

The “Unguarding” (*Vehrwahrlosung*) of Human Life in Biotechnology: Thinking Essentially with Heidegger

ABSTRACT

Philosopher Martin Heidegger’s writing on the essence of technology has often been seen as too abstract even though he illustrated his concerns with reference to technological developments of his day. While most in the immediate post-World War 2 period judged thermonuclear weaponry to be the most obvious technological threat to the future of humanity, Heidegger instead considered developments in the biological sciences to be more so. In the discussion presented here, Heidegger’s thinking is related to developments in biotechnology, specifically assisted reproductive technology. The task here is (1) to illustrate how Heidegger’s disquiet is manifested in such technologies and (2) to emphasize the significance of his call for a “step back” from the calculative thinking dominant in the natural sciences to what he called, alternately, “essential,” “meditative,” or “commemorative” thinking. Only through this latter mode of thinking can we expect to enter into a “free” relationship to technology.

Keywords: Heidegger; biotechnology; ART/IVF; calculative thinking; meditative thinking

When and how do things come as things? They do not come through the machinations of humans. But they also do not come without the vigilance of mortals. The first step to such vigilance is the step back from merely representational, i.e., explanatory thinking [*erklärenden Denken*], into commemorative thinking [*das andenkende Denken*].

--Heidegger, “The Thing,”¹

Thinking...is the hidden and innermost dispute of our history.

--Heidegger, “Basic Principles of Thinking”²

We, women [...] declare that the female body, with its unique capacity for creating human life, is being exploited and dissected as raw material for the technological production of human beings...Genetic and reproductive engineering is another attempt to end self determination over our own bodies.

--Feminist International Network of Resistance to Reproductive and Genetic Engineering³

¹ Martin Heidegger, *Bremen and Freiburg Lectures: Insight Into That Which Is and Basic Principles of Thinking*, trans. A.J. Mitchell (Bloomington: Indiana University Press, 2012), 19. German text added as given in Martin Heidegger, *Gesamtausgabe III. Abteilung: Unveröffentlichte Abhandlungen Vorträge—Gedachtes, Band 79, Bremer und Freiburger Vorträge* (Frankfurt am Main: Vittorio Klostermann GmbH, 1994), “*Das Ding*,” 20. The German volume is referenced hereafter as “GA79.”

² Heidegger, *Bremen and Freiburg Lectures*, “Basic Principles of Thinking,” 93.

³ Nadia Mahjouri, “Techno-Maternity: Rethinking the Possibilities of Reproductive Technologies,” *Third Space: a Journal of Feminist Theory & Culture*, Vol. 4, No. 1 (2003): <https://journals.sfu.ca/thirdspace/index.php/journal/article/viewArticle/mahjouri/157>, accessed 06 January 2021, citing R. Klein, “Genetic and Reproductive Engineering—The Global View,” in Jocelyn A. Scutt, ed., *The Baby Machine: The Commercialization of Motherhood* (Carlton: McCulloch Publishing Ltd., 1988), 258.

Heidegger's Call for a Different Thinking

As far as twentieth century philosopher Martin Heidegger is concerned, since the seventeenth century onward, modern technology “has arranged its expansion and rule over the whole earth,” the implication of which is that “all the inhabitants of the earth” are claimed “in a uniform manner” thereby to be present for human interests as “calculable material.”⁴ Calculability implies that even philosophy “turns into the empirical science of man, of all of what can become the experiential object of his technology for man, the technology by which he establishes himself in the world by working on it in the manifold modes of making and shaping. All of this happens everywhere on the basis and according to the criterion of the scientific discovery of the individual areas of beings.”⁵

In the modern transformation of philosophy with the rise of the positive sciences as empirical sciences,⁶ thinking undergoes a basic change such that scientific method brings with it the objectification of the whole of reality and the insistence on engaging all beings as calculable material, not only in the sense of quantitative measurement but in the sense that methods of measurement become determinative of the way things are understood to have their being. We should find this development problematic: “The need to ask about modern technology is presumably dying out to the same extent that technology more definitely characterizes and regulates the appearance of the totality of the world and the position of man in it.”⁷ The need to interrogate modern technology remains with us in view of a possibility of a preparatory thinking: “We are thinking of the possibility that the world civilization which is just now beginning might one day overcome the technological-scientific-industrial character

⁴ Martin Heidegger, *On Time and Being*, trans. J. Stambaugh (New York: Harper & Row, 1972), 7.

⁵ Heidegger, *On Time and Being*, 57.

⁶ For a lengthy discussion of Heidegger's views on modern science, see Joseph J. Kockelmans, *Heidegger and Science* (Washington DC: Center for Advanced Research in Phenomenology & University Press of America, 1985), especially Part II: Heidegger's Conception of the Sciences, Chapter IV: Toward the Essence of Empirical Science, 117 ff.

⁷ Heidegger, *On Time and Being*, 58.

as the sole criterion of man's world sojourn."⁸ "But," one may ask, "why should one propose such a possibility?" Heidegger would answer to those who have no such apprehension: When modern science, e.g., that of biochemistry, can "synthesize, split and change living substance at will," we fail to discern what is at issue for humanity; "For precisely if the hydrogen bombs do *not* explode and human life on earth is preserved, an uncanny change in the world moves upon us."⁹

In his essay, "The Danger" ("*Die Gefahr*"), Heidegger remarks that we often observe (and, therefore, evaluate) technology only "technologically." That is, we tend to judge this and that technique, technical device, or large-scale technology, etc., usually (a) scientifically and *positively* as an "advance" for the benefit of humanity or, (b) *negatively* as a "threat" or "danger" to human welfare, depending on the context of political culture and the normative ethics involved in the evaluation of the particular technology (e.g., new technologies of assisted human reproduction¹⁰). Heidegger is not satisfied with such evaluative judgments, however, insofar as they "never arrive at the essence of technology [*das Wesen der Technik*]...Thus it changes nothing if one abhors technology as disaster or prizes it as the greatest advance of humankind and extols it as the redeemer of humanity."¹¹ For Heidegger, interrogation of technology in the contemporary world is insufficient if it is satisfied merely

⁸ Heidegger, *On Time and Being*, 60.

⁹ Martin Heidegger, "Memorial Address," *Discourse on Thinking*, trans. J. Anderson and E.H. Freund (New York: Harper & Row, 1966), 52.

¹⁰ See here, e.g., Paul R. Brezina and Yulian Zhao, "The Ethical, Legal, and Social Issues Impacted by Modern Assisted Reproductive Technologies," *Obstetrics and Gynecology International*, (2012): <https://doi.org/10.1155/2012/686252>, accessed 30 December 2020. The authors argue that, assisted reproductive technology "has resulted in a tectonic shift in the way physicians and the general population perceive infertility and ethics." Indeed, the authors concluded, "the lion's share of ethical and legal questions that exist surrounding ART have yet to be resolved." More recently, see Justo Aznar and Julio Tudela, "Bioethics of Assisted Reproductive Technology," in Nidhi Sharma, Sudakshina Chakrabarti, Yona Barak, and Adrian Ellenbogen, eds., *Innovations in Assisted Reproductive Technology* (London: Intechopen, 2020).

