Critical Response
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Response to Catherine Malabou, "One Life Only: Biological Resistance, Political Resistance"

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In "One Life Only: Biological Resistance, Political Resistance" (*Critical Inquiry* 42 [Spring 2016]: 429–38), Catherine Malabou offers her thoughts on the enigmatic topics of biopower and biopolitics. The former term is thought to derive conceptually from Michel Foucault's first volume of *The History of Sexuality* (1976).[1] The latter was formulated originally as early as 1912, though the term is often attributed to the Swedish political scientist Rudolf Kjellén, who, in the 1920s, referred to it as a logical alternative to his concept of geopolitics.[2] Essentially biopower refers to the power of the state to use biological knowledge to intrude into the biological aspects of life in order to regulate or control populations under its influence. Biopolitics refers either to the exercise of political power over the biological aspects of life or the intersection between political power and biology.[3]

According to Malabou, contemporary

> biological potentials reveal unprecedented modes of transformation: reprograming genomes without modifying the genetic program;

1. See Paul Rabinow and Nikolas Rose, "Biopower Today," *BioSocieties* 1 (June 2006): 195–217.
2. See Marius Turda, *Modernism and Eugenics* (London, 2010), an excellent history of eugenics.
3. See L. T. Liesen and M. B. Walsh, "The Competing Meanings of 'Biopolitics' in Political Science," *Politics and the Life Sciences* 31 (Spring–Fall 2012): 2–15.

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> replacing all or part of the body without a transplant or prosthesis; a conception of the self as a source of reproduction. These operations achieve a veritable deconstruction of program, family, and identity that threatens to fracture the presumed unity of the political subject, to reveal the impregnable nature of its "biological life" due to its plurality. [P. 438]

How seriously do we need to take this somewhat dire warning and what are the empirical, observational, and/or analytic bases for Malabou's assertions in the biological, political, and philosophical realms?

Malabou believes that "in our time we have witnessed the definitive erasure of the limit between the political subject and the living subject that for centuries was believed to be secure" (p. 429). This statement seems contrary to Foucault's view of the history of biopower insofar as his text traces the transition between the limited power over life exercised by sovereigns and the absolute power over life exercised by certain states to the nineteenth-century marriage between political power and technology. Arguably, ever since the Industrial Revolution states have had an interest in and the knowledge to control populations at the biological level by manipulating the societal factors that contribute to health, fecundity, infant mortality, life expectancy, socially acceptable forms of death, and so on. The point of such manipulation has always been to maintain the state by forcing its population(s) to conform to some normative distribution conditioned on political views regarding what is right, natural, and efficient. Therefore, the exercise of biopower can be seen, perhaps more properly, as having been a characteristic of Western societies for many generations rather than a relatively recent development.

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Malabou insists that the biological operator in this transition has been entirely passive; it flows "into the mold of power. . . . as if, since its birth in the eighteenth century, biology were preparing itself for its political investiture by offering renegade categories to power" (p. 430). Leaving aside the teleological character of her argument's form, both the history of science and the history of politics demonstrate that biological—notably anthropological—concepts have been used to further political ends. However, all scientific concepts are unique in the sense that they are perpetually subject to sometimes radical revision and/or rejection in the light of new discoveries, the results of new experiments, and the development of new scientific concepts. This is not the case with other types of information, conclusions, and assertions contributed by other branches of knowledge that also influence political discourse (for example, religious knowledge, political knowledge, philosophical knowledge).[4]

