RÜDIGER KUNOW

Material Bodies

Biology and Culture in the United States

American Studies ★ A Monograph Series

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Für Eva

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Preface

This is a book about culture and biology, an interdisciplinary meditation on the multiple exchanges, interfaces, connections, including missed connections, between these two crucial areas of human existence. Biology and culture are of course both large, abstract, generic terms for equally large and complex fields, and to invoke them together is a bold gesture of abstraction, one that is running the risk of taking us to little more than even further abstractions such as the inveterate body-mind binary. What is more, an inquiry such as the one attempted here must necessarily position human beings "at the intersection of their bodily and conceptual systems" (Shotwell xii). This is done here without assigning priority to either side. To avoid such prioritizing, and to anchor analysis and discussion in the everyday world people share with multiple others, the following argument will address concrete constellations in which biology, more precisely the biology of human life, resonates deeply and intensely with cultural practices.

Once again, this is a book about culture and biology, and so the readings and reflections offered in the pages that follow will rest to a large degree on the meaning given here to that little word "and." The most predictable position one might take is to cancel out the connective "and" altogether—arguing that biology is always already "culture"—just like politics, the economy, physics or a host of other fields of human activity. Such cultural pantheism, however fashionable in current cultural criticism, will be avoided here, not only because it tends to smooth out the differences between areas of human praxis and experience, but more importantly because it projects the body as a principally endless playing field of human construction, of invention and intervention. The materiality of human life does not simply give itself over to human designs or desires. Congenital impairments, infectious diseases or processes of aging are reminders of the oftentimes stubborn, refractory character of human biology. Nor does this biology yield its secrets to the human desire for knowledge—as countless myths, legends,

shamanistic procedures or the contested protocols of modern science demonstrate. And so I happen to sympathize very much with the view that "radical constructivisms rest on the over-estimation of human construction and authorship" (Smith and Jenks 147). Saying this is not a plea for a return to an essentialized biologistic understanding of Life (writ large), rather one that contests the susceptibility of life to principally endless processes of cultural semiosis and *différance*. Accordingly, my argument will attempt to take the middle road between the two evils of biological essentialism and cultural pantheism.

Biology, and especially human biology, the principal focus in this study, is not nature pure and simple. Rather, it is matter, materiality of life, a form of the given, one, which finds its most compelling and analytically interesting manifestation in the human body. The human body can be an endowment or possession but it can also make claims, even imperious claims on people's attention. This is especially so in extreme and emotionally charged moments and conditions of bodily pathologies, moments of individual and collective suffering. As will be shown in the pages of this study, the biology of human life (but also other forms of organic life, e.g., on the subhuman level of micro-organisms) can indeed be a site of questioning, of reflexivity, referring to problems in the lives of individuals and collectivities. It can take to the limits available cultural resources, but can also be a realm that offers important correctives to views of human ascendancy over bodily matters. As a site of resistance and reflexivity the materiality of the body manifests itself most insistently in moments of intense pain, of life-threatening diseases. In these moments, persons afflicted are drawn to the cultural archives, as they seek to understand, to communicate their suffering, or when, as in the case of Alzheimer's disease, they lose this ability. Furthermore, human bodies have an inside and an outside. When that outside is experienced as being porous, as happens when collective diseases strike—most prominently the plague in former times, HIV-AIDS or Ebola in ours—the "deep, horizontal comradeship" (B. Anderson 6) between human bodies and beings shifts into the crisis mode. Then rumors and speculations about the origin of the disease, its purported carriers, or culpable negligence in the social systems feed into the general culture. One might more specifically speak here of a culture of blame addressed oftentimes to those whose visible embodiment differs markedly from what counts as "normal." People in late life or

disability, for example, tend to be culturally more "visible" than the rest of the collective and they solicit overall attention (not always benevolent) from their fellow human beings, an attention which coalesces in cultural images and expectations about what they can or should do or not do. A broad canvas on these issues when ethical considerations intervene in the biology-culture liaison is opened by Giorgio Agamben's notorious reflections on "bare life," Slavoj Žižek's "undead," Jean-Luc Nancy's "living dead," Roberto Esposito "bios," Didier Fassin's "ethics of survival," and also by Judith Butler's recent work on "dispossession" and bodily precarity.