¹¹ Heidegger, *Bremen and Freiburg Lectures*, 55-56.

with studying the ethical, legal, and social implications (ELSI) and does not engage what is at issue more fundamentally, viz., the essence of technology.

Relative to Heidegger's concern for technological developments in the life sciences, Nathan Van Camp argued some years ago that, "Heidegger took the radical challenge of biotechnology both too seriously and not seriously enough. Too seriously, because it is unclear why he would fear the annihilation of *Dasein*'s essence if he is convinced that this essence is not related to man's biological equipment in the first place. Not seriously enough, because Heidegger at the same time remained convinced that even the most intrusive interventions in the human body will not be able to disrupt *Dasein*'s ontological essence."¹² Van Camp recognized Heidegger's unease about the transformation of biology "into biophysics" (thus bio-engineering), which portends the "production" of the human being as a material-bodily thing "according to a definite plan just like any other technical object." Following Jürgen Habermas, Van Camp is correct to consider that biotechnology entails consequences for our "ethical self-understanding" and our "moral consciousness," and to ask "where the threshold lies between the appropriate and inappropriate use of biotechnology" (though one may differ with him that this is "the main question"). Notwithstanding, Van Camp did not engage Heidegger's main question *per se*, viz., *exposing* the relation of the *human essence to the essence of technology* and understanding the idea of human essence other than as merely a "natural" essence.¹³ This must be done in a way that captures what

¹² Nathan Van Camp, "Heidegger and the Question Concerning Biotechnology," *Journal of Philosophy of Life*, Vol. 2, No. 1 (2012): 32-54. 'Dasein' is the term Heidegger uses in his magnum opus *Being and Time* to designate the human way to be, distinct from "things present-at-hand" (e.g., fauna, flora) and "things ready-to-hand" (tools and equipment in general).

¹³ Van Camp (p. 41) is correct that Heidegger "consistently rejected biological determinations of the human essence" as well as the metaphysical view of the human as *animal rationale*—rational animal in the sense of "a natural entity to which some higher capacity such as speech, reason or a soul is added." Heidegger's attention to the human manner of being that is "*ek-sistent*", i.e., temporal and futural by "standing out" in projection of its own most proper potentiality-for-being, removes the human being conceptually from scientific

Heidegger finds fundamentally problematic in developments in biological science and biotechnology. It is argued here that developments in human assisted reproductive technologies especially illustrate what Heidegger is keen to clarify.¹⁴

There is a “violence” to technology, Heidegger would have us understand, but that violence is first of all to be discerned *in its essence*, thus Heidegger’s term *Wesensgewalt*. To speak of an essence to technology may very likely be strange for those who have adopted a scientific approach to technology. But, Heidegger turns the question away from the scientific to what is more fundamental in questioning this phenomenon of the modern world. Thus he says: “The essential violence of technology does not first of all lie in the effect of high-frequency machines, but rather in that technology, proximally and for the most part, only presents itself to human representation technologically.”¹⁵ What is required, according to Heidegger’s assessment, is to risk “the step of thinking that exposes our human essence

“objectification” as some thing merely “present-at-hand” (*vorhanden*), thus by no means a thing to be understood by being limited to the human body (*Körper*).

¹⁴ Heidegger’s anticipatory concern is borne out in recent discussions of the prospect of artificial human gametogenesis. See, e.g., Pu-Yao Zhang, Yong Fan, Tao Tan, and Yang Yu, “Generation of Artificial Gamete and Embryo From Stem Cells in Reproductive Medicine,” *Frontiers in Bioengineering and Biotechnology* (2020): <https://doi.org/10.3389/fbioe.2020.00781>, accessed 31 December 2020. The authors comment: “In addition to the great growing need for assisted reproduction technologies (ART), additional solutions for patient without functional gametes are strongly needed...[Artificial] gametes and embryos represent a new hope for clinical application and basic research in the field of reproductive medicine...This area of research remains noteworthy and requires further study and effort to achieve the reconstitution of the entire cycle of gametogenesis and embryo development *in vitro*.” It is in view of such a research agenda that I disagree with Van Camp’s assessment (p. 46) that: “The danger of biotechnology [for Heidegger] does not primarily consist in concrete empirical threats posed by technical interventions on the genome, but in the threat that we will *understand* ourselves as bio-genetic entities that can be manipulated at will.” I also disagree with his assertion (p. 52) that, “Even if man would be completely genetically modified, this would not really affect the core of his being because his essence is not grounded in his biological constitution, but in his ek-static belonging to Being.” It is precisely this ek-static trait of the human way to be that is undermined when humans are considered equivalent to things present-at-hand and readily manipulated. The problem is all the more pressing in recent developments in human germline editing. For the latter see, e.g., The National Academies of Sciences, Engineering, and Medicine, *Heritable Human Genome Editing* (2020), (Washington D.C.: National Academies Press, 2020), <http://nap.edu/25665>, accessed 06 January 2021.

¹⁵ Heidegger, *Bremen and Freiburg Lectures*, 56.

[*Menschenwesen*] to the essence of technology, not only to its manipulations and uses.”¹⁶ Here, too, the scientific-minded are likely not inclined to recognize the idea of a human essence and will dismiss it all too readily as an idea of a bygone era of speculative metaphysics and a distraction from the goals of scientific “progress.”

Of course, it is unclear what one may mean here (i) in thinking to “expose” (*darlegen*) the human essence to the essence of technology, (ii) in what sense one speaks of a human essence, (iii) in what sense one can speak of an essence of technology, and (iv) whether the concept of essence (*Wesen*) is univocal, equivocal, or plurivocal in such assertions. Assuming these queries are to be clarified to some degree in due course of the following discussion, the guiding assumption here is that, were we to *expose* the human essence and to *think* the essence of technology in their essential connection, then we would be called to a *different* thinking. But, more to the point, in that way we would be called forth to a new *conception* of the world (*die Welt*) in which we have our being and, thereby, to a new self-understanding of humanity insofar as our manner of being is conceived always with reference to some concept of world.

Immediately one is disposed to ask about this different thinking, what Heidegger means in conceiving its significance, its possibility, and perhaps even its efficacy if it makes sense to use this latter word in reference to Heidegger’s conceptual lexicon. One must begin here by clarifying that, for Heidegger, to think technologically is to engage in what he calls *calculative* thinking (*rechnendes Denken*), i.e., an “explanatory thinking” (*erklärenden Denken*) that reasons primarily in terms of causality, means-ends relations, and “causal effects” (*ursächliche Wirken*), with ‘causality’ conceptually reduced from the broader Aristotelian sense¹⁷ to that of “efficient cause” only. Calculative thinking such as one finds in

¹⁶ Heidegger, *Bremen and Freiburg Lectures*, 56.

¹⁷ For an overview, see Richard DeWitt, *Worldviews: An Introduction to the History and Philosophy of Science*, 2nd Edition (West Sussex UK: Wiley-Blackwell, 2010), 7-13. Also,

modern science seeks both efficacy and efficiency in investigating and eventually manipulating what is experienced as “the realm of the actual,” i.e., the “real” (*die Wirkliche*). The “real” is what science exposes by way of its investigative methods, “challenging” nature to *reveal* itself in ways hitherto unknown. It is in this way that modern technology is a challenging (*Herausfordern*) power of revealing (*das Entbergen*).