Although Darwinian selection theory was used to justify the eugenics movement of the late nineteenth and early twentieth centuries, many prominent biologists of the time (such as Franz Boas, J. B. S. Haldane, R. A. Fisher) opposed the biopolitical doctrine of enforced sterilization of "undesirables" in order to remove their characteristics from the normative population not only on the basis of moral repugnance but also because scientific evidence that had come to light since the time of Darwin, Francis Galton, and Herbert Spencer showed quite clearly that such a program would not produce the effects on human populations claimed by the eugenicists.[5] Similarly, there was a time when leading biologists agreed that a hierarchical ranking of the innate capabilities of human races existed and cited the results of scientific studies in support of that position. However, the overwhelming contemporary biological consensus is that such differences do not exist, a conclusion predicated on the basis of solid empirical evidence. This evidence not only failed to corroborate previous results but indicated that these previous results were in error because of a wide variety of biases in the tests used to assess cognitive capabilities.[6] Once these biases were removed and/or controlled for in subsequent experiments, the

4. See Jerry A. Coyne, *Faith Versus Fact: Why Science and Religion Are Incompatible* (London, 2015); Daniel S. Greenberg, *Science, Money, and Politics: Political Triumph and Ethical Erosion* (Chicago, 2001); Timothy Williamson, *The Philosophy of Philosophy* (Malden, Mass., 2007); Peter Adamson, *A History of Philosophy without Any Gaps,* 2 vols. (Oxford, 2014); and also the attempted synthesis between science and religion by David Sloan Wilson, *Darwin's Cathedral: Evolution, Religion, and the Nature of Society* (Chicago, 2002).

5. See the biographical review by Herbert S. Lewis, "The Passion of Franz Boas," *American Anthropologist* 103 (June 2001): 447–67, and the history by Daniel J. Kelves, *In the Name of Eugenics: Genetics and the Uses of Human Heredity* (New York, 1985).

6. See Ashley Montagu, *Race and IQ* (Oxford, 1999).

predicted racial differences disappeared, as did the cover biological science provided to politicians, educators, administrators, employers, judges, and the like who attempted to utilitze them to justify biopolitical means of controlling the populations of various minority groups. Today, biological findings are among the most frequently cited lines of evidence supporting the idea that all humans constitute a single polymorphic species.[7] Contrary to Malabou's implication, and contrary to the information provided in her essay, biology has not simply rolled over and provided scientific justification for the exercise of biopower. Rather, many of its practitioners have been consistent and effective forces for controlling the expression of biopower.

Malabou cites Georgio Agamben and Roberto Esposito, along with Foucault, as supporting the idea that "contemporary philosophy bears the marks of a *primacy of symbolic life over biological life that has been neither criticized nor deconstructed*" (p. 431). In this argument she appeals to a somewhat vague metaphysics in suggesting the "symbolic life" is "that which exceeds biological life, conferring meaning on it. It refers to spiritual life, life as a 'work of art,' life as care of the self and the shaping of being, peeling our presence in the world away from its solely obscure, natural dimension" (p. 431). As evidence of this aspect of biological life that transcends biology sensu stricto Malabou cites recent developments in the fields of epigenetic inheritance and cloning. Her discussion of these developments is quite brief, and she makes no claim to be a specialist in either area. Nevertheless, the dependence of her argument on these examples requires that they be scrutinized.

Epigenetics is the study of the study of the mechanisms of temporal and spatial control of gene activity during the development of complex organisms.[8] Epigenetic variations in a trait or character are caused when environmental factors result in gene products being expressed that would not be the case under other environmental circumstances. There is nothing controversial about standard epigenetic variation biologically or mechanistically. Through epigenetic variation the form (phenotype) of an organism can be changed without the organisms' genetic code (genotype) having undergone any alteration. Owing to the fact that no changes in the genetic sequence are passed between generations (that is, are not heritable), classic epigenetic changes are not regarded as being the result of the operation of evolutionary processes.

7. See Kenan Malik, *Strange Fruit: Why Both Sides Are Wrong in the Race Debate* (Oxford, 2008).

8. See Robin Holliday, "DNA Methylation and Epigenetic Inheritance," *Philosophical Transactions of the Royal Society of London B, Biological Sciences,* 30 Jan. 1990, pp. 329–38.

