflection is the way that mammalian brains use language to represent the brain states causing their behavior as part of the very process of causing it. This solves the mind-body problem. But is just one consequence of the prediction of the discovery about space I predict. When a science based on ontology explains Western philosophy in this way, science becomes perfect knowledge of the kind that intuitionistic metaphysicians sought. It is Reason knowing Reality behind Appearance. But since science is based on the empirical method, rather than intuitionism, it is naturalistic reason. A trilogy, called Naturalistic Reason, that I am self-publishing as I send you this message, spells out in detail the many consequences of the discovery that I predict physicists will make.

The first volume, Unification of Physics, describes ontological mechanisms that explain all the laws of physics in quantitative detail. The second volume, the Unification of Science, shows how the ontological reduction of physics reveals a kind of efficient cause, not recognized by physics, that works together with physical causes in a way that will enable all the specialized sciences to explain completely the regularities they study. That reveals that the overall course of evolution on suitable planets includes a series of inevitable stages that brings about the existence of beings like us, and the third volume, the Unification of Science and Philosophy, uses this ontological explanation of how consciousness is part of the natural world to explain Western

civilization as a distinct stage in the evolution of life caused by the exchange of metaphysical arguments in which consciousness is discovered and science begins. It shows how this way of solving the mind-body problem turns ontological science into a cognitive power that knows Reality behind Appearance, called natReason for short.

There may be incomplete or mistaken arguments in this trilogy. But I am confident that the discovery about space will cause a scientific revolution. And since I know this sounds too good to be true, let me say something about its origin and scope. I have been working on this argument, pretty much on my own, for over 45 years, including 30 years teaching philosophy at American University and more than 20 years since retiring from teaching. As a philosopher, I have written the detailed argument with a rigor that justifies expecting it to stand up to scrutiny in the rational pursuit of truth. I am writing to you and a few others because I want to make what I have discovered public. I am about to turn 83, and since I have been given the leisure to enjoy a life spent in this exceptionally fulfilling way, I believe that making it public is my duty. I am hoping that as someone who believes in the rational pursuit of truth, you will help give this argument a public hearing.

Even those who believe in the rational pursuit of truth will be reluctant to take up a detailed all-inclusive explanation of the natural world in three volumes, so I am offering a simpler way of learning more about it. An executive summary of the argument is presented in a short (150 page) book titled Sapere Aude that I am also self-publishing now. I am including a free Amazon link to an eBook version of it. (See below.) And there is more information about this argument at natReason.com, including an introduction to the trilogy, a Table of Contents for it, a bookstore, and more information about me. I would be happy to answer any questions you may have and very grateful to learn about any problems that

you think casts doubt on it. You can reach me personally at phillphscribner@yahoo.com.