In contrast, if one is to think the essence of technology, one must take a “step back” from the scientific method of explanation and dominant concern for efficacy and efficiency into what Heidegger calls (on different occasions) “essential” thinking (*wesentliche Denken*), “meditative” thinking (*besinnliches Denken*) or “commemorative” thinking (*andenkende Denken*). In this way one may reflect upon how the human being “stands” or—more accurately, from Heidegger’s point of view—is “fallen”/“befallen” in his and her essence (*Wesen*) vis-à-vis the essence of technology. It is only through essential, meditative, and commemorative thinking that one may “expose” the human essence in its essential connection (*die wesentliche Verbindung*) to the essence of technology. It is in thinking through this essential connection that one may approach a phenomenological clarification of the essence of technology.

To do this one ought not think technology technologically, thus not merely as “instrumental,” i.e., as “a means, to any end”¹⁸ or merely “anthropologically” (as what is pertinent to human interests), even though we find technologies to be understood and evaluated as useful in relation to diverse human interests and goals. Rather, the task is to think what is *disguised* in all technologies in use (specifically since the onset of modernity, and considering developments of science especially in the twentieth century), even as the essence of technology for the most part remains *concealed* (*verborgen*) when we think

more specifically, see Melbourne G. Evans, “Causality and Explanation in the Logic of Aristotle,” *Philosophy and Phenomenological Research*, Vol. 19, No. 4 (1959): 466-485, <https://www.jstor.org/stable/pdf/2105115.pdf>, accessed 05 January 2021.

¹⁸ Heidegger, *Bremen and Freiburg Lectures*, 57.

calculatively. That is, technology in its essence “is the concealed basic trait of the actuality of everything now actual.”¹⁹ To say ‘actuality’ here is to say ‘reality,’ thus to mean the way things, beings, are represented to us. Thus, all beings, including the human being, in their actuality are governed technologically, such that the technological as *the basic trait* of all beings is concealed. That this basic trait is concealed should give us pause as a matter that calls for our thinking, but clearly not the thinking that one finds in the sciences as such.

Lest we begin wrongly by thinking Heidegger faults human understanding with an intentional act of omission, we are to bear in mind that Heidegger claims technology “conducts its own disguising” (*betreibt seine eigene Verstellung*). We, for the most part, do not notice this while we are immersed in, and otherwise dominated by, the instrumental-anthropological view of technology and by calculative thinking. What is disguised in all technologies and techniques in use, Heidegger opines, is that, rather than being merely instrumental and in one way or another apparently subject to human control, technology *draws the human after it as its instrument (als ihr Instrument hinter sich her ziehe)*.²⁰ It is in this “drawing after” that technology is disguised. And, since the human is drawn after it, there is manifest reason to assert that, in fact, technology is not subject to human control in the way in which scientific thinking generally presents itself in examining, interrogating, and explaining reality.

Heidegger’s statement is especially critical to the shift in thinking he is proposing. Technology draws the human after it even as a “dark compulsion” [*dunklen Andrangs*], Heidegger asserts, “that has befallen the human essence [*Menschenwesen*] from the essence of technology itself.”²¹ Note the word ‘befallen.’ This compulsion is no mere human doing such that one might fault those who are productive of the many technologies and research

¹⁹ Heidegger, *Bremen and Freiburg Lectures*, 58.

²⁰ Heidegger, *Bremen and Freiburg Lectures*, 58.

²¹ Heidegger, *Bremen and Freiburg Lectures*, 58.

techniques that transform daily life and then think to correct either their negligence or their oversight. Rather, that compulsion is dark because it is concealed in the very “progress” said to characterize technology conceived in its instrumentality and evaluated in its calculated utility or otherwise decried in its disutility, the latter motivating yet further opportunities for enhanced utility as obstacles in research productivity are overcome. Yet, it is the task of a meditative thinking to interrogate and clarify how this compulsion befalls humanity in its pursuit of assorted technologies and techniques in the research-driven enterprise. Heidegger, therefore, appropriates to himself the task of thinking the essence of technology, and without the usual evaluative prejudices in doctrine that pronounce technology to be evil, good, or neutral.

The Essence of Technology

Setting these normative prejudices aside, Heidegger then states what he takes to be essential to technology, beginning with the assertion that, “The essence of technology is itself nothing technological” (“*Das Wesen der Technik ist selber nichts Technisches.*”).²² In distinguishing “technology” (*der Technik*) from that which is “technological” (*technisches*), Heidegger thinks more fundamentally and away from the instrumental view. Indeed, in doing so he is prepared to contend that the essence of technology is to be understood as “the being of contemporary beings” (“*als das Sein des jetzt Seienden*”),²³ i.e., the way in which *all beings* today appear, are represented, explained, appropriated, and used or used up, according to scientifically generated measures of utility, efficacy, and efficiency. This is so even for the human being when its manner of being is reduced to that of the body (*Körper*).²⁴ Heidegger then names the essence of technology ‘positionality’ (*Ge-Stell*). It is only by way of our

²² Heidegger, *Bremen and Freiburg Lectures*, 56; GA79, 60.

²³ Heidegger, *Bremen and Freiburg Lectures*, 59; GA79, 62.

²⁴ See, e.g., Jesse I. Bailey, “Enframing the Flesh: Heidegger, Transhumanism, and the Body as ‘Standing Reserve,’” *Journal of Evolution and Technology*, Vol. 24, No. 2 (2014): 44-62, <https://jetpress.org/v24/bailey.pdf>, accessed 31 December 2020.

understanding and thinking positionality as the essence of technology that we can have an insight into the plight of our time and be sufficiently thoughtful for the essential decisions that face us.

Heidegger steps back from modernity and its conceptual framework to Greek antiquity to think of the term ‘position’ (*stellen*); in the Greek: ‘*thésis*’) in relation to the Greek concept ‘*physis*’, interpreted to mean ‘bringing-here-forth’, i.e., “letting something arrive and presence of its own accord” (“*von sich her etwas ankommen und anwesen lassen*”).²⁵ In this arriving into presence something comes into being from concealment (*Verborgenheit*) into unconcealment (*Unverborgenheit*). Important here is the recognition that something comes to presence, i.e., is unconcealed, *of its own accord*. Such is the basic trait of *physis*. In this sense, *physis* is distinguished from the act of human positioning of something in the sense of “production” (*Herstellen*), e.g., the stone that is present of its own accord in rock and soil but which is subsequently taken by the artisan and “positioned” in the production of a staircase. Heidegger is clear: “*What stands here through θέσις essences otherwise than what is brought forth here by φύσις*” (“*Das θέσει Herständige west anders an als das φύσει Hervorgebrachte*”).²⁶ What is unconcealed by *physis* is not present—does not have its actuality—through an intervening act of human production. Its essence is thus different from the essence of what is present through being-positioned through that human intervention that is concerned with production of something in view of human ends, goals, and purposes.

The distinction of what occurs through *physis* and what occurs through *thésis* may be further distinguished as that which occurs through *self-emergent nature* and that which occurs *through human production*, through *techné*, the latter emerging as the product of an assortment of techniques and technologies instrumentally of use to human livelihood. Both

²⁵ Heidegger, *Bremen and Freiburg Lectures*, 60; GA79, 64.