However, relatively recently it has been discovered that situations exist in which some changes in gene expression induced epigenetically can be passed between generations. Well-known examples include DNA methylation and histone modification, the former of which alters the physical structure of DNA such that gene sequences previously rendered inactive by structural impediments (for example, tight coiling around histone molecules) are rendered active through relaxation of the DNA chromosome's physical structure in the presence of a trigger molecule (in this example, a methyl group).[9] As long as the trigger molecule is present in the cell, the ability to express this gene may be passed on through multiple cell divisions and, in the case of maternal inheritance, passed between generations of sexually reproducing species.

In order to incorporate these aspects of epigenetic processes that have limited but demonstrated inheritance potential into the corpus of epigenetics, a new definition of epigenetic trait was proposed in 2008 in a short article published for the genetic community's consideration. This article defined epigenetics more generally as a stably heritable phenotype resulting from changes in a chromosome without alterations in the DNA sequence.[10] This conceptual change recalls Conrad Waddington's original idea of epigenetics as the differentiation of cells from their initial totipotent state in embryonic development.[11] The proposed change (for it remains controversial among geneticists) is an example of progress in our understanding of the mechanistic complexity of natural world.

Part of the controversy surrounding the discovery that some forms of epigenetic variation can be passed between generations stems from its conceptual link to the inheritance of acquired characters (also termed Lamarckism). While a full discussion of this topic is well beyond the scope of this response, I would point out that, contrary to classic Lamarckism, (1) multiple mechanistic bases for various forms of epigenetic inheritance exist and (2) the gene products involved are rather simple and limited in their effect on the phenotype. More importantly, a recent review of the role heritable epigenetic variation plays in phenotypic evolution concluded that, for now, "the relevance of heritable epigenetic effects for the ecology

9. See ibid.; see also P. S. Kayne et al., "Extremely Conserved Histone H4 N Terminus Is Dispensable for Growth but Essential for Repressing the Silent Mating Loci in Yeast," *Cell,* 7 Oct. 1988, pp. 27–39.

10. See Shelley L. Berger et al., "An Operational Definition of Epigenetics," *Genes and Development* 23 (2009): 781–83.

11. See C. H. Waddington, "Canalization of Development and the Inheritance of Acquired Characters," *Nature,* 14 Nov. 1942, pp. 563–65. Note this original definition of epigenetics was proposed prior to discoveries in the 1950s that led to our modern understanding of DNA structure and function.

and evolution of most organisms is still highly speculative."[12] In other words, far from being a revolutionary development in molecular biology that changes the way in which we think about inheritance, evolution, and/or the ability of information to be passed between generations in any fundamental manner, this new information represents, at present, a rather limited, minor, and still controversial footnote to our understanding of mechanics of inheritance in complex organisms whose significance is, at best, not well understood. Even under a best-case scenario, current epigenetic theory cannot, to my way of thinking, be construed to support Malabou's assertion that "if the structure of the living being is an intersection between a given and a construction, it becomes difficult to establish a strict border between natural necessity and self-invention" (pp. 435–36).

With regard to cloning, Malabou's interest appears to lie in the process as a means through which evolutionary transformations that have become part of a modern species' genome can be undone in order to gain access to what she regards as the "symbolic" remnant of an ancestral condition.

> These potentials are precisely asexual reproduction and regeneration, both of which represent ancient forms of life realized by the state-of-the-art technologies that are therapeutic and reproductive cloning. Biotechnological innovation—far from being a mere instrumentalization, manipulation, or mutilation—thereby realizes a memory, that of the living beings erased within us. The posthuman is thus also the prehuman. [P. 437]

Asexual reproduction (also termed parthenogenesis) and regeneration are actually tolerably common among many kinds of modern (not ancient) organisms, including vertebrates, under natural conditions.[13] However, despite various treatments of reproductive cloning in novels, movies, TV programs, and so on, the idea of using this technique to resurrect ancient life forms is simply not possible either mechanistically or philosophically.