What people can or rather should do with their biological endowments is also a question that the new age of biotechnology and genetic (re)engineering is posing in new terms and investing with new urgencies. The contours of a "quality control" model of human life are looming large at the horizon, most notably so in the United States, where this is fast becoming an issue, not only for informed discussions among scientific specialists but also in the general culture. They are the stuff of a new (bio-)technological utopia, a science fiction in all senses of the term, resourced, paradoxically perhaps, by age-old cultural visions about the perfect life. At the same time, and my deconstructionist colleagues would rush to point this out, genetic researchers rely on cultural icons and narratives to make their research comprehensible to larger audiences, perhaps even to themselves, as Bruno Latour, among others, has demonstrated.

The story of this book is to a large degree a U.S.-American story. This reflects the disciplinary background of its author but also acknowledges the pivotal role played by biology in the public domain of this self-designed exceptional nation. Here, in more straightforward ways than elsewhere in the capitalist Global North, the promises made by the new biotechnologies in tandem with the fears generated by the scrapping of entitlement programs have moved the biology of human life into the center of public discussion—a discussion already heated up by the "Politics of Life" propagated by the religious Right and the biologization of the "War Against Terror" (Melinda Cooper). The stubborn presence of "Obamacare" during the Trump presidency may serve as additional evidence here.

This is a brief and incomplete sketch of some of the constellations addressed in this book, where the biology of the human body is shown

as interacting intensely with cultural practices and problems. Drawing out cultural critique into the material arenas of human biology, individual and collective, is a project that will take this critique into a variegated terrain. This terrain is much larger than critique modeled on literary criticism sometimes seems to assume, and it is certainly not restricted to the latter's favorite objects, aesthetically ambitious and complex texts, images or other compositions. Instead, one can discover in expert pronouncements, policy papers, blogs and life narratives reflections on and representations of how especially in moments of anxious waiting, excited anticipation or impending harm the biology of human beings is experienced, explored, and interpreted. Even though cultural and more generally aesthetic constructs are undoubtedly important points of reference for making visible the links between biology and the imagination—individual, collective, aesthetic, mediated—I would caution against too much native realism here. What happens to fictional characters is not simply equivalent to what happens to people in the empirical world humans share with other humans, if for no other reason than that the outcome of, say, a medical crisis is known to its narrator (if it is not a day-to-day chronicle) but not to those going through the crisis. For this and a host of other reasons becoming obvious in discussions below, literary texts will not be the exclusive, nor even the privileged focus of the present investigation. Such texts will appear, at intervals, to illustrate an argument or simply tell side aspects of the main story.

The arguments presented and the constellations delineated are of course never abstract or value-free, nor are they mere expressions of Foucauldian biopolitics or of a systemic rationality of the Luhmannian type. Biology, whether seen as physical endowment or as cultural idiom, organizes and manages widely disparate life experiences and life chances. For this reason, a focus on biology, in my view at least, calls for a materialist perspective over against its old competitor, an idealist vision of human life as an ultimately spiritual existence. Against this background, the ideas presented here tie in, even though they are not congruent with, current debates about posthumanism or the end of the anthropocene. More importantly, perhaps, my readings might well be identified as an expanded political economy reading—expanded, because it adds to Engels's famous definition (in the *Anti Dühring*, 1877-78) the wide domain of cultural practices. Engels defined political

economy as being "about the laws governing the production and exchange of the material means of subsistence in human society" and their unequal distribution in the system of hierarchy and privilege which we call (with him) capitalism (*Anti-Dühring* n.p.). I think it is empirically but also conceptually arguable that the means of subsistence he is speaking of are determined in important ways by the respective biological endowment of human beings, by their exposure to bodily risks, their access to health care or their willingness to enhance their corporeal performance. Such a reading is made even more plausible by Engels's broad understanding of nature as "an interconnected totality of bodies" which as he goes on, "are interconnected" and thus "react on one another" (*Anti-Dühring* n.p.) in multiple but always social ways. Even though his understanding of bodies here is expansive, collective human existence and the interrelation of bodies that it produces are resourced by cultural knowledge and practices. Such a take on Engels allows us to position the interaction of biology and culture squarely within the political economy and thus in the material arrangements of the collective. On this basis, which will be further explicated in the next chapters, this study will understand biology as a material condition enfolding all of human life (and other forms of organic life), individually and collectively, and as a site where multiple forms of inequality and disparity dwell.