²⁶ Heidegger, *Bremen and Freiburg Lectures*, 61; GA79, 64.

the essence of technology (as positionality) and the essence of the human (as one positioned along with all other beings) are essentially connected in this way. Calculative thinking, such as one encounters in the methodological commitments of the sciences, objectifies things according to the methods of scientific explanation and instrumentally pursues techniques and technologies in view of some standard of efficacy and efficiency. Such thinking assumes that technology is subject to human control. But, such calculative thinking ignores what is essential here as disclosed by the step back from this thinking.

Heidegger reminds: “We place history [*die Geschichte*] in the realm of what occurs [*in den Bereich des Geschehens*], instead of thinking history in accordance with its essential provenance [*Wesensherkunft*] in terms of destiny [*Geschick*].”²⁷ History (*Geschichte*) has its provenance in what is essential and that is not captured by historical science in the sense of what are the events of this or that historical event, what is explained “historiographically” as “history” (*Historie*). History in the latter sense methodologically involves application of methods that concern causal relations. But, to speak of history in Heidegger’s sense of *Geschichte* is to think in terms of the essential that is present as a fundamental trait and present as a destining (*ein Schicksal*). Thus, we may survey the developments in technology since the onset of modernity and think such developments merely as “what occurs” and what occurs as a consequence of human innovation of techniques and technologies, thus all a manifestation of human production and a manifestation of *techné*.

But, insofar as one discerns the essence of technology, as Heidegger proposes, there is more than history here—there is a destiny, and a *concealed* destiny that must yet be thought, hence Heidegger’s counsel to step back from calculative thinking and to think the essence of technology through essential/meditative/commemorative thinking. It is clear that technology in Heidegger’s sense of positionality is itself *disclosive* of the way in which all beings are

²⁷ Heidegger, *Bremen and Freiburg Lectures*, “The Turn,” 65; GA79, “*Die Kehre*,” 69.

now for the most part “unconcealed” (*unverborgen*), such that what emerges “naturally” (as *physis*) is itself *imposed upon* through *techné*—keeping in mind that, insofar as humans impose upon reality through their engagement with *techné* they themselves are drawn after and imposed upon by the technological without being “in control” as such. The whole of what is “actual” in the sense of “the real” is caught up into a destining manifest in technology *qua* positioning. How this occurs today we may describe by thinking developments in biotechnology. Heidegger had provided examples based on the technologies emergent in his day, but biotechnology in our day illustrates Heidegger’s concern uniquely.

Positionality in Biotechnology

In the aftermath of the unprecedented atomic bombing of Hiroshima and Nagasaki, and as the arms race installed stockpiles of weapons of mass destruction that assured humanity of the unthinkable of “mutually assured destruction,” all of this was characterized as a possible future “horror” that confronted us with “dread.” Yet, lecturing in 1949 not long after the singular historical events of Hiroshima and Nagasaki, Heidegger spoke of “the horrible” (*das Entsetzliche*) that had already occurred (*wenn das Entsetzliche schon geschehen ist*).²⁸ In what way? Heidegger explained: “The horrifying is what transposes all that is out of its previous essence. What is so horrifying? It reveals and conceals itself in the way that everything presences.... (*Das Entsetzende ist Jenes, das alles, was ist, aus seinem vormaligen Wesen heraussetzt. Was ist dieses Entsetzende? Es zeigt und verbingt sich in der Weise, wie alles anwest....*).²⁹

Thus, one asks, with Heidegger: How do things have their “presence” (*Anwesenheit*), their “actuality,” today? They have their presence no longer in terms of their “singular existence” naturally emergent in the sense of *physis*, but instead in their “replaceability” that

²⁸ Heidegger, *Bremen and Freiburg Lectures*, “The Point of Reference,” 4; GA79, “Einblick in das was ist,” 9.

²⁹ Heidegger, *Bremen and Freiburg Lectures*, 4; GA79, 9.

is dictated by *techné*. The former connotes what is singular to an entity in its manner of being such that humans “let it be” within its environing world (*Umwelt*) without objectifying it and positioning it as “stock,” as “standing-reserve” (*Bestand*), as a “piece of inventory” (*Bestandstücke*) according to a human interest, in its being ordered and arranged accordingly for use, and being used up in view of its planned and produced replaceability. One can take here as example a single human cell, viz., the ovum, that is of interest to the embryologist as bioengineer.³⁰

Initially, the human ovum “stands on its own” as a cell in a natural process of human reproduction prior to it being perceived and subsequently re-presented as an object of scientific investigation. Heidegger uses the expression *Insichstehen* (“standing on its own”). The ovum “is,” exists naturally, thus according to a natural biological process, consistent with the concept of *physis*. The human ovum is *generated* monthly naturally, functions naturally, within a woman’s monthly cycle of possible fertilization through natural reproduction (coital conception). However, when the ovum is “positioned” in the artificial process of assisted reproductive technology (ART) as part of the science of reproductive endocrinology, it no longer stands on its own but is manipulated for use, and even for being used up within an artificially manipulated ovulation cycle, i.e., by way of ovulation

³⁰ One says here ‘bioengineer’ decidedly, stressing the intentional integration of the technology and engineering practice with the science *qua* theory. This conceptual frame can be understood as conceived recently, e.g., in Harvard University’s initial planning, introduced by a working committee in 2007, for “Engineering Biology for the 21st Century: A Plan for Bioengineering at Harvard,” https://hms.harvard.edu/sites/default/files/assets/About_Us/Off_Dean/files/Bioengineer.pdf, accessed 30 December 2020. The document states, *inter alia* (p. 3): “Life sciences have reached a turning point. A large number of basic mechanisms have been discovered, and the essential mystery of life has been stripped away by the last 50 years of molecular biology. But this tremendous progress has now led us to an understanding of just how complex biology really is. Biology now needs large infusions of conceptual and quantitative approaches from information science and the physical sciences. Biology needs to be converted into a rigorous, predictive science through computation, theory, and model building, and into a field that is truly useful to society, through engineering...Biology is now ready for deep engagement with engineering.” Harvard subsequently developed a curriculum in bioengineering, including “cell and tissue engineering.”

induction—“stimulating the development and release of oocytes in anovulatory patients.”³¹ Here *physis* yields to *techné*, to the technologies of ART, the ovum positioned as an extra-corporeally manipulated oocyte in relation to yet further techniques of “assisted fertilization, most commonly in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI),” including additional techniques of “ovarian hyperstimulation,” “pre-implantation genetic testing” for “pre-implantation genetic diagnosis” as well as “pre-implantation genetic screening,” and then implantation *in utero* with the goal of a live birth pregnancy.

In and of itself the purpose of ART and IVF satisfies beneficence concerns. According to recent reports, “Infertility, defined as the inability to conceive within 1 year of unprotected intercourse, is estimated to affect as many as 186 million people worldwide.”³² Further, “In 2003, the European Society for Human Reproduction and Embryology recommended that the outcome measure of assisted reproductive techniques (ART) and non-ART should be ‘singleton’ live birth...Traditionally, success rates of in-vitro fertilization (IVF) have been reported in terms of live births per fresh cycle or embryo transfer.” Others call for revision to this measure in view of multiple cycles—“Studies assessing effectiveness in MAR [medically assisted reproduction] should therefore aim to study the effectiveness of treatment over multiple cycles, as this reflects clinical practice and captures the relevant perspective for the couple.”³³

Whatever the professional recommendations on revising the measurement of ART outcomes, the fact is that, “Over 8 million IVF children have been born, and over 2.5 million

³¹ See here, Kathryn L. Shaia, Allan B. Copperman, Eric Flisser, “Ovulation Induction/ART/IVF/ICSI,” in Rhoda Sperling, ed., *Obstetrics and Gynecology* (Wiley Online Library, 2020), Chapter 34, <https://doi.org/10.1002/9781119450047>.