Artificial cloning occurs when an embryonic totipotent cell is removed from the parent's body and manipulated artificially (in more derived vertebrates almost always via insertion into the body of an unrelated female host) to initiate its developmental program in the absence of fertilization

12. Christina L. Richards, Oliver Bossdorf, and Massimo Pigliucci, "What Role Does Heritable Epigenetic Variation Play in Phenotypic Evolution?" *BioScience* 60 (Mar. 2010): 235.

13. See *Evolution and Ecology of Unisexual Vertebrates,* ed. R. M. Dawley and J. P. Bogart (New York, 1989); Lynn Margulis and Dorion Sagan, *The Origins of Sex: Three Billion Years of Genetic Recombination* (New Haven, Conn., 1986); Demian D. Chapman et al., "Virgin Birth in a Hammerhead Shark," *Biology Letters* 3 (Aug. 2007): 425–27; and Scott F. Gilbert, *Developmental Biology* (Sunderland, 2013).

from another parent. This process results in the production of an offspring that is identical genetically to the single parent, but differs from that parent morphologically via the operation of various epigenetic factors. Note that in this process there is no opportunity for modification of the parent's genotype. Thus, clones do not, and cannot, adopt the genotype of any ancestral species or member of any ancestral population, for doing this would require modification of the parental genotype.

In positing that a process of genetic regression takes place during the cloning process Malabou may be confusing the various morphological states the mammalian embryo passes through during development (for example, forms with fins, gill slits, a tail) with species related to mammals phylogenetically: the well-known theory of developmental recapitulation.[14] Although these developmental stages do manifest some of the morphological characteristics of ancestral forms, this is a by-product of the developmental programs inherited from those ancestors. These stages do not have different genotypes. Accordingly, there is no possibility of true phylogenetic regression through the natural expression of any individual's or any cell's developmental program.

Cloning has been suggested as a method through which extinct species can be resurrected (also known as de-extinction and often considered part of the rewilding conservation program), but only for very recent species (for example, mammoths and passenger pigeons) whose genomes can be recovered intact from materials preserved naturally. While this is possible theoretically, in all cases studied so far the genotypes of recently extinct species have been degraded to the extent that direct cloning is impossible. Even using recent species the success rate of cloning is depressingly low (less than 1 percent for wild species).

More typically gene modification procedures are proposed as the means whereby ancient species' genomes can be reconstructed. Of course, many well-known practical problems exist in the implementation of this sort of genetic modification. But here we also run into conceptual and philosophical issues with regard to the status of the modified individual. Since for all but the most recently extinct species the complete genome will be unknown, retooling an extinct species' gene sequence would inevitably involve considerable guesswork. The most efficient current approaches involve the insertion of new genes into the gene sequence of a phylogenetically closely related species. Since an individual so modified would contain bits and pieces of gene sequences from two or more different species

14. See Soren Lovtrup, "On von Baerian and Haeckelian Recapitulation," *Systematic Zoology* 27 (1978): 348–52.

it could not be regarded ontologically as a resurrected extinct species but rather as a genotypic chimera or mosaic *no matter how close the individual may be to our image of the extinct species morphologically or, in the context of Malabou's argument, symbolically*. Like the dinosaurs of Michael Crichton's hypothetical *Jurassic Park*, this distinction would probably be lost on the general public. But it should matter to philosophers, historians, and informed social critics as well as to scientists.

As far as contemporary biology is concerned, extinction, be it by the physical death of the last individual of a species or by the evolutionary transformation of a population, is forever. Once a genome has been lost or modified substantially there is no way mechanistically, ontologically, or philosophically to bring it back. Accordingly, Malabou's ideas regarding the undoing of evolutionary changes that have occurred over long periods of time in the human lineage through the use of gene technology to produce prehumans from the "memories" encoded in the genotypes of modern humans is not, as her text seems to imply, a core philosophical corundum that has escaped the attention of biologists and philosophers to date. Given our present understanding of biological processes it is not even a possibility, much less a reality.