Once again, this is a book about biology *and* culture, positioned at the meeting point of two disconnected conceptual orders, the material biological basis of human life and its cultural resonances. It is certainly little more than a truism to say that the relations between biology and culture, however conceived, are both an urgent and ultimately vexing problem. This is as true of the lived world of living beings as it is true of theoretical reflections. To which I can add another truism, namely that there is of course no such thing as "culture" (as my readers will know), nor is "biology" an unambiguous term for a clearly demarcated field. As a characteristic of living organisms and simultaneously a branch of science, biology is also—like culture—something human beings are always already immersed and involved in, but also—again like culture—something they can call their own but cannot control. And so I can see no point at which biology and culture converge, no "third space" into which they can be synthesized.

In the argument presented here, I want to follow another route. Rather than making biology the handmaiden of an all-powerful cultural constructionism (one of the nostrums of constructivist critique), I want to assign to matters biological an active, structuring role in the constitution and reconstitution of cultural practices, in culture's "ways of inhabiting the world" (Ricoeur, *Time and Narrative* 2: 5). Seeing it as a site where human agency and nature meet, crisscross and affect each other, does not mean that I want to install biology as a person-like actor or an inscrutable force (as the Naturalists sometimes did) but rather as a limiting condition, a *figure of intervention* which disrupts human designs, social conventions and cultural performances. People may forget about their status as embodied beings, even actively desire to forget it, but they cannot do this for long. The French poet Paul Valéry has been quoted as saying "health is the silence of the organs" but such a silence does not last: bodily malfunctions, exposure to environment hazards or degenerative processes (aging), or contagious diseases remind humans of their status as embodied beings.

In adopting a position which sees biology as a site of resistance, an obstacle to self-fashioning, I engage with many of the criticisms brought forth in recent years against linguistic universalism, pantextualism, or social and cultural constructivism. The central claim on which the book's argument rests is that biology and especially the biology of human life, is a figure of intervention, and the cultural resonances of these interventions, will be mapped in the following chapters, of course without any pretensions at exhaustive comprehensiveness. Covering a broad array of thematic fields from molecular biology to mass diseases, this book will show how biology can complicate cultural practices and agendas, and provide a useful, even an important analytic venue that can mediate, even make visible for the first time, problems otherwise neglected in the public debate.

* * *

Some of the arguments presented in the chapters below have been tested in a number of publication venues, including *Amerikastudien/American Studies*, *Journal of Aging Studies*, *Age, Culture, Humanities*, *PROKLA, The Routledge Companion of Inter-American Studies, Text or Context: Reflections on Literary and Cultural*

Criticism—to name only a few. For the purposes of the present publication, they have been updated and modified.

Introduction: Biologizing Culture / Culturing Biology

Familiar Strangers, or, When Biology Meets Culture

Biology is in many ways like Spinoza's God, necessary, critical and present in everything that lives. It is everywhere and nowhere, in us—we can meaningfully speak of it on a personal ("our" biological make-up) and a species level (human biology)—and around us (as in the biosphere). It is immediate, even intimate, and at the same time abstract, summarizing a vast assortment of organic life forms, their relations and processes and our knowledge about them. Biology mesmerizes our attention and galvanizes our hopes as well as our fears—for ourselves, our communities, even the future of life on this planet.

Circumambient as it is, biology has always and in important ways been "us." From the earliest moments of recorded history, biology, especially the biology of the human body as en-formed figure of human life, has been a crucial component in the existential relations of human beings, defining how they imagine themselves, their own life and their place in the world they share with others. Biology has thus never been just "nature," but always also culture, an intense generator of cultural practices and problems. Today, even more so than in the past, biology-related concepts and suppositions are fast becoming a compelling presence with regard to "our existential situation as embodied human beings" (Shusterman 127). This is true also in the public sphere where the contours of a "biosociality" (Rabinow) are emerging with concomitant distinctions between good, desirable citizens and bad ones.[1]

[1] Paul Rabinow has defined these new configurations in terms of a new "biosociality," "a new type of autoproduction" and cultural determinant that emerges when human beings become aware of their own and others' differential biological endowment (Rabinow, "Artificiality" 99; cf. N. Rose, "Politics of Life" 132). The relation between biology and citizenship is a crucial issue of topmost importance in the context of Disability Studies. Take for example,