³² M.A. Gadalla, R. Wang, M. van Wely, B.W.J. Mol, “Editorial: How should we report outcomes in reproductive medicine?” *Ultrasound in Obstetrics & Gynecology*, Vol. 51 (2018): 7-9, <https://doi.org/10.1002/uog.18969>, accessed 31 December 2020.

³³ Gadalla et al., 8.

cycles are being performed every year, resulting in over 500,000 deliveries annually.”³⁴ “Success rates” vary internationally according to available data: for Europe (2014), 30% IVF success rate in 508,433 cycles, with 83% singleton birth; for USA (2015), 24% IVF live birth/started cycle in 231,936 cycles, with 19% singleton live birth; for Latin America (2015), 24% IVF in 75,121 cycles, with 19% singleton live birth; for Africa (2013), 28% IVF, in 25,770 cycles, no data on births (due to low access to care); Global (2008-2010), 20% ART delivery rate/fresh aspiration of oocytes out of 4.5 million cycles, with 21% multiple delivery rate; Worldwide (2004-2013), 5-29% live birth rate/fresh ART cycle out of 7 million cycles, with 4-27% multiple delivery rates.³⁵ The latter data show that IVF and implantation can lead to “multiple gestation” that is itself a problematic consequence of the ART;³⁶ and, indeed, it is reported that when multiple embryos are transferred at the same time the result has been “unacceptably high multiple pregnancy rates with major implications for perinatal morbidity and mortality.”³⁷

In view of the above scientific reports, we can consider that, from the view of *physis*, the ovum as oocyte to be fertilized is a *natural* possibility of human reproduction; but considered from the view of *techné*, it is viewed as a *technical* possibility of production. The former remains *intracorporeal* in its naturally “functional” relations; the latter is *extracorporeal* in its technically “positioned” relations. In the natural process the ovum *emerges into presence* qua ovulation or it *remains in absence* (anovulation). It stands on its own within that process of *physis*. But, this is not so in the case of extracorporeal

³⁴ “Editorial: Towards the global coverage of a unified registry of IVF outcomes,” *RMBO*, Vol. 38, No. 2 (2019): 133-137.

³⁵ “Editorial: Towards the global coverage of a unified registry of IVF outcomes,” 133.

³⁶ See T. El-Toukhy, S. Bhattacharya, V.A. Akande, “Multiple Pregnancies Following Assisted Conception,” Royal College of Obstetricians and Gynaecologists, Scientific Impact Paper No. 22 (2018): DOI: 10.1111/1471-0528.14974, accessed 13 December 2020.

³⁷ “Editorial: Towards the global coverage of a unified registry of IVF outcomes,” 135. The editors refer to B.C. Fauser, P. Devroey, N.S. Macklon, “Multiple birth resulting from ovarian stimulation for subfertility treatment,” *The Lancet*, No. 365 (2006): 1807-1816.

manipulation, i.e., production (*die Herrgestelltheit*). All the techniques of ART are designed to “challenge” the woman’s body (*Körper*) to produce artificially what is then to be positioned and manipulated by the reproductive endocrinologist, the embryologist, and even the genetic bioengineer.

Following Heidegger’s manner of thinking, we might say that the ovum *freely enters its own* when present in its naturally functional relations. Consider the words here—freely (*freilich*) enters its own (*in sein Eigenes eingehen*). But, does it enter its own when produced by *techné*, by the techniques of ART? Contrast here is, on the one hand, a “bringing forth of oneself” (*Sichhervorbringen*) and, on the other, a “being produced” (*ein Herrgestelltwerden*). In both cases we have an unconcealment (*Unverborgenheit*). But, the mode of presencing (*Anwesenden*), coming into being, in each is different. The modes of presencing bring into view two different states of affairs. In both cases we can and do have scientific explanation, one describing a natural phenomenon and functional process, the other explanation accompanied by a methodological commitment to technical production. Why does this distinction matter? Consider what Heidegger finds “uncanny” (*unheimlich*):

The explosion of the atomic bomb is only the crudest of all crude confirmations of an annihilation of things that occurred long ago; confirmation that the thing as thing remains nullified. The annihilation is so uncanny because it brings with it a twofold delusion. For one, the opinion that science, more so than all other experience, would encounter the actual in its actuality [*das Wirkliche in seiner Wirklichkeit*]. Second, the pretense that the thing could just as well be a thing regardless of scientific research into the actual, which presupposes that there ever were essencing things at all. If the things had ever shown themselves as things, then the thinghood of the thing would have been evident. It would have laid claim to thinking. In truth, however, the thing remains obstructed as thing, nullified and in this sense annihilated. This occurred and occurs so essentially that the things are not only no longer admitted as things, but the things have not yet even been able to appear as things at all.³⁸

Thus, we accept that biological science, molecular biology, endocrinology, human genetics, etc., inform us (following Heidegger’s train of thought here) as to the “actuality,”

³⁸ Heidegger, *Bremen and Freiburg Lectures*, 8-9.

the “reality” (*die Wirklichkeit*), of the ovum qua oocyte. It “appears” to the scientist as an object represented as “what it is” according to the research methods in use, including thereby the assorted technologies through which it is manipulated and positioned in scientifically-ordered relations. Viewed un-scientifically, i.e., according to *physis* and not *techné*, the ovum stands in the natural functional relations of the human reproductive process, having its cycle of emergence during normal ovulation for the possibility of its fertilization; but, in the absence of that fertilization, the normal menstruation cleans the womb for the next cycle that repeats the process. Here the ovum is understood to be not merely an oocyte in its cellular actuality, but a cell in all its potentiality in the woman’s perception of her body *qua* “lived body” (*Leib*) and not merely as physical body (*Körper*). The woman’s perception is temporally delimited, i.e., attentive to the future and not merely to the present, thus to the possibility of an emergent human life as the ovum makes its way towards its possible fertilization.

The lived-world (*Lebenswelt*) of the woman as prospective mother is the referential context of signification for the meaning attributed to the ovum other than as mere oocyte in the sense objectified by scientific investigation. Thus does the woman as mother, as wife, receive the ovum not as an oocyte but as a *gift* (*das Geschenk*), as is said, e.g., in the context of consecration, “gift of life,” the ovum thus from its origin (*arché*) a “giving gift” (*das schenkende Geschenk*). Hence, one may say, in its essential provenance the ovum is never merely an oocyte and rather is it a giving gift, a giving of possibility, a potentiality of human life in the singular existence that is its essence as ovum. And, where there is giving in this sense, there is gratitude, the prospective parents thus renewed in their caring (Heidegger’s sense of *Sorge*), in their solicitude (Heidegger’s sense of *Fürsorge*), for the emerging life that in due course becomes the child of the ovum’s promise that is present in the moment of its essential provenance.

