I first became aware of and read Teihard de Chardin's work in between going out and playing baseball during the summer when I turned 18 years old. And baseball taught me about cooperation, but cooperation that aim to beat other people, other teams. But in any case, so there's this dual side that David brought out with the [inaudible 00:00:52] cooperation and conflict, that's very important to understand, I think. (00:58)

I was captivated by Teihard's vision, particularly when I read "The Phenomenon of Man", his book, one of his books. Teihard's writing seem to unite, for me, the empirical and the invisible. And I think that kind of union is vital to spiritual thinking and to most, if not all, religious experiences. So for me, Teihard brought together, in a very fascinating way, the observable world and evident reality on the one hand, and what I might call aspirational hopefulness on the other, aspiration and hope. And that was very attractive. (01:47)

Soon after I began my dedicated studies of evolutionary biology and particularly human evolution, paleo-anthropology, and at that point, I must admit that Teihard's vision and his ideas began to fade for me. Teihard's idea, as I read them, as I understood them at that time, of an ultimate progressive goal of evolution, and some have even interpreted his work as a pre-existing point, the Omega point, that seemed to be akin to the obsolete and debunked idea of ortho-genesis, that evolution is an internal process that aim score and attains a particular form and goal. (02:41)

Certainly part of the intellectual context, when Teihard was developing his ideas, it's the idea of a singular linear progression from ape to human, with regard to human evolution. And that certainly had this progressive kind of inevitable quality to it. And that of course is an idea that has been quite overthrown by fossil discoveries. We have a very different looking evolutionary narrative and evolutionary tree and history that is characterized by diversity. And a diversity, what that means for me, and from most evolutionary biologists, I think, is a diversity of possibilities that could have occurred. (03:31)

In other words, our existence from one standpoint hangs by multiple threats, multiple threads that need not have been. There are circumstances where the smaller brain paranthropus could have outlasted the genus homo. There are circumstances where Neanderthals could have prevailed, whereas homosapiens died out. These are not in contrast to the
folks that Mary Evelyn described, some of the scientists, to my mind these are not neolistic considerations, but rather they actually infuse our understanding of our place in the world with deep meaning. And to my mind, they highlight the virgility of life, and with that comes a sense of humility and a nurturing when confronted with all of these conditional threads of our existence. (04:35) At the same time I do embrace what David and some of my fellow panelists have mentioned that cooperation has been a central theme in human evolutionary history. And I'd like to offer just a couple of examples going back in time that the earliest evidence we have of persistent making of tools, of altering the environment by altering rocks and leaving them behind the origin of our archeological record and the proclivity of people to just leave junk around and waste products around. (05:14) In any case, that for millions of years, survival has depended upon altering things, of making a tool, altering something into a tool, eventually building or constructing fire or shelters. By 2 million years ago we know that the earliest and simplest modification of the environment, the making of a stone tool, of a stone tool kit, actually had with it certain social responsibility, it was accompanied by evidence of carrying food to others. There is this thing of not eating the food right away, but actually transporting food and stone to central points on the landscape where there was the, apparently, the expectation of sharing with others. What a beautiful human oddity that is. And with this new technology came the advent of cooperative sharing in a way that was unseen in any other primate before or since, other than in our own lineage. And there's also evidence of around that same time, about 1.8 million years ago of a skull of a decrepit toothless man who had lived actually several years in that condition. And that certainly reflects the fact that early toolmakers at least on occasion extended care to the incapacitated. (06:58) Later on, after thousands of years of not much technological change, but by about 300,000 years ago, we see in the archeological record clues of the origin of human ability to innovate technologically. We see new implements, including stone points, implements that could fly through the air and hit their target. And that had enormous implications for the ecosystems in which those early humans lived. But at the same time, we see a growing awareness of others and responsibility toward others. We see the first evidence of social networks, the development of symbol based communication within the social group and apparently of values that could extend through linkages to other groups through which there was exchange for the first time, exchange of valued raw materials like obsidian, very sharp rock that wasn't used before in certain areas of
Eastern Africa. And so that also involved a sense of shared values that happened to occur around the same time as this very critical technological transition. And so the human venture as expressed by peoples around the world today appears to have had its start in that very early era at least 300,000 years ago. (08:20) So key to our discussions today is that evolution has indeed produced a self-aware deeply symbolic creature. It has yielded through us processes of symbolic and cultural change. And this may be where I end up in a somewhat similar place to Teihard in the end of it. Or at least as David interprets it, and Mary Evelyn interprets Teihard's work. Human self-awareness can lead to moral decisions and goal-directed behavior that is hyper-social or pro-social. These are unique and novel aspects of human life on earth. And this is a system, this self-awareness and this ability for moral decisions and goal-directed social behavior, a set of processes or a system that can be goal-directed and the challenges of our new age, the Anthropocene, certainly will test our self-awareness, our hyper social capacities and our goal orientation, as described by David’s talk. (09:41)

I do not, however, see the outcome as inevitable or necessarily drawn to some external Omega point. It is up to us, and that's also one of David’s points, and particular the values, it's up to us for the values that we hone and that we shape and whether a new social sentience, whether a new global awareness of human beings and our place in the world accompanies the radical reshaping of earth through our technologies, the reshaping of earth that we have wrought and will continue to do so. Thanks.