In the last section of her essay, Malabou gathers the disparate strands of her argument together to ask what implications theoretical modifications of human genomes via substantive epigenetic inheritance and human cloning (reproductive or therapeutic) might have for the exercise of biopower and either individual or collective resistance to that power (bioresistance?). Unfortunately, she offers no answers to this question other than to assert their negative social, philosophical, and political consequences (see quotations above). However, since human cloning for therapeutic or reproductive purposes is not taking place currently for mechanistic and moral reasons and since the importance of epigenetic inheritance is undemonstrated to date, these speculations appear to be of little use for dealing with the long-standing reality of biopower. In effect they put the solution—and the need for effort and action—off to an undetermined technological future in which we may, or may not, develop improved understanding and capabilities in these areas.

For the present I am personally more drawn to the conclusions offered by Paul Rabinow and Nicholas Rose who suggest the more pressing need is to develop the concept of biopower into an analytic tool that can enable critical thinking about three core areas of this topic: "knowledge of vital life processes, power relations that take humans as living beings as their object, and the modes of subjectification through which subjects

work on themselves qua living beings."[15] The current biopower/biopolitics situation is an exceedingly complex mix of realized technological innovations, reconceptualizations of natural human conditions as "diseases" that can, or need to, be "treated" pharmacologically (for example, infertility, depression), the corrupting influence of capitalism on the provision of health care and basic human services to the global population, the pressures of population growth in underdeveloped countries in social, economic, and conservation contexts, and the challenges the creation of intelligent machines will present to the exercise of biopower in their ever-widening spheres of contemporary social and economic activity. The offering up of poorly described and selectively documented, but decidedly minor, advances in biological knowledge as evidence that we are on the cusp of some momentous historical shift in our understanding of biopower, as well as in our ability to curb its undoubted excesses is, to my view, premature. Foucaultian biopower permeates Western—and increasingly global—human culture and arguably has done so for well over a century. But, as Rabinow and Rose note in a published preliminary draft of "Biopower Today," "the concept [of biopower] remains insufficiently developed, and has not yet demonstrated its analytic mettle in sufficient cases. We would recommend that analysts attend to [this] task, rather than succumbing to the allure of philosophies that turn a concept into a theory or a world view."[16]

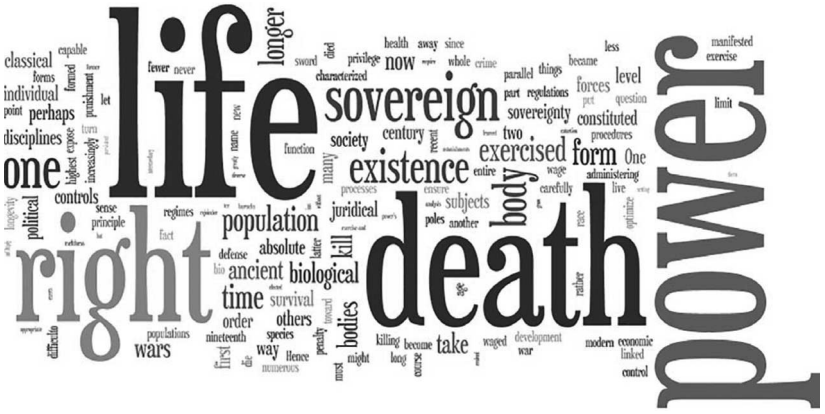

FIGURE 1. Word cloud representation of Foucault's discussion of the history of the right of death and power of life in *The History of Sexuality: An Introduction,* vol. 1 of *The History of Sexuality,* trans. Robert Hurley (New York, 1978), pp. 135–40.

15. Rabinow and Rose, "Biopower Today," p. 215.

16. Rabinow and Rose, "Thoughts on the Concept of Biopower Today" (2003), www.lse.ac.uk/sociology/pdf/RabinowandRose-BiopowerToday03.pdf, p. 34.