In the foregoing one finds two contrasting representations of the being of the ovum: (1) one scientific such as one finds in the investigation of the ovum as oocyte by the biologist, who can even tell us wondrously the “measure” of the human ovum to be 150 micrometers (150×10^{-6}) and thus inform the reproductive endocrinologist, embryologist, and genetic bioengineer for purposes of their micro-technical manipulation; (2) the other that of the woman in her lived world, with her relations of care and concern that link the present state of affairs to the potentialities of life she projects to make them her own in her lived-world. In each of these ways of understanding, world (*Welt*) is conceived and experienced differently, one as technological, thus as a technologically-ordered world (*eine technologisch geordenete Welt*) in Heidegger’s sense of externally challenged and ordered relations, i.e., positionality (*Ge-stell*); and one as lived world (*Lebenswelt*) in which things stand on their own in Heidegger’s sense of *Insichstehen*.

As noted, in both views we have an experience of unconcealment. But, clearly, the manner in which disclosure occurs is manifestly different. When a woman as prospective mother experiences her monthly cycle of ovulation, she takes care to *help* a child come into being as a meaningful part of the woman’s lived world. But, when a reproductive endocrinologist or embryologist engages the ovum as oocyte s/he as scientist-technician *forces* into existence *technically* what otherwise remains concealed in the natural condition of anovulation. In the context of *physis*, the ovum stands on its own in its possible emergence; while, in the context of *techné* it is “present” in its “actuality” as “standing reserve” (*Bestand*). In the former, we have an event of releasement (*Gelassenheit*) for the ovum to stand on its own; while, in the latter one has a challenging-forth (*Herausfordern*) that positions the ovum as oocyte into technically-ordered relations. Thus, Heidegger comments, where there are technically-ordered relations, “So placed, everything is: in consequence of

...”³⁹ That is, a whole assortment of consequential procedures and events follows. The positioning of something in technically-ordered relations produces yet further consequences with a view to “results,” positioning in this way a “requisitioning” (*das Be-Stellen*) such that “an inventory arises” (*der Bestand sieht*). And, in that way, there appears a standing-reserve that is then “imposed upon” (*gestellt*), “conscripted” (*bestellt*): “It is ordered, forced into conscription” (*Es ist be-stellt, betroffen mit Gestellung*).⁴⁰

Hence, said specifically in view of this consequentiality: A technique of ART *challenges-forth* into existence, *conscripts* the oocytes, the techniques of induced ovulation producing an *inventory* of oocytes, one or many subjected to *consequent* techniques of oocyte retrieval, genetic screening, germ-line engineering, IVF, pre-implantation genetic diagnosis, implantation, perhaps multiple gestation, onward to live birth or miscarriage (spontaneous abortion);⁴¹ or, where implantation does not occur, the embryo is re-positioned even to the point of being cryopreserved (frozen) for later use and then eventually even “abandoned,” with fertility clinics unsure as to its ontological status (a “thing”, thus “property” in the view of civil law; a “juridical” person if not a “natural” person; in a “unique category of being,” thus something “interim”),⁴² unsure as to “kinship”⁴³ or “ownership,” and fearful of

³⁹ Heidegger, *Bremen and Freiburg Lectures*, “Positionality,” 25.

⁴⁰ Heidegger, *Bremen and Freiburg Lectures*, “Positionality,” 26 & 27.

⁴¹ Aznar and Tudela, “Bioethics of Assisted Reproductive Technology,” report on the “efficacy” of ART, based on “data published by the European Society of Human Reproduction and Embryology” in 2014, the *pregnancy rate* following IVF in Europe between 1997 and 2010 varying “between 22.28 and 29.2%...with a mean rate of 26.41%,” and the *live birth rate* per ovarian stimulation cycle “between 13.07 and 22.4%...with a mean rate of 18.81%.” With IVF methods, “more than 200,000 children are now born annually worldwide...i.e., more than 3% of all children born, with the total number of births estimated at over 5 million.”

⁴² Hannah C. Catchings, “A ‘Modern Family’ Issue: Recategorizing Embryos in the 21st Century,” *Louisiana Law Review*, Vol. 80, No. 4 (2020): <https://digitalcommons.law.lsu.edu/lalrev/vol80/iss4/12>, accessed 29 December 2020. Catching observes (p. 1525): “The Louisiana Civil Code categorizes all persons as either natural persons or juridical persons. Currently, the Louisiana Legislature classifies pre-implantation embryos as juridical persons.” She proposes: “The Louisiana Legislature should amend the legal status of pre-implantation embryos to be a ‘unique category of being,’ rather

“disposing” a “potential life” in view of “wrongful death” litigation unless “ethically” disposed to do so.⁴⁴ All such techniques and positionings are “at the ready” not merely sequentially but consequentially according to the conscription.

Heidegger’s discussion of positionality clarifies that what is underway as the reign of global technology is not to be causally attributed to some merely human machination (*Machenschaft*). Thus, Heidegger comments: “The question remains in what way is the human already drawn into the essence of requisitioning [*das Wesen des Bestellens*]. What (however) does this mean here: ‘the human’ (*der Mensch*)? ‘The human’ exists [*existiert*] nowhere.”⁴⁵ Thus, Heidegger continues:

than juridical persons or mere property...” This “unique category” may be framed as an entity “that is entitled to special respect because of its potential for human life,” thus “a thing” if not a “person.” The embryos status would change over time—“Prior to in vitro fertilization...closer to...things,” and “After fertilization and successful implantation into a woman’s uterus, an embryo may shift closer to the classification of persons.”

⁴³ Heather Jacobson, “Do Embryos have Kinship? Negotiating Meanings of Relatedness in the Fertility Clinic,” *Adoption & Culture*, Vol. 7, No. 9 (2019): 230-243, <https://doi.org/10.26818/adoptionculture.7.2.0230>, accessed 29 December 2020. Jacobson reports: “Since 1984 when the first live birth from a previously frozen embryo occurred, cryopreservation of embryos has become increasingly common...Roughly thirty-eight percent of the 263,579 assisted reproductive technology (ART) cycles completed in the US in 2016...involved previously frozen embryos.”

⁴⁴ See here Mary Pflum, “Nation’s fertility clinics struggle with a growing number of abandoned embryos,” *NBC News*, 12 August 2019, <https://www.nbcnews.com/health/features/nation-s-fertility-clinics-struggle-growing-number-abandoned-embryos-n1040806>, accessed 29 December 2020. See also, Jeffrey Krasner, “Technology, legal gaps leave embryos in limbo,” http://archive.boston.com/news/local/articles/2005/05/18/technology_legal_gaps_leave_embryos_in_limbo?pg=full, accessed 29 December 2020; American Society for Reproductive Medicine, “Disposition of abandoned embryos: a committee opinion,” *Fertility and Sterility*, Vol. 99, No. 7 (2013): [https://www.fertstert.org/article/S0015-0282\(13\)00281-1/pdf](https://www.fertstert.org/article/S0015-0282(13)00281-1/pdf), accessed 29 December 2020; “Destroying abandoned embryos ‘ethically acceptable’ for IVF clinics: US doctors,” *National Post*, 10 September 2013, <https://nationalpost.com/health/destroying-abandoned-embryos-ethically-acceptable-for-ivf-clinics-u-s-doctors>, accessed 29 December 2020. In the latter article, it is reported that “an estimated five million children have been born worldwide using in vitro fertilization, and the number of ‘excess’ embryos left over after IVF continues to grow...There are an estimated 400,000 frozen embryos in the U.S. Of those, fewer than five per cent [n<20,000] are considered abandoned...”

