

Navigating the Future in a Sea of CRISPR Uncertainty: Contemplating Map Essentials

June 25, 2019

How do we imagine the future?

Opening Words

Bible- English Standard version

Revelation 21:3-4

And I heard a loud voice from the throne saying,
“Behold the dwelling place of God is with man.
He will dwell with them, and they will be his people,
and God himself will be with them as their God.
He will wipe away every tear from their eyes,
and death shall be no more,
neither shall there be mourning, nor crying, nor pain anymore,
for the former things have passed away.

Poet and author, Alice Walker

Look closely at the present you are constructing,
it should look like the future you are dreaming.

“How do we imagine the future?” Our answer to this question about the future can be very personal. For example, I’m at the age where I can now imagine a future where retirement might be a real event, while I have one child who is gleefully imagining a future living away from home for the first time, and another imagining what her first adult job might be. I’m grateful my family is able to imagine those futures, well aware that for others imagining the future beyond where the next meal might come from is a luxury they can’t afford. This morning we will consider the question, “How do we imagine the future?” from a broad perspective, *one that includes all of humanity on a cosmic time scale*. We have the luxury of a few

moments to do that, and in the context of CRISPR it's the responsible thing to do. I suspect your answer is still personal though, at least in the sense that your starting point for thinking about this is likely influenced by a particular religious or secular view of the future, or maybe an ongoing integration of the two.

With apologies to all the varieties of religious and secular starting points I won't address this morning, I thought about this question in terms of the contrast of Christian views of the future with those of the transhumanists, who must be giddy at the thought of the possibilities offered by CRISPR. For a summary of Christian views of the future I'm going to draw largely from the work of John Haught, a Roman Catholic process theologian. As for the transhumanists, I'll settle for this abbreviated description of transhumanism by Nick Bostrom, a philosophy professor at Oxford University who directs the Future of Humanity Institute:

“Transhumanism promotes an interdisciplinary approach to understanding and evaluating the opportunities for enhancing the human condition and the human organism opened up by the advancement of technology.

Transhumanists view human nature as a work-in-progress, a half-baked beginning that we can learn to remold in desirable ways. Current humanity need not be the endpoint of evolution. Transhumanists hope that by responsible use of science, technology, and other rational means we shall eventually manage to become posthuman, beings with vastly greater capacities than present human beings have.” (Transhumanist values 2005)

So how do transhumanists imagine the future? They imagine a posthuman future, one where we eradicate all disease and human suffering, our intellectual, physical

and emotional capacities are all dramatically increased, we overcome our current biological limitations and maybe our minds, at least, live forever. And we arrive in this future by way of advances in technology. Sound a bit far-fetched? Let me remind you what Jennifer Doudna, in her book “A Crack in Creation,” had to say about the opportunities offered by CRISPER:

“As the CRISPR toolbox has expanded, no letter of DNA in the genome, no gene or combination of genes, is beyond reach....exploiting this power in humans promises to reshape the treatment of cancer and genetic diseases, and its application in plants and animals provides opportunities to improve food production, eradicate certain pathogens, and even resurrect species.
(p.111)”

She also reminds us that the reason CRISPR has exploded onto the biotech scene with such force and vitality is its low cost and ease of use. -“CRISPR finally made gene editing available to all scientists.” The toolbox has continued to expand since Doudna wrote those words almost three years ago now. Transhumanists see no inherent problem with cracking creation, and, at least by Bostrom’s account, they believe it can be done responsibly, preserving species diversity, saving lives and caring about the well being of all sentient life. CRISPR alone isn’t enough to bring a transhumanist vision to fruition, but possibly it’s a powerful start.

How does the transhumanist image of the future compare to, or differ from, a Christian view of the future? Volumes have been written on the differences, and the similarities. Ron-Cole Turner, a Protestant theologian, notes that both are promising

salvation, but for Christians human enhancement ultimately comes from the grace of God, even when technologies, like CRISPR, make a contribution; technology alone won't bring salvation. For Christians gaining eternal life means letting go of this one, not hanging onto an improved version, and transformation involves the whole of creation, not just humans. This last point, transformation involving the whole creation, does not fit the popular versions of Christianity that many of us have grown accustomed to, like the version I grew up with that focused on human salvation. John Haught would agree with me. In one of his latest works, *Resting on the Future: Catholic Theology for an Unfinished Universe*, he suggests that Catholic theology needs to move away from the notion of creation as previously perfected, but now tarnished by human sin, and away from the idea of redemption narrowly defined as the saving of souls from the material world, towards embracing what he calls an *anticipatory theological vision*. In this vision nature reveals God, but a fixed hierarchical understanding of the world dependent on a God who is the perfected eternal present, up there somewhere, is replaced by one where the whole cosmos is still a work in progress and salvation is about more than human souls. In his words,

“Catholic spirituality remains shackled to a vertical, hierarchical picture of the universe in which nothing much other than decay is going on across the reaches of time. The classical metaphysics of the eternal present is inclined to interpret the beauties of nature as reminders of lost innocence rather than anticipatory signs of a cosmic future still coming to birth. Once we absorb the scientifically incontestable fact that the earth was not host to Eden in the beginning, however, we may come to realize that the cosmos and, along with

it, our personal lives and communities, can still become more than they are now. (p.19)The cosmos is a work in progress and humanity's vocation is one of extending the creativity of the cosmic process into an indeterminate future."