In practically all areas of private and public life, "humans have become even more biological . . ." (N. Rose, *Politics of Life* 254; cf. N. Rose, "Politics of Life" 20). This "biotization" of many life concerns will be the focus of attention in the chapters below where the role played by biology in the constitution of the public sphere and the cultural traditions and practices which define it will be discussed at greater length and with particular emphasis on the cultures of the United States of America. In these discussions, the claim will be made that, broadly speaking, confrontations—experiential as well as theoretical—with the biological basis of human life call up and often call into crisis central assumptions about human identity, individual and collective. For this reason, biology will be understood throughout as a *generative presence*, not just in the popular sense of a life-giving structure, but instead as an active, shaping force in individual and collective experience, and also cultural practices, theoretical reflections, narratives, works of art.

Another way of saying this is to speak of biology as a privileged location or, if you prefer post-structuralist lingo, a privileged sign—of identity, selfhood, possession. Invoking this loaded term, however conceived, in our present conjunction is therefore like the opening up of a veritable Pandora's box of significations: "biology" and its various compounds, "bio-" this or that, surface in vastly different practical and theoretic fields, referencing for example ecological production codes for foods and goods (biodynamic nutriments, biodegradable products), life-enhancement operations on the body (biotechnology), new technological solutions for quantifying biodata (biometrics), administrative interventions in life forms and practices (biopolitics), or the emerging markets based on trade in the building blocks of human, animal, and plant life (bioeconomics, biotrading, or biovalue). Also, there is biogenetics, bioinformatics, biowarfare, bioeconomics, biochemistry, and the list could be extended. In short, "bio-" has become a prolific signifier that is seemingly encompassing our very existence as human beings, individually and collectively, and on the species level. In what follows, the term "biosphere" will serve as a concept-term summarizing

Emily Russell, who argues in her 2011 volume on *Reading Embodied Citizenship: Disability, Narrative, and the Body Politic*, that "an analysis of disability can shake up conventionally held notions of U.S. citizenship" (qtd. in Adams, "Disability Studies" 503).

these various contexts, the uses, and meanings of matters biological, without privileging any of them.

Before proceeding any further, it is necessary to clarify what can usefully be said about biology in the following argument. In other words, what are we speaking about when we use the term "biology"? A look at some current lexical definitions reveals a consensual core and a set of conceptual overlaps:

> I. In non-scientific use, relating to biographical study and writing. A biographical history of a person, place, etc.; a biography. Later also: the study of human life, character, or society. Now rare. [in use since 1686]
> II. A branch of science, and related senses. The branch of science that deals with living organisms as objects of study, apart from any utilitarian value they may have, and now comprising more specialized disciplines such as zoology, botany, and bacteriology.
> The biological characteristics and attributes of an organism, species, etc. The living organisms of a particular area, environment, etc. [in use since 1871] ("Biology," *Oxford English Dictionary* n. pag.)

> 1. The science of life and of living organisms, including their structure, function, growth, origin, evolution, and distribution. It includes botany and zoology and all their subdivisions.
> 2. The life processes or characteristic phenomena of a group or category of living organisms: the biology of fungi.
> 3. The plant and animal life of a specific area or region. ("Biology," *The American Heritage Dictionary of the English Language* n. pag.)

> The science concerned with the phenomena of life and living organisms. ("Biology," *The Free Dictionary* n. pag)

> 1: a branch of knowledge that deals with living organisms and vital processes
> 2a: the plant and animal life of a region or environment
> b: the life processes especially of an organism or group; broadly: ecology ("Biology," *Merriam Webster* n. pag.)

On the evidence presented in these definitions, the way we use biology makes it tangentially related, if not congruous with "life

processes," with what we as human beings have and which makes us live. This relation is so close, so intimate one might say, that biology might even in given contexts function as a cipher for "life." As these definitions further suggest, biology is also the name for a vast field of human interest and inquiry aiming at a proven and reflected understanding of "life" and what it entails. These two related senses make biology a term with a *double entendre*, with two meanings at the same time: biology is both, structure and knowledge.

Knowing more about biology holds the promise of knowing more about who and what we are. Small wonder, then, that biology has been an object of knowledge with a long history of disciplined scholarly inquiