

# Disembodied Globalization

## *Remaking Bodies, Unsettling Global and Personal Horizons*

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### ABSTRACT

How can debates about the future directions of globalization be best advanced, particularly those concerning the interchange of bodies and objects from refugees and tourists to body parts and viruses, when global relations are mediated through disembodying technologies from data platforms and digitalized surveillance to biomedicine? From the other side, how are we best to understand processes through which more embodied processes of globalization all tend to be managed, surveyed, and controlled through those more abstracted mechanisms of technological mediation? This chapter elaborates a methodologically consistent way of answering those questions. It investigates the tensions between these different forms of social interchange, arguing that disembodied globalization is now the dominant form of globalization, and is likely to be into the future. By exploring themes of embodiment, including human reproduction, sexual identity, vaccination, and genetic engineering, the chapter seeks to show how technoscientific intervention associated with ideologies of overcoming bodily constraint are remaking what it means to be human.

### KEYWORDS

culture, embodiment, gestation, globalization, mediation, technology, technoscience, wombs

Even at the level of day-to-day local activities, embodied relations are being fundamentally transformed by abstracting processes that are increasingly globalized. Developments including the planetary reach of technoscience, cyber-capitalism, and communications technologies are increasingly framing how we live our

bodies. They enable phenomena as diverse as the global trade in body parts and the distribution of pharmaceuticals, including pandemic vaccines. The Global COVID crisis has brought this home, with all its disparate impact in different parts of the world. It seems that once again, a technoscientific fix has become necessary to mitigate the effects of a world turned upside down by the technologization and exploitation of planetary ecology—this time through zoonotic transfer intensified by climate change, deforestation, and the technologization of agriculture.

However, there is a less obvious reframing of our bodies going on. Biotechnologies have been steadily remaking the foundations of human procreation, gestation, and identity formation, albeit unevenly in different parts of the world. The chapter suggests that unless something is done self-reflexively and politically to slow down the dominance of technoscience in the context of what might be called “disembodied globalization,” the present period of existential unsettling will extend voraciously into the immediate future. It will intensify and radically stretch us in different directions, fracturing our sense of ourselves and our relations to others and to nature.

How can we make such a claim? How can we appropriately use past and present vectors of globalization to inform our understanding of the future possibilities and probabilities of global interchange? The chapter projects the dominance of disembodied globalization as one of many future possibilities—“probable” only given its current power, and always dependent on human agency, aspirations, and desires. There is a profound difference between predicting or forecasting and projecting plausible, imagined, and probable future scenarios. Prediction tends to take the form of statistical tracking. It is the bane of bad futurism and underpins its tendency to get things wrong. Lines on a graph do not make the future, even if statistical analysis is a useful part of a broader analytical approach.

Without eschewing statistical analysis, the present approach works instead with the probable trajectories of dominant driving social forces. This chapter employs a “modes of practice” analysis as part of a larger *engaged theory* method (Steger & James, 2019). It is not controversial to say that in the world today, the dominant mode of production is cyber-capitalism, the dominant mode of exchange is commodity and financial exchange, the dominant mode of inquiry is scientific-analytic, and the dominant mode of organization is bureaucratic-corporate.<sup>1</sup> Out of this intersection of modes of practice has arisen a historically unique phenomenon that can be called *technoscience*, defined as the technologized instrumentalization of inquiry, linked to cyber-capitalism, with a driving tendency towards remaking natural and social life for the purpose of return on investment and “overcoming” the given historical limitations of being human. To be very clear, it is not the application of scientific principles to technological refinement that will be called into question—technoscience is much more than that. It is more pointedly the scientific-technological-capitalist triangle of disavowance, reconstitution, and exploitation of the basic foundations of life and matter on this planet.

The chapter begins by establishing the terms of a generalizing argument about disembodied globalization and its current and projected dominance. Underlying this argument is a normative proposition: unless people actively choose to live differently, the zooming dominance of disembodied relations, both globally and locally, will continue to remake our embodied relations to each other in ways that unsettle the condition of being human as we have known it. This methodological and political inquiry weaves through a discussion of a number of themes: human reproduction, sexual identity, vaccination, and genetic engineering. We now turn to defining key terms and processes.

### DISEMBODIED GLOBALIZATION

Disembodied relations of connection, pressure, and impact are at the center of contemporary globalization. And it seems that this trend will intensify into the future, abstractly integrating the world through digital platforms and cruelly dividing it in terms of access, mobility, and wealth. This means that in relation to patterns of power, the bodies of people, from process workers in a *maquiladora* in Matamoros to Digicel flex-card resellers on the streets of Port Moresby, will continue to be secondary to the value-fluctuations and data-flows of the world's financial markets, currency-exchange systems, and communications platforms. The global COVID crisis has been a sharp test of the structural power of this continuing process of integrating the world at one level and dividing it at another. It was telling that the digital movement of images, signs, and data continued to intensify across the entire COVID period. This happened even while the movement of people became increasingly managed, surveilled, and curtailed. Even during the uncertain heights of the crisis when, for a short time, trade was dramatically declining and various pundits were *again* wrongly talking of the decline of globalization, the counter-trends were startling. Communications and data-flow increased. This problematic projection seems to be a cyclical refrain that ignores the new dominant form of globalization. As one example of disembodied globalization under COVID, international Internet traffic doubled in 2020 on 2019 levels. Since then it has continued to rise at a steady rate (Altman & Bastian, 2021).

How did some economic commentators get it so wrong with their future projections? It was partly short-termism, partly desire to be dramatic, but also that they focused on a few discrete indicators with a skewed focus: the movement of people (embodied globalization) and trade figures (one aspect of object-related globalization), with some commentators adding in foreign direct investment (a small and particularly volatile aspect of disembodied globalization). The OECD data set on globalization, for example, is amazingly skewed, with all of its categories focusing on the activities of corporations and most of the data sets relating to trade (OECD, n.d.). It is no wonder that mainstream analyses can be so awry.

All of this confirms the need for an analytical framework that distinguishes levels of globalization in terms of the social form of the interrelation. In order

to be clear about current trajectories and future possibilities, it is important to know what we are actually talking about. Analytically at least, globalization can be divided into layers of lesser to more abstracted processes that extend and intensify social relations across world-space (Steger & James, 2019). *Embodied relations*, the first of these layers, are carried by individuals and groups moving in their personal capacity locally and across the planet—as refugees, migrants, researchers, tourists, and so on—engaging with others and stretching relations beyond immediate places. This becomes self-consciously globalized (with unintended but aggregated systematicity) as people’s imaginative and active horizons stretch to the ends of the Earth. One aspect of the subjective side of this process is what Manfred Steger calls the rise of the global imaginary (Steger, 2008).

*Institutionally extended relations* are carried by people acting in their capacity as agents of states, corporations, and other institutions—from circulating military personnel to globe-trotting businesspeople. This second form *incorporates* the bodies of those who travel, but reframes their working practices as *agents* of something beyond themselves. Beyond being persons, they become *personnel*. That is, at one level, they are lifted out of the immediacies of their personal embodied relations to become representatives of something else.

With the third form, *object-extended relations*, engagement passes to objects circulating along global lines, from traded commodities and plastic particles to body parts and viruses. Again, even when these objects include human body parts—kidneys, sperm, and ova—they are abstracted from their prior embodiment. Intentionally or unintentionally, these objects extend and remake embodied meanings and relations across far-reaching space as people from body-parts sellers to organ recipients begin to think of the world as a global market of commodified possibilities for their own life-struggle.

And, finally, *disembodied relations* are those relations borne on the wings of immaterial things and processes such as electronic texts and encoded capital. It is this form of relation that in the contemporary world, and arguably into the foreseeable future, is remaking all the other forms. It constitutes the dominant formations of globalization.

In the engaged theory method, each of these forms is understood analytically as more materially abstract than prior levels. Equally importantly, history has taught us that over time more abstract levels tend to reframe and reconstitute those prior levels rather than replace them. Using this set of analytical distinctions (and not treating them as ideal types or stand-alone formations) allows us to understand the changing dominant forms of globalization without suggesting that any one of the other forms has been displaced or reduced to irrelevance. In practice, as the chapter will make clear, these different relational forms are increasingly bound up with each other. However, the connecting argument of the chapter is that, projecting from past and present patterns and trajectories, our most likely future is, firstly, the consolidating dominance of this disembodied form, secondly, the stretching of tensions between this and other forms, and thirdly, the contestation

of disjunctures of power as processes of disembodied relations encompass, dominate, and remake all others.

How can we talk of the dominance of disembodied globalization when the global movement of the bodies of people has become increasingly controversial and contested? It is certainly the case that the *negative* power of the movement of refugees and economic migrants has caused massive political upheaval in the world—and without a sea change in the politics of national borders, this seems almost certain to continue. The bodies of travelers potentially carrying different COVID strains have also had a negative power to disrupt globally, and this too will continue. However, a shift in perspective to examine the processes by which such movement is monitored, surveyed, and managed—in other words, to where power lies—makes it clear how much disembodied processes have come to reframe embodied mobility. States, international organizations, and a growing industry of subcontracted software companies now, for example, use sophisticated digital infrastructure to manage the bodies of those people who seek asylum and refuge across the world (Latonero & Kift, 2018). Thus, it is not the disappearance of bodies that we are talking about, but rather the reconstitution of embodied relations.

#### TECHNOSCIENCE AND THE UNSETTLING OF THE HUMAN CONDITION

In previous work, Manfred Steger and I have used the atomic bomb explosion in 1945 as a symbolic marker of the way in which abstracting processes, most pressingly through technoscientific interventions, have come to unsettle foundation senses and practices of human relations to others and to nature (James & Steger, 2021). We have argued that the Great Unsettling involves the capacity to take apart and reconstitute the basic conditions of life. In the case of the bomb, the splitting of the atom was cataclysmic in its consequences for the global reach of violence, opening the possibility of the end of the world as we know it.

In this essay, I want to use another marker of the Great Unsettling that relates more immediately to human embodiment—the discovery in 1953 of the double-helical structure of DNA, deoxyribonucleic acid. It was proclaimed as the “secret of life,” but it involves the capacity to reconstitute what life means, including the meaning of a “normal” fetus. It is striking how closely the genetic-overcoming timeline follows the atomic-splitting timeline. In Eugene Thacker’s words, with the coming together of genomic databases, DNA synthesizers and regenerative technologies, humans have on a global scale come to be “ontologically redefining the notion of biological ‘life itself’” (Thacker, 2005). The discovery of DNA in this argument is a marker of an ontological shift within a matrix of other bio-interventions. Genetic engineering and associated activities such as in vitro fertilization now allow us to animate and reanimate the conditions of life, including its creation. A technological breakthrough such as CRISPR, marked by the

2020 Nobel Prize in Chemistry, has so quickly become normalized that it is now advertised for use by high school students in the classrooms for reengineering life-forms.<sup>2</sup> In the past, humans have controlled life-creation by political and cultural edicts or by the use of physical and herbal practices, but with the unbundling of the “secrets” of life, a new level of intervention, control, and exploitation has come into being.

Ulrich Beck calls this process “being God”: “The genesis of human life is exposed to human intervention and creative will, but as a result also becomes the playground of the most diverse actors and interests scattered across the world” (Beck, 2016: 24). Beck takes the remaking of motherhood and birth made possible by technoscience as his way into the unsettling of planetary social life: “What used to be an intimate and almost ‘sacred’ act has metamorphosed into a global cosmopolitanized field of activities” (Beck, 2016: 22). Because there are substantial political similarities here with the argument of the present essay (but also profound theoretical divergences with some political implications), I will come back to his book *The Metamorphosis of the World* to sort out my perceived problems with his approach. I will also use Donna Haraway’s work as a touchpoint along the way. Quite different from Beck, and as a precursor to the New Materialism, she tends to reduce objects as diverse as DNA, the fetus, and the bomb to being complex constructs of technoscience:

Objects like the fetus, chip/computer, gene, race, ecosystem, brain, database, and bomb are stem cells of the technoscientific body. Each of these curious objects is a recent construct or material-semiotic “object of knowledge,” forged by heterogeneous practices in the furnaces of technoscience. (Haraway, 1997: 129)

The difference here from the argument that I want to make is that, for all of the descriptive complexity of Haraway’s analysis, the fetus and the stem cell are ontologically flattened as the hybrid creations of global technoscience. In the engaged theory method, this is the case at one level, but disjunctures remain as, across the world, mothers also continue to experience being pregnant in culturally diverse and embodied ways that palpitate despite the dominant scientizing mode. Whereas Haraway advocates “technoscientific liberty”—that is, controlling, inhabiting, and shaping the tools that remake us—this essay, by comparison, questions the whole technoscientific project of revealing, controlling, and overcoming.

However, first, the essay turns to describe some historical lineages that allow us to understand both the deep continuities and the profound discontinuities of the Great Unsettling. What Beck describes is a complete and utter transformation of the world, one that requires a new language. What this essay describes is rather a deeply troubling reconstitution of prior dominant forms that, at one level, carries forward old aspirations and imaginaries. Ironically, this disjuncture of subjective imaginaries and objective practices allows the proponents of a technologized post-human future to argue that what is happening is necessary and good. In other

words, I am suggesting that the unsettling of the world is more complicated than Beck described.

#### THE DISEMBODYING MISE-EN-SCÈNE OF HUMAN GESTATION

The technoscientific framing of the intimately embodied practice of gestation—becoming human—has, like most of these unsettling processes, a long-emerging history with significant countertrends. The medical framing of human gestation began as multiple lines of modernizing investigation. Two of these lines are particularly relevant to the longer story narrated here: the desire to *reveal* the unknown and the aspiration to *overcome* human procreative “deficiency.”<sup>3</sup> Revealing the technicalities of the womb, a part of the process of overturning earlier traditional doctrines of forbidden knowledge (*quae supra nos, ea nihil ad nos*) was at first brutal, then normalized. In the early development of modern medicine from the sixteenth to the eighteenth centuries, it involved mapping the human body through anatomical exposures, often using flayed cadavers. For example, William Hunter’s widely circulating obstetrical atlas, *Anatomy of the Human Gravid Uterus* (1774), depicts dismembered pregnant women who had died before giving birth. The women’s legs and upper abdomen are cut off or covered in cloth to stage the uterus with minimal graphical distraction. Such atlases were part of a broader process of revealing the body in precise technical detail. At the same time, they were intended to diminish the prior hold of either idiosyncratic organic beliefs or cosmologically systematic doctrines about the unborn child (Sasson & Law, 2009). It took nearly two centuries for this technical imaginary to be generalized across the world beyond the emerging medical profession and to become the framing global conception of the gestation process. This occurred with contradictory effects.

It is a long way from Hunter’s *Gravid Uterus* to the new mid-twentieth-century techniques for revealing the fetus, but there are continuities—and there are also increasing discontinuities that are unsettling identity and life. On one level, revealing the fetus has now been generalized and normalized as part of personal care. The ultrasound wand provides a good example because it is so apparently simple and innocuous. Invented in the 1950s, and extending to a globalizing market by the late 1970s,<sup>4</sup> it, at one level, returned the image of fetus to the woman who is undergoing the scanning procedure. She views the fetus growing in her own body as an intimate personal event. In one way, this *is* so. Events of mass-media revealing, such as *Life Magazine*’s 1965 front-cover image of a fetus, appear from the masses of letters and correspondence to have been received as such. However, as a number of feminist and other writers have documented, fetal-revealing events also became a culturally choreographed and medically mediated process, repeated the world over, that disembodied women through regulated techniques, norms, and questions (Duden, 1993; Nicolson & Fleming, 2013). Do you want to know



the sex of your child? Does the baby have ten fingers and ten toes? With such questions the revealing is simultaneously enacted as an intimate personal “bonding” and used in abstracted diagnosis to determine whether the fetus is sufficiently “normal” to be taken to full term. Parents thus came to be produced as the arbiters of life and death.

Since its beginnings, imaging has taken a qualitative leap, now combining with a host of other tests that are available globally, including the use of maternal plasma to conduct cfDNA or cell-free fetal DNA testing. This kind of codification, now also linked to Artificial Intelligence systems, is called “noninvasive” prenatal testing (NIPT), as if by progressively taking the physicality of biomedical revealing out of contention, the personal bonding is simply being enhanced. However, stepping back from the immediacy of the process, Charis Thompson describes the management of the technical, legal, gendered, and identity-forming aspects of reproductive medicine as an unsettling *ontological choreography*:

What might appear to be an undifferentiated hybrid mess is actually a deftly balanced coming together of things that are generally considered parts of different ontological orders (part of nature, part of the self, part of society). These elements have to be coordinated in highly staged ways so as to get on with the task at hand: producing parents, children, and everything that is needed for their recognition as such. Thus, for example, at specific moments a body part and surgical instruments must stand in a specific relationship, at other times a legal decision can disambiguate kinship in countless subsequent procedures, and at other times a bureaucratic accounting form can protect the sanctity of the human embryo or allow certain embryos to be discarded. (Thompson, 2005: 8)

What Thompson describes, common in the Global North and unevenly practiced across the South, is a process of taking apart the elements of reproductive embodiment and putting them back together in a biomedical model that fundamentally changes the meaning of embodied identity and kinship. Here, older modern processes of revealing and overcoming are overlaid by a biotechnical disembodied framing that fundamentally changes the meaning of our bodies (Kukla, 2004).

The intensifying aim to overcome embodied limitations has since generated a global industry in reproductive technology “assistance” with over eight million children born worldwide each year, most in the Global North. The fertility-services market was estimated in 2021 to be worth US\$15.7 billion (Patrizio et al., 2022).<sup>5</sup> Using such economic data to track global industries is the usual mechanism for indicating global impact. Another approach would be to map the global journeys of reproductive tourism (Jönsson, 2017), the global movement of human gametes (Inhorn, 2011: 87–103), or the trade in body parts such as kidneys, corneas, and human hair (Lundin, 2015). Here our method would show how exploitative bio-colonialism involves uneven and exploitative exchange across different forms of interrelation. But our search—paradoxically, given its earth-trembling impact—takes a subtler, less provable kind of work, tracing changes in the ontology of



reproduction. One way into understanding this change is through Barbara Duden's description of the 1965 moment of revealing the fetus as involving *a loss of horizon*, similar to seeing the Blue Planet floating in space:

It has become very difficult for us today to realize, to sense, the horizon beyond which the not-yet was hidden for most of historical time. One of the most fundamental but least noted events in the second half of the twentieth century is the loss of horizon. We live somewhere between satellite TV, which knows no skyline, and the telephone, which allows us to reach beyond our line of vision to connect with any number we choose. It requires a special effort to remember there ever was a horizon, although it has only recently been erased. It was just yesterday that the whole earth suddenly "appeared" as the Blue Planet and we began to accept that fact that all would be exposed to recording equipment orbiting far above this Tower of Babel. I regard the fetus as one of the modern results of living without a horizon. (Duden, 2000)

As Donna Haraway writes, "The fetus and the planet Earth are sibling seed worlds in technoscience" (Haraway, 1997: 174). The difference here for Haraway, and distinct from the argument being made in this essay, is that this can be understood as just another horizon of embodiment. The levels method, however, clarifies what the framing process of disembodiment means. Bodies are not dematerialized, but they are socially reconstituted by a more abstract level of engagement, a relativizing (effectively horizonless) world of unsettled difference and identity (Caddick, 1986: 60–88). For example, even as early as *Life Magazine's* 1965 front-cover image of a fetus and placenta floating in a black disembodied space, the mother's body had at one level been *objectively* relegated to the back-stage of medical imaging. In view for this world-changing set of photographs was just the amniotic sack on a black background. Objectively, it was depicted as an organism abstracted beyond the womb (*Life Magazine*, 1965). At the same time, subjectively, the photographs were received by the general public as intensely and intimately human. *Life's* first print-run of eight million copies was sold out within days.

The global interest was overwhelming, with the article simultaneously published in the British *Sunday Times* and the French *Paris Match* (Fischer & Ville, 2009). The photographs were proclaimed as the first "portrait" of a living embryo *inside* its mother's womb, but the reality, not discussed at the time, was that many of the embryos pictured were no longer living; they were aborted organisms "staged" outside their mothers' wombs. Thus, in one sense, it was as if we were still in the brutal age of mechanical revealing, just more romantically presented. However, more deeply, we were witnessing the global remaking of human birth as a *revealed* and *chosen* right—not a veiled Other-given gift or a limited natural possibility, as it had previously been. Science now made *everything* possible, and over time the feminist critique (Franklin, Lury, & Stacey, 2000) largely lost its edge, routed by globalizing ideologies of liberation from embodied constraint.

A parallel history can be written about the eugenics movement, except that it quickly became globally prevalent in agriculture while taking much longer to

be normalized in human gestation and body-parts growing. In 1934 an English translation of Hermann Rohleder's 1921 German volume was published as *Test Tube Babies: A History of the Artificial Impregnation of Human Beings*. Despite the book's title evoking the much-later revolution in in vitro fertilization, Rohleder was describing a long-known mechanical process of impregnating woman with sperm from known men by physical but noncoital transfer. As with the process of revealing, the unsettling shift in *overcoming* human deficiencies occurred across the middle of the twentieth century. However, in this case it occurred first ideologically and then scientifically.

Across the early years of the century, the shift was slow. Charles B. Davenport's *Eugenics: The Science of Human Improvement by Better Breeding* (1911) was notable in linking plant development to human reproduction.<sup>6</sup> Despite (or perhaps because of) their scientific messiness and often racist and elitist incoherence, such books spread the eugenics movement worldwide. In 1925, Davenport became the first president of the International Federation of Eugenics Organizations. This was the context in which Aldous Huxley published his 1932 bestseller *Brave New World*. A couple of decades later, the Nazi eugenics experiments further slowed down the legitimacy of genetic engineering. Nevertheless, quietly in the background the science was proceeding—with new names such as “technologically assisted reproduction,” “genetic screening,” and “synthetic biology.” The developments quickly compounded. In 1961, an Italian scientist successfully fertilized a human egg in a laboratory dish. In 1985 the world's first human gestational surrogacy took place with an American couple's fertilized embryo implanted successfully in another woman's womb. In 1996, a U.S. team, operating transnationally in Mexico to avoid national laws, facilitated the birth of a baby using the mitochondrial DNA from an anonymous donor and the egg and sperm of a Muslim Jordanian couple, thus producing the “world's first” biologically three-parent offspring. In 2021, “model” human embryos were created in Australia—in effect a form of cloning—to produce what they called “iBlastoids,” bypassing the need for an egg cell and sperm cell. This development now tests the law that human blastocysts cannot be cultured beyond the development in “embryo” of what is called the “primitive streak.” In 2022, David Bennett Sr. of the state of Maryland had his failing heart replaced by a genetically altered pig's heart; he lived for a month after the xenotransplant.

Before wrapping up this narrative, it is worth elaborating how this all links to the COVID crisis. The simple answer is that the new-generation mRNA and adenovirus vaccines also depend upon this disembodied reframing of human bodies. The AstraZeneca vaccine, for example, uses HEK-293, a human embryonic kidney cell-line derived from a fetus aborted in the early 1970s.<sup>7</sup> Using recombinant DNA technology, this cell-line was cloned across many generations to develop what is called a “vaccine factory” to help the vaccine to replicate (in this case derived from chimpanzee adenovirus Y25). HEK-293 is removed before the vaccine is manufactured,

thus completing the ideological circle of defense—"there are no fetal cells *in* our vaccine." The term *vaccine factory* is a parallel distancing trope, but, of course, removing the cell-line does not make any difference to the general ethical question, nor does it reverse the disembodied framing of embodied relations. Embryonic cell-lines are used in three main ways: first, in the design-and-development stage, to research how the vaccine will be constructed and produced; second, in the production stage, to manufacture the vaccine; and third, in the confirmation stage, to test the consequences of the vaccine. The mRNA COVID-19 vaccines produced by Pfizer and Moderna show that it was unnecessary at least in the first two stages. However, both companies used fetal cell-line HEK-293 in their confirmation stage. On their website, they say they are ethically sensitive to religious objections, but it is a rotten argument, much like the curate's egg. They are still compromised.

In brutal summary, a potential human life aborted by someone is used (instrumentalized) for technoscientific investigation, research, and production of the vaccine. However, the more general point is that the horizon of meaning has shifted so far that the process of abstraction now becomes its own defense. The proponents of mRNA vaccines say that the current fetal cell-line is thousands of generations removed from the original tissue, and the vaccines do not contain any tissue from a fetus. This is all factual, but we need to be clear what it means. It is now no longer an *ethical* defense in the prior humanist sense of the word, but rather a convenient and powerful post-truth. On the other side, the practice that sits behind the shifting horizon of ethics confirms the argument of this chapter that the abstraction of life (in this case, a fetal cell-line) is embedded in a globalizing technoscientific project. This project is one that defends itself by at once emphasizing its embodied therapeutic effects and suggesting that disembodiment prior understanding of the limits of embodiment is positively necessary. Its effect, at least for those who know, is part of the unsettling of the relation between natural and created life, parts and wholes, embodiment and disembodiment. For others, it is just part of the confusing backdrop to the unnamed unsettling of the meaning of life. We need to get vaccinated, and this is what is available.

#### EVERYTHING HAS FUNDAMENTALLY CHANGED. WHERE DO WE GO FROM HERE?

In this conclusion to the chapter, I want to briefly round off the discussion by turning to two alternative ways of reading these changes. The first is the posthumanist approach (using Aaron Bastani as a key example), and the other is the "second modernity" approach (focusing on Ulrich Beck).

Aaron Bastani's recent book *Fully Automated Luxury Communism* (Bastani, 2019) serves as a salutary example, lest it be thought that the posthumanist (or

transhumanist) approach is restricted to right-wing techno-utopianism or post-structuralist excess. His approach turns on a problematic naturalizing of the current techno-scientific revolution—organic life has always been no more than DNA coding (abstraction as its own defense):

Ultimately, we will encounter new possibilities in maintaining the biological systems of our planet, as well as feeding and healing our own bodies. And why not? After all, organic life is itself nothing more than encoded information, if a little more complex: there are four nucleobases in double-stranded DNA—C, G, A and T—rather than the binary code of 0s and 1s as with digital information. (Bastani, 2019: 39)

Given this assumed abstraction of embodiment, how do we establish a future global paradise? His answer is more technoscience: bring the digital revolution to bear on everything and abstract ourselves from nature, including our own nature, to solve all the world's problems. Along the way, he magically disaggregates technoscience from cyber-capitalism—despite their being inextricably intertwined across their current mutual histories. Bastani thus anticipates an automated world of wonder and ease, one “immeasurably better” than the current one. Communications technologies and Artificial Intelligence will supplant the necessity of most embodied human work. Renewable energy technologies will generate limitless sustainable power. Mining near-Earth asteroids will allow us to escape the earthly limits of resource depletion. Cellular agriculture and the production of synthetic meat will enable a massive relocation of food production to vertical postindustrial farming. Genetic engineering and preventative gene therapies will reprogram our bodies for strength and vitality, “potentially eliminating conditions which debilitate or kill millions of people a year” (Bastani, 2019: 157).<sup>8</sup> (He gives us a chapter on each of these claims.)

How will we achieve this “marvelous” abstracted disembodied world? Bastani's answer is an open Left democratic populism that fully embraces the new technologies. Acknowledging the “global scale of any response,” he says, “is critical. Our ambitions must be Promethean because our technology is already making us gods—so we might as well get good at it” (Bastani 2019: 189). He thus revels in what he calls “the Third Disruption,” the first being the human turn to agriculture and the second the Industrial Revolution. What will stop us, apart from new forms of Luddism? “One of the greatest barriers to such change,” he says, “is the cult of globalism, whose default rhetoric is that the challenges we face are so profound that they can only be resolved through international coordination” (Bastani, 2019: 197). Bastani thus returns to an old Left rhetoric that says internationalism is good, but globalism and international coordination are bad. This line rolls out into incoherence as his required changes include the formation of an International Bank for Energy Prosperity taxing carbon production—a One-Planet tax—moving funds to the Global South for enabling technology transfer. One might think that

this will require some global cooperation and coordination to happen, but that is another question.

Ulrich Beck's world is just as frightening, except that he is nominally against it—against the technologizing that is making us gods. His concern is to move from a world of nations (bad) to a world of cosmopolitanism (good). The first methodological problem that Beck immediately encounters is that the issues that I have been describing have already been systematically (even if unevenly) globalized, particularly over the past half-century. If the global is good, how can the agents of globalization be such willing partners in the spread of these disruptive processes? This is compounded by a second problem: his framing argument is that everything across the world is in the process of utter transfiguration—“metamorphosis” towards cosmopolitanized spaces of action. For Beck, the language of transformation or change cannot handle such a process. It is completely epochal. “Metamorphosis is not social change, not transformation, not revolution and not crisis. It is the mode of changing human existence” (Beck, 2016: 20). However, because contradictorily it is simultaneously clear that everything has *not* (yet) changed—for example, as we are witnessing in the 2022 war in Ukraine, ideologies and practices of nationalism abound on both sides of the conflict, and bodies on the ground make a difference—his method has to twist and turn through some messy analytical maneuvers. These moves, I suggest, could be much more systematically handled through the engaged theory I have just outlined.

Beck first has to distinguish conceptually and arbitrarily between the routinized “cosmopolitanized spaces of action” that constitute everybody's lived reality and “cosmopolitanism,” the normatively couched description of the good world that we are still to achieve. Second, he has to distinguish between “practice” and “action.” Practices, he says, are routinized, including in cosmopolitanized spaces; actions are supposedly reflexive, reaching beyond that practical framing to cosmopolitan possibilities. For me, this remains an unresolved conceptual play of words rather than a clarifying series of analytical moves.

We can ask a parallel question of Beck that we asked of Bastani. How will his marvelous cosmopolitan world be achieved (and not just be routinized in the confusing cosmopolitanized spaces he describes)? A common global community of fate, he says, will occur as the “bads” of this metamorphosis confront us with the limits of older forms of human life and prejudice: “Muslim kidneys purify Christian blood. White racists breathe with the help of Black lungs. The blond manager sees the world with the eye of an African street child . . . The bodies of the rich are being transformed into skillful patchwork assemblages, those of the poor into one-eyed or one-kidneyed storehouses of spare parts” (Beck, 2016: 73). The bads of this process will, he says, force the realization of its emancipatory possibilities. The shock of catastrophe will bring about its own metamorphosis towards a positive “cosmopolitan horizon” (Beck, 2016: 123). The problem with this, as this chapter has been concerned to spell out, is that the horizon has already

shifted. Ideologically, abstraction and disembodied framing have become their own defense. And in practice, with this case of trade in body parts, technoscience is already working on developing more exploitable and dependable pools of resources that do not have such unfortunate biocolonizing connections. Stem-cell therapy, xenotransplantation, and bioengineered tissue products are, through CRISPR technologies, already beginning to replace raiding the Global South for organs and tissues. This is our present, and a possible future in relation to which we will need a very different politics from going with the global flow or hoping that catastrophe will bring new visibility and clarity about what should be done. Beck's book, written in 2016, is already out of date.

The engaged theory method outlined in this chapter handles this issue very differently. By using the analytical distinction of differently abstracted levels of interchange, meaning, and practice, it allows for understanding the tensions between continuity and discontinuity, global dominance and everyday lived reception. It shows how a dominant *and dominating* qualitative change, characterized by objectification, biomedical screening, and embodied overcoming, can be normalized in terms of older hopes and aspirations—the apparently unmediated act of welcoming a healthy baby into the world. It documents how technoscientific disembodiment is carried on the wings of globalization as a necessary but not sufficient condition of the power and constitutive reach of that new constellation of science-technology-capitalism. And above all, it hints at a way of responding to the unsettling that entails neither reveling in the Third Disruption (posthumanism) nor waiting for the routinized confusion of exploitative cosmopolitanized spaces to finally hit home (second-modernity reflexivity).

## NOTES

1. See, for example, Ström (2020).
2. See [www.lab-aids.com/blog/crispr-classroom](http://www.lab-aids.com/blog/crispr-classroom), accessed March 14, 2022. CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats).
3. Of course, there are other equally important lines of modernizing engagement than just the more mechanistic lines of revealing that I am emphasizing here. See for example, Porter (2003) on the romantics such as William Blake or a satirist such as Jonathan Swift.
4. Despite a brief decline in 2020 with the COVID crisis, Fortune Business Insights predicts that the global ultrasound equipment market will grow from \$7.80 billion in 2021 to \$12.93 billion in 2028 at a compound annual growth of 7.5 per cent. [www.fortunebusinessinsights.com/industry-reports/ultrasound-equipment-market-100515](https://www.fortunebusinessinsights.com/industry-reports/ultrasound-equipment-market-100515), accessed June 7, 2023.
5. This is despite the declining live birth-rates through IVF procedures since the first decade of the 2000s (Gleicher, Kushnir, & Barad, 2019: 1–7).
6. See Witkowski & Inglis (2008), for a series of defenses of the technoscientific capacity to overcome human limits.
7. Here it is also worth noting that the distinction between *embryo* and *fetus* is a technical-medical one only. A fetus is defined as such by the length of time of living: nine weeks after conception.
8. It is worth noting that Bastani wrote this one year before COVID.

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