FREE WILL AND GOD IN THE QUANTUM WORLD

By Jill Neimark
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In March, many of the world's leading scholars of consciousness gathered in Tucson, Ariz. for several days of deep thinking about thought. Their ideas range widely over every imaginable topic dealing with consciousness.

Research News interviewed four of these scholars to provide our readers with a sense of this dynamic investigation. In the second of the four interviews, Jill Neimark spoke with Stanley Klein. Klein is a physicist and professor of vision science at the University of California, Berkeley.

Research News: What relevance do you think quantum mechanics has for consciousness?

Stanley Klein: I think it has particular relevance in the metaphysical domain, where it has huge implications for theology, because quantum mechanics actually allows for both free will and determinism. The big problem in free will is how can you have a deterministic system that obeys laws and still have freedom?

RN: How does quantum mechanics allow for both?

SK: Because in the metaphysical domain quantum mechanics is intrinsically a dualistic theory. Every interpretation of quantum mechanics — and there are many — rests on a split between observer and observed. Even in the Bohm-Hiley interpretation, there are two aspects: a guiding wave and a particle carried by the wave. In the collapse versions, there is a wave function and an observed [function] that creates the collapse of that function. In the many minds version, the universe splits into many possibilities, but I only see a special one, the special entity of "me" tracks one of those universes. Again, the observer is separate. In all the versions, there are always two elements. Now, all these interpretations lead to the identical predictions, so in a sense they are all right.

RN: Right, because the math is the same.

SK: Yes, they're all different viewpoints, but by tautology they have the same math and give the same predictions.

RN: So, what about free will?

SK: Well, in any of the collapse versions, for instance, you have to define who the observer is, and it's ambiguous. The observer could be me, it could be you, it could be part of my brain. The split between observer and the world can be put in many places, between me and the world, between all humans and the world. So the inherent flexibility of this split means that if I close my eyes and put the split between me (observer) and the world, then you are now part of the world. I'm the observer and I have free will, but you're the world, and you have no free will. It's a weird ontology, but quantum mechanics is a weird thing anyway. However, this movable split is very interesting.

RN: So in the end, is there free will?

SK: It depends. I have free will because I'm the observer.

RN: So it's a perspective.

SK: Right. Quantum mechanics is much different than classical physics. In classical physics everybody is a machine, and nobody has free will. In quantum mechanics, some part of me can be outside the system.

RN: But the idea that I am the observer and have free will and nobody else does — that's not such a great attitude.

SK: It's not. It's very egotistical, but it's hard to avoid if you still want to do reductionist science — and science is very reductionist. It doesn't have much room for free will. Quantum mechanics achieves it.

RN: What about work you were discussing earlier with Roger Penrose at the conference, about the work of the psychologist Libet?

SK: Libet worked with a neurosurgeon, and they stimulated different parts of the brains of epileptics undergoing surgery. They did an experiment where they stimulated the part of the brain that would give a sensation of being touched on the hand. And at the same time, they actually touched the other hand. And they wanted the patients to tell them which happened first, or did they happen at the same time.

Roger Penrose has written about the results of this experiment in all three of his books because he thinks the anomalous results might be evidence for quantum interactions in the brain.

RN: What were the results?

SK: Well, they did several different experiments, but let's talk about the one where they stimulated part of the thalamus. When you stimulate this part of the brain, it takes 250 milliseconds before you can actually feel a sensation on your hand. If you stimulate your skin, you feel it in 10 milliseconds.
The anomaly was that even if you stimulate the brain and the other hand at the same time, the patient feels the "touch" on both hands at the same time. And yet in reality, the brain signal took much longer to reach the hand than the hand signal took to reach the brain. Penrose discusses this in all of his books and gave a talk about it in 1994 in Tucson. He thinks it is evidence for quantum collapse in the brain. He believes this anomaly needs new physics to explain it.

RN: Do you agree?

SK: No. Standard neuroscience can handle that type of data. Your memory of what happened can be modified to synchronize the two events, and there's evolutionary evidence that animals do this all the time — that we need to synchronize in order to survive. If I'm an animal, I'm actually living with temporal asynchronies all the time. If I touch myself on my foot, I experience a bunch of events at once: the expectation that I'm going to touch my foot, the planning of a motor movement, my vision of the event as I watch it and the feel of touching my foot.
When people measure the time it takes for neural impulses from touch, and impulses from vision, and impulses from planning, they all occur at different rates. For instance, hearing is much faster than vision. And yet we experience it as synchronous; we feel it as all together. So neuroscience already has an explanation for this, for how we create unified timing in spite of asynchronies.

RN: The brain always has to take information and make coherence where it doesn't really exist.

SK: Absolutely. From the time we're infants, we have to make sense of the world.

RN: I'm just curious, what is your religious affiliation?

SK: I'm Jewish. I describe myself as a very religious atheist. My rabbi, Michael Leer, says that if you do not believe in the God that you have been taught about then that God does not exist. He says that God is the force in the universe for healing and transformation.

RN: I can go with that.

SK: Yeah, I can go with that, too. He looks at the Scriptures and in every story he sees God helping people to transform and heal. He's very eloquent that this is what the Bible is all about. I'm a deep-down scientist, so of course I can't believe in a God who is responsible for capricious miracles like intercessory prayer.

RN: I don't mind a few capricious miracles; I mind capricious suffering. So tell me more about the force for good.

SK: We're in the metaphysical realm now, the non-testable realm.

RN: I know. I'm not asking you to speak as a scientist right now.

SK: I believe we need religion, that religion is good, that people, including me, need to be reminded not to give up, that I can help heal the world and make it better. Religion is telling us that we should never give up on transforming and trying to heal the world.

RN: So what is God to you?

SK: That force for healing.

RN: Where is that force?

SK: Inside me. All the Bible stories can be taken as metaphors for what happens if you don't take care of the environment and your neighbors. Many theologians don't like to think of these stories as metaphorical, but if we draw the analogy of quantum mechanics again, we have to realize that what it is telling us is that reality isn't what we once thought it was, and in some deep sense the stories we make up about reality are important and true.