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One Flesh in Joint Intentionality

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In my previous blog, " On Peaceful Science,", I referred to the work of Duke psychologist, Michael Tomasello, who has proposed that an important factor driving the remarkable trajectory of our lineage was a phenomenon he termed "joint intentionality." In his own words:

> It is possible to characterize what happened with these early humans as just the emergence of some new skills, and that is certainly true. But these were not just any skills. These were skills that created a new kind of agent, one in which two distinct individuals, in a sense, perceived and understood the world together while still not losing their own individual perspectives.[1]

Tomasello states that this agency, unique to our lineage, is characterized by what he calls "a *dual-level* structuring of jointness." At one level there is a "we" that functions in essence as a unit—with each member of the "we" knowingly acting together towards a single end while being fully aware that they each know that the other knows this too. But there is also an "I" function, in which each individual has her own role to play and her own perspective and they are both aware of the other's role too.[2]

Extensive analysis shows that great ape communities do not operate this way. On the one hand, they *are* aware of the intentions of others. For example, they may anticipate the choices a competitor might make in a foraging strategy and they accordingly adjust their actions with that in mind. But even though they have some understanding of the mindset of others, they seem unable to picture the other as a collaborative partner—only as a competitor There are various ways in which investigators have determined this, but the following experiment illustrates the difference. If a person points to a bit of food, the ape will follow the pointing, go to the food, and eat it. However, if there are two buckets—one with food and one without—when the person points to the one which has food, the ape is unable to understand that the pointer is showing her the bucket to which she should go. Apes have no concept of a possible helping-perspective in reading the intent of another. This is vastly different than humans. Indeed, children as young as 12 months are able to successfully play a "let's-find-the-hidden-toy" game. Experiments show that when a toy is hidden under one of two identical coverings, they are able to understand the intent of an adult pointing to the one which conceals the toy.[3] Extensive data show that humans, from a very early age are pre-dispositioned towards the development a sense of joint-intentionality.[4]

Since all four of the great ape species—orangutans, gorillas, chimpanzees and bonobos—lack the ability to understand a cooperative mindset, Tomasello suggests that the most parsimonious way of thinking about the last common ancestral (LCA) species of chimpanzees and humans is that these individuals also had only the primitive characteristic: They did not have the ability to picture a helping intent in the mind of others. He goes on to say:

> Overall, as paradoxical as it may sound, our best guess is that LCA individuals had rich social lives with long-lasting relationships, but—as compared with humans—their sociality was still somewhat individualistic. When hunting, they could not put their heads together with others to form the shared goal of working together, and they had no tendency to share resources fairly among all relevant parties. Chimpanzees and bonobos, and so the LCA, are and were very social, but only in a kind of instrumental way.[5]

In his wonderful book, *The Secret of Our Success*, Philip Henrich, describes a "Crossing of the Rubicon" occurrence which set the evolution of hominins (members of our lineage) on an "autocatalytic" trajectory with enormous consequences—a tripling in brain-size, for one. As the "Rubicon" was crossed about two million years ago, the primary driver of our lineage's genetic changes became culture.[6] In other words as new gene-forms which improved the effectiveness of cultural activities like tool-making occurred, they spread through the population.[7] As more and more of these genetic changes accumulated, the cultural activities became even more sophisticated. This increase in culture-sophistication, catalyzed the

1. Tomasello, Michael, 2019, *Becoming Human: A Theory of Ontogeny*, Harvard University Press, loc. 350
2. See Tomasello, Michael, 2016, *A Natural History of Human Morality*, Harvard University Press, Loc. 1015.
3. Behne, T. et al, 2012. *Twelve Month Olds' Comprehension of Pointing*, British Journal of Developmental Psychology, 30:359-375.
4. See Tomasello, Michael, 2014, *A Natural History of Human Thinking*, *p. 52*
5. Tomasello, 2019, op.cit. loc. 320
6. Henrich, Philip, 2016, *The Secret of Our Success: How Culture is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter*, Princeton University Press, p. 57
7. Note that this is different than other animals. Chimpanzees, for example, are able to adapt the use of sticks for digging out ants from an ant hill and new ways of doing this can spread through a population, but as Kevin Laland emphasizes there is no evidence from a broad swath of studying animal tool construction that cultural innovations continue to be improved from one generation to the next. (See Laland, Kevin, 2017, *Darwin's Unfinished Symphony: How Culture Made the Human Mind*, Princeton University Press, p. 9.)

opportunity for a new suite of genetic variants to take hold leading to even more enhancement. And the rest, as they say, is history. The cultural activities that likely set this trajectory in motion included:

- tool-making
- teaching others how to make tools
- hunting as a collaborative experience
- strategizing on how to defend against predators
- caring for children as a community-building experience.

Sociality, in our lineage, became natural selection's driving force.[8] Gene variants that improved sociality, on average led to more children. As a result, these were the variants that increased in frequency, an evolutionary phenomenon termed *positive selection*. Genetic variants which didn't increase sociality, would frequently wane (negative selection). Geneticists have been able to identify key genetic changes that bear "signatures" of positive selection within our lineage in the time since the existence of the last common ancestral species of chimpanzees and humans. Intriguingly they are vastly enriched for genetic changes which alter expression in the brain.[9] There is much more that can be said about these hominin-specific genetic changes, but that will need to be a topic for another day.

Although we don't know precisely when "joint intentionality" began, it clearly would have been an extremely important part of the suite of changes that led to our lineage becoming so remarkably different from that of our great ape cousins.