⁴⁵ Heidegger, *Bremen and Freiburg Lectures*, “Positionality,” 29.

...the humans are only capable of this insofar as they themselves are already ordered into this requisitioning. Humans, in their relation to what presences, are already challenged in advance, and therefore everywhere, and thus constantly, to represent what presences as something orderable for a requisitioning. Insofar as human representation [*das menschliche Vorstellen*] has already posited [*gestellt*] what presences as something orderable in the calculation [*die Rechnung*] of a requisitioning, the human remains, according to his essence [*nach seinem Wesen*] and whether knowingly or not, ordered into a requisitioning for the requisitioning of the orderable.

The human himself ‘stands now within such a conscription [*Der Mensch selbst steht jetzt in solcher Gestellung*].⁴⁶

With these words Heidegger expresses his insight into what is uncanny in the way technology dominates and appropriates humans into the service of conscription. The dynamic of technology is global, planetary-wide, not isolated to the here and there of human activity, even penetrating to the level of *micro-* and *nano-* measures of research investigation and positioning and re-positioning of molecular-level life structures (as “calculable material”) and processes. Hence, Heidegger opines, “Requisitioning assaults at the same time the destiny of the human [*das Geschick des Menschen*]. The essence of the human [*das Wesen des Menschen*] is imposed upon to collaborate in carrying out the requisitioning in a human manner.”⁴⁷

We can see thus how the human being in his or her physical body (*Körper*) especially is positioned within thoroughly technical relations, the body in its totality and in its anatomical-physiological-kinesiological “parts.” However, a further distinction is in order, according to Heidegger’s insight. The oocyte, we should say, becomes thereby a “piece” (*das Stück*) of the standing-reserve and in that sense “other than” a part (*der Teil*). What is the difference between a piece and a part? Heidegger clarifies:

The part shares itself with parts in a whole. It takes part in the whole, belongs to it. The piece on the contrary is separated and indeed, as the piece, is even isolated from the other pieces. It never shares itself with these in a whole. The piece of standing reserve does not even share itself with its own kind in the standing reserve.⁴⁸

⁴⁶ Heidegger, *Bremen and Freiburg Lectures*, “Positionality,” 29; *GA79*, 30.

⁴⁷ Heidegger, *Bremen and Freiburg Lectures*, “Positionality,” 32-33; *GA79*, 34.

⁴⁸ Heidegger, *Bremen and Freiburg Lectures*, “Positionality,” 34.

Heidegger observes further that, when something is engaged as a piece in an inventory along with other pieces,

The pieces of the standing reserve are piece-for-piece equivalent [*die Gleichen*]. Their character as pieces demands this uniformity [*Gleichförmige*]...The uniformity of the pieces provides that one piece can be exchanged for the other without further ado, i.e., is in place for this, and thus stands at the ready. One piece of standing reserve is replaceable by another. The piece as piece is already imposed upon for replaceability [*Ersetzbarkeit*].⁴⁹

Precisely this manner of *equivalence* and *replaceability* is imposed upon each oocyte that is retrieved and positioned in an inventory “at the ready” for the assorted consequential techniques of IVF, and even more so in the case of the novel methods of advanced reproductive technology that *more forcibly* “challenge-forth” the retrieval of oocytes via “*in vitro* maturation (IVM),” thus to disclose the intensified calculative thinking in use.⁵⁰

Thus, when Heidegger asserts that, “The human is exchangeable within the requisitioning of the standing reserve,” we can now understand that this follows in present context from a biological reductionism that focuses on the human in her “presence” (*Anwesenheit*) *qua* physical body that is then challenged-forth in its entirety, all the way

⁴⁹ Heidegger, *Bremen and Freiburg Lectures*, “Positionality,” 35.

⁵⁰ B.I. Rose, “Approaches to oocyte retrieval for advanced reproductive technology cycles planning to utilize in vitro maturation: a review of the many choices to be made,” *Journal of Assisted Reproductive Genetics*, Vol. 31 (2014): 1409-1419, DOI: 10.1007/s10815-014-0334-9, accessed 14 December 2020. It is worthwhile citing Rose’s pertinent remarks (pp. 1409-1410) to highlight the procedure of IVM:

In conventional IVF, patients are treated with exogenous gonadotropins with the objective of obtaining a cohort of oocytes that are mature (have extruded polar bodies) at the time of oocyte retrieval. The decision to induce maturity (usually with an hCG injection) is made when an adequate number of follicles have diameters greater than 17 or 18 mm. Oocyte retrieval is undertaken about 36 h later and the largest diameter follicle is usually at least 20 mm in diameter. Oocytes are fertilized and the best embryos are transferred into the uterus.

In an advanced reproductive technology cycle in which in vitro maturation will be used (IVM), oocytes are removed from much smaller follicles and most oocytes will still be immature (germinal vesicle intact). The decision to proceed to oocyte retrieval will be made when the largest follicle is less than 10 mm, 12 mm, or 14 mm, depending on the philosophy of the program...With IVM, oocytes in prophase I are cultured until they become metaphase II. They are then fertilized and the best embryos are transferred into the uterus as with conventional IVF.

down to its cellular presence. The molecular biology of ART, IVF, IVM, etc., “decides”, then “determines,” each possibility of human life in a “programmatically” philosophy that chooses “the best embryos”⁵¹ for uterine implantation and clinical pregnancy, while other oocytes and embryos are “discarded”—after all, each is exchangeable with another as a piece in the inventory of retrieved oocytes and then in the inventory of embryos, all “equivalent” and “replaceable” despite each having its ownmost possibility of personal identity from the moment of conception. In fact, any thought of personal identity, of “singular existence,” is absent when oocytes and embryos are conceived to be equivalent, exchangeable, pieces of inventory, one and all severally and jointly “at the ready” *qua* standing reserve for a disposition controlled by all involved in the laboratory and clinical techniques in use.

What is uncanny here for us (and one assumes would be so for Heidegger) is that, despite human involvement in all such technological activity, and “because the human does not decide about his essence [*Wesen*] on his own terms, and never by himself, for this reason the requisitioning of the standing reserve, for this reason positionality, the essence of technology [*das Ge-Stell, das Wesen der Technik*] cannot be anything merely human.”⁵² What, then, one may ask, is one to do? Heidegger answers: In contrast to asking and seeking to answer “the question that is always closest and solely urgent—what are we to do?—we first and only consider this: How must we think, for thinking is the authentic action [*Handeln*]...”⁵³

⁵¹ The use of the term ‘best embryos’ often includes a perspective of “selective reduction.” In clinical guidance provided by the American College of Obstetricians and Gynecologists, “Multifetal pregnancy reduction is defined as a first-trimester or early second-trimester procedure for reducing the total number of fetuses in a multifetal pregnancy by one or more.” See here American College of Obstetricians and Gynecologists, “Committee Opinion: Multifetal Pregnancy Reduction,” Number 719, (2017): <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2017/09/multifetal-pregnancy-reduction>, accessed 05 January 2020.