In this Christian view, human transformation is placed in the context of transformation of the whole universe and humans have a role to play. Haught makes a persuasive argument, in my opinion, but I understand that for many reasons, not the least of which is that I am a Unitarian Universalist, my opinion doesn't need to carry much weight with the Catholic community, but point of reference- I was raised in the Catholic tradition, just sayin.

So how does Haught's Christian vision of the future intersect with the transhumanists' vision? *This is where Haught treads very carefully, he suggests new technologies can't be unambiguously described as evil, to do so would be to deny humanity's vocation, and the biblical themes of promise, liberation, and prophetic justice.* However, he suggests some ground rules to follow when thinking about the enhancement of nature, including humans: first, life that has the capacity to strive towards a goal must be increased; secondly and related to the first, subjectivity must be sustained (that is life must have the ability of experiencing the striving and the resulting success or failure) and finally, the world's capacity for creativity must be sustained or increased. To summarize, increase vitality, subjectivity and creativity in nature and the potential enhancement gets a green light, but Haught is very suspicious of transhumanist visions of the future being able to preserve these

qualities. To him, transhumanists appear narrowly focused on humans at the expense of the rest of nature and likely to reduce life to an inanimate and mechanical process where the act of striving is nonexistent.

But what about the less extreme possibilities offered by CRISPR? How would they measure up by Haught's ground rules? Without going too far afield into posthuman imaginings, let's look at where CRISPR is now and what's likely in the near future for this technology, especially as it applies to humans.

CRISPR could ease human suffering, wouldn't most religions agree this is a worthy goal? There are thousands of genetic diseases where a single defective gene is the culprit. CRISPR might be used to repair embryos with single gene inherited disorders, (what parent wouldn't want a healthy newborn?). But CRISPR can't promise yet to do that safely, for one there is a possibility of off-target changes in DNA. These could have serious consequences for the newborn and their descendants. Both the good results and the bad would be passed from one generation to the next. Furthermore, for many single gene disorders, parents can already avoid passing the genetic disease onto their child by using preimplantation genetic testing to choose disease free embryos. Parents do not have to rely on CRISPR for a healthy newborn. Currently the best bet for increased life, subjectivity and creativity is to avoid using CRISPR to edit human embryos to repair single gene disorders. But what about using CRISPR to enhance an embryo? The technical difficulties only increase. The things parents might like to enhance, for example intelligence, strength, athleticism, or musical ability are complex traits that are not

reducible to a single gene and are also the product of genes interacting with the environment. The transhumanist vision, like it or not, I believe is on hold by current limits in understanding and technology. But should we continue to advance the technology in hopes of one day trying to genetically enhance humans?

I had an opportunity to pose this question to my college aged children and their friends. (I promised them all a free meal if they would talk to me.) First they envisioned a scenario where somehow anyone who wanted their unborn child to receive a particular enhancement could have access to the technology, but they did not trust the outcome of that scenario, they feared that more and better, and more and better... would lead to an environmental catastrophe and the collapse of society, -a society where useful and necessary work would fail to get done. Then they considered a scenario that seems more likely, access to genetic enhancement technology for some people, but not everyone, -they concluded the result of this scenario would be an increase in social disparities, the gaps between the haves and have-nots. Also worrisome to them was the potential for chipping away at individual freedoms. Might parents be able to make choices pre-birth that would predestine their offspring to one future lifestyle over another without their consent? (Of course they would worry about this, teenagers do not like to be told what to do.) *These young adults could envision no scenario under which genetic enhancement was a good idea.*

While we may agree to put editing the human germline on hold for now, whether to address single-gene disorders or for genetic enhancement, what about

using the technology, in children or adults, to alter their cells DNA but not the DNA of their descendants. For some diseases, like sickle-cell and some cancers, we understand that CRISPR holds great potential for a cure. Clinical trials are underway to genetically edit cells removed from a patient and then reinsert the modified cells to see if the targeted disease can be cured this way. Genetic benefits and mishaps are limited to the patient, not their descendants. Certainly the cured individual would have the opportunity for increased vitality, subjectivity and creativity and we would not have inflicted any permanent changes to the human genome, but if the costs of such medical treatments are likely to be prohibitive for many, and probably most, individuals then *just like in the enhancement scenario, injustice could be increased, genetic diseases could become the plight of the poor.*

No matter where our starting place is when we imagine the future, secular humanism, a Christian religious view or another religious perspective, if our vision of the future includes a decrease in suffering, for humans and all of creation, then we face a formidable challenge in the present, -what to do about injustice? Every technological advance we pursue faces this challenge, not just CRISPR. Maybe each of us needs to find our own well springs of hope, wherever we can, and get on with the work of advancing not only technology, but also justice. I know some young people who agree, and I find that very hopeful.

Closing Words

Theodore Parker, a 19th century Unitarian minister

I do not pretend to understand the moral universe. The arc is a long one. My eye reaches but little way. I cannot calculate the curve and complete the figure by experience of sight. I can divine it by conscience. And from what I see I am sure it bends toward justice.

Or Martin Luther King Jr.

The arc of the moral universe is long, but it bends toward justice.

So let it be. Amen.