For those of us who believe that "all things were created through him and for him" (Colossians 1:16), and that "without him nothing has been made that has been made" (John 1:3), there is much to celebrate as we look back at how God brought all of this to be. In his marvelous little book, *Creation and Fall,* written almost 90 years ago when he was only 27, Dietrich Bonhoeffer makes some interesting observations in his discussion of Genesis 2:18-25. In this passage, God declares that it is not good for man to be alone, that he needs a helper. Thus, God brings all of the animals to the man for naming, but none is good enough to fulfill his need for a partner. So God creates woman out of the man's side. Bonhoeffer's remarkable summary of the significance of Adam's declaration of oneness with his helper, Eve, almost mirrors Tomasello's description of the "we" of joint intentionality. Here's how Bonhoeffer summarizes the theological significance of the Genesis passage:

> The bond is best described in the expression: he now belongs to her, because she belongs to him. They are now no longer without each other; they are one and yet two. And the two becoming one is the real mystery that God has initiated by what God did to sleeping Adam. They have from their origin been one, and only in becoming one do they return to their origin. But this becoming one never means the merging of the two or the abolition of their creatureliness as individuals. It actualizes to the highest possible degree their belonging to each other, which is based precisely on their being different from each other.[10]

What is most amazing to me is that in Genesis, this three-to-four-millennial-old-document, we have a description of that which makes us different from the animals–the formation of a "we" which parallels almost exactly that which secular scholarship is showing is of fundamental significance to our origin as human beings.

More recently the Canadian theologian, Aaron Riches has summarized the significance of this passage as well. In doing so, Riches refers to the writing of Pope John Paul II.[11] Riches points out that John Paul calls this passage "the bone marrow of the anthropological reality" and then goes on to say:

> This bone marrow of anthropological reality is the first joyful cry of human history, that of Adam upon creation of Eve: "This at last is bone of my bone and flesh of my flesh" (Genesis 2:23). According to John Paul the first man "speaks these words as if it were only at the sight of the woman that he could identify and call by name…*that in which humanity is manifested."* The epiphany of this encounter is crucial. Only by awakening to the presence of Eve does Adam become conscious of the meaning of his own humanity. She reveals him to himself. It is as if the infrastructure of the human being was created specifically for this encounter. This original encounter, surely as significant as the Fall in the biblical narrative, unwaveringly points us to the encounter with a God as the Beloved who will become at last bone of our bone and flesh of our flesh and reveal us to ourselves. It is from this original cry of joy that the whole genealogy of human history and biology radiates.[12]

I love this piece of theological work by Aaron Riches and this particular quote is only the beginning of the heights to which it soars. But what I want to emphasize here is the amazing fact that several millennia ago, the Hebrew narrative pointed to the very qualities that we (as scientists) now recognize as being crucial to our emergence as a species. We, in contrast to all other animals on earth, became adept at understanding the mindset of the "other," creating a purposeful "we" as a jointly intentional manifestation of "me"—bone of my bones and flesh of my flesh.

Beginning long ago, there was a selection in favor of those genetic changes which favored the development of minds that were increasingly socially acute. The UCLA cognitive neuroscientist, Matthew Lieberman writes in 2013 that "our social nature is not an accident of having a larger brain. Rather, the [value] we evolved to have a larger brain."[13] But millennia before that, a Hebrew scholar (or group of scholars), through the inspiration of God's Spirit, hit the nail

8. Matthew Lieberman words it like this: "The value of increasing our sociality is why we evolved to have a larger brain." In Lieberman, Matthew, 2012, *Social: Why Our Brains Are Wired to Connect,* Crown Publishing, p. 31.

9. See for example, Ryu, H. et al, 2018. *Massively parallel dissection of human accelerated regions in human and chimpanzee neural progenitors, BioRxiv,* https://doi.org/10.1101/256313

10. Bonhoeffer, Dietrich, 1932. *Creation and Fall,* Fortress Press (2007), location 1010.

11. Paul, John II and Michael Waldstein, 2006. *Man and Woman He Created Them: A Theology of the Body*, Pauline Books and Media. Although I am focusing here on Aaron Riches' analysis, this specific work prepared for a weekly devotional discourse before John Paul II became a bishop and subsequently Pope is a deeply engaging theological exposition using the discourse of Jesus with the Pharisees about divorce (Matthew 19:3-5) as its base for examining the theological ramifications of the male/female creation account.

12. Riches, Aaron, 2017, "The Mystery of Adam: A Poetic Apology for the Traditional Doctrine," in *Evolution and the Fall*, W.T Cavanaugh and James K.A. Smith (ed.), Eerdmans, p.129.

13. Lieberman, Matthew, 2013, *Social: Why Our Brains Are Wired to Connect,* Crown, p. 33 (emphasis, mine)

on the head even more precisely as they told in narrative form the origin of human exceptionality. Regardless of how one thinks about the historicity of Adam and Eve, they were archetypes, and the deep truths of this Genesis passage still ring true today. Riches puts it this way:

> "The metaphysical constitution of the first pair, in their complementarity, leads us to the deeper infrastructural meaning of human existence as ordered to love, as ordered to the personal awakening of the human being of the depth of the mystery of his humanity through the joyful surprise of encountering the other."[14]

14. Riches, op.cit. pp. 128-9.

Bone of my bones and flesh of my flesh—joint intentionality—two "I's" have become one "we."\

E. O. Wilson writes "Humans, it appears are successful, not because of an elevated general intelligence that addresses all challenges but because they are born to be specialists in social skills. By cooperating through the communication and reading of intention, groups accomplish far more than the effort of one solitary person. Wilson, E.O., 2013, *The Social Conquest of the Earth, Liveright Publishing, loc. 3185*

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