⁵² Heidegger, *Bremen and Freiburg Lectures*, “Positionality,” 37 & 39, *GA79*, 39.

⁵³ Heidegger, *Bremen and Freiburg Lectures*, “The Turn,” 66-67.

To engage this question—How must we *think*?—is to take the step back from calculative thinking into a reflection on where we “stand” today or, better said, what has “befallen” us as we continue the press of technologies according to some misplaced assumption of the beneficence of technological fixes. We should recall, accordingly, that the first IVF baby girl was born in July 1978, the first IVF baby boy born in January 1979, that the techniques in use for IVF have changed considerably from the initial methods of laparotomy and laparoscopic techniques having less than 50% success rate, then to transvaginal oocyte retrieval technique first reported in 1984, and onward to current techniques of IVM—the consequence of which is that “millions of successful IVF births” have ensued,⁵⁴ even as fertility clinics now face the ethical, legal, and social quandary of what to do with an unknown number of abandoned cryopreserved human embryos.

Thinking reflectively, we should thus consider that once a woman’s ovum is displaced from its singular existence and objectified merely as oocyte in an inventory of equivalent and replaceable pieces, then the ovum effectively loses its “guard,” its “maternal protection”—as Heidegger would say: “Positionality in its positioning lets the thing go without protection—without the guard of its essence as a thing.”⁵⁵ Thus, from the *inception* of its life in technologically-induced conception through the scientific-biotechnological methods of transvaginal oocyte retrieval to the *beginning* of its life in a live birth, the human child is positioned by technology such that its essence is altered thereby, manifesting the dominance of *techné* over *physis*. Through positionality the ovum is positioned into a thoroughly objectified presence in which its “unguarding” (*Verwahrlosung*), its loss of guard, loss of maternal protection, takes place.

⁵⁴ See Pankaj Srivastava, “Transvaginal Oocyte Retrieval in IVF: Should we really be scared of the procedure?” *Gynecology and Reproductive Endocrinology*, Vol. 2, No. 1 (2018): 15-17, DOI: 10.35841/2591-7994.2.1.16-18, accessed 30 December 2020.

⁵⁵ Heidegger, *Bremen and Freiburg Lectures*, “The Danger,” 44-45.

The task is first to think in a way such that “guardianship” (*Wahrnis*) is restored, in and for a thinking that enables the deed through which such human life is once again guarded, i.e., receives “the mother’s protection.” This requires, as Heidegger says, the step back from calculative thinking to a meditative thinking that is commemorative thinking. This latter thinking recalls the essential difference of *physis* and *techné*, discerns the semblance of normality that is present in calculative thinking *qua* technicity, and discerns thereby the loss of guardianship that is unconcealed in the manner in which molecular biology and biotechnology “impose upon” and “position” the human ovum, the human spermatozoon, and the human embryo as pieces of inventory. It is in such a way that, as Heidegger remarks, “positionality dissembles its essential danger,”⁵⁶ a dissembling that we do not discern as we are steeped in assumptions about scientific-technological progress and the supposed beneficence of technological fixes promised by “advances” in biotechnology.

Heidegger anticipates a possible “conversion” from the dominance of technology, i.e., from positionality, through thinking differently. If the human essence is genuinely to correspond to the essence of technology as positionality, then it is necessary that there be a shift in comportment from one in which humans think themselves to be *masters* of technology to one in which humans are *guardians* of technology and, thereby, guardians of the human essence. The fact is that “all mere willing and doing in the manner of requisitioning only perpetuates the unguarding”⁵⁷ that we encounter daily in technology as positionality. To expose ourselves to the essence of technology is to open ourselves to a conversion in thought and thereby to a conversion in action. Thus, in anticipation of the step back into a reflection, Heidegger calls upon us to take heed of a salient fact: “in our age everywhere upon the earth a uniform manner of thinking achieves world-historical dominance.” Indeed, “this uniform thinking is only the form leveled down and rendered

⁵⁶ Heidegger, *Bremen and Freiburg Lectures*, “The Danger,” 52.

⁵⁷ Heidegger, *Bremen and Freiburg Lectures*, “The Turn,” 72.

useful, of that historical formation of thought that we name Western-European...”⁵⁸ Notwithstanding, Heidegger contends, even though one speaks of the thinking that is “restricted to the historicity of Western-European history,” even so “as restricted to this, it is at the same time unleashed as the fundamental characteristic of the modern world technology of our planetary age.”⁵⁹ No society, culture, nation today escapes the calculative thinking and the positionality of technology.

Yet, it will not do to conceive the whole of the technological world as something made by humans, Heidegger says. Rather, insofar as humans are drawn after technology, we are to take notice that the whole of the human way to be “finds itself everywhere challenged to take up the planning and calculating of everything.”⁶⁰ All beings, all things, and first of all the human being, are challenged-forth into a position of standing-reserve for planning and calculating undertaken through the instrumentality of the human being who thinks himself the master of technology. Essential, meditative, commemorative thinking tells us otherwise. To pit meditative thinking against calculative thinking is to make the shift towards guardianship of human life, even the very essence of the human being, from the moment of its inception in the ovum and the embryo that ever requires its most proper guardianship in the protection rendered by the woman as mother,⁶¹ and who consecrates that life as a giving

⁵⁸ Heidegger, *Bremen and Freiburg Lectures*, “Basic Principles of Thinking,” 89-90.

⁵⁹ Heidegger, *Bremen and Freiburg Lectures*, “Basic Principles of Thinking,” 93.

⁶⁰ Heidegger, *Bremen and Freiburg Lectures*, “Basic Principles of Thinking,” 115 & 116.

⁶¹ See here Gerda Neyer and Laura Bernardi, “Feminist Perspectives on Motherhood and Reproduction,” Stockholm University Linnaeus Center on Social Policy and Family Dynamics in Europe, SPaDE, Working Paper 2011: 4, https://www.su.se/polopoly_fs/1.18714.1320939635!/WP_2011_4.pdf, accessed 05 January 2021. The authors opine: “Feminist discourse shows how ART has further decomposed biological motherhood and has altered the meaning of motherhood and reproduction. Feminist analysis maintains that despite the rhetoric of choice surrounding ART, these technologies have not increased women’s reproductive freedom. The decomposition of biological motherhood, the medical, legal, and commercial development of reproduction, and the change in the social perception of motherhood have rather established new forms of control over female reproduction.” The “decomposition” here includes a plurivocal sense of ‘mother’, thus: “‘ovarian mothers’ (those who provide the eggs), ‘uterine mothers’ (those

gift, the woman thus having genuine reproductive choice and a genuinely free relationship to the extant technologies that seek to govern reproductive freedom.

who carry out the pregnancy and give birth), and ‘social mothers’ (those who raise the child).” Furthermore, the authors argue (pp. 14 & 15) a new comportment arises, according to which “medical and technical assistance” to the would-be mother not only seeks to overcome nature’s “deficiency” but actually “legitimize[s] ART” and “naturalizes’ it,” such that, “The importance of this shift in the perception of nature lies precisely in that its depicts women and their reproductive functions as inferior to technology and subjects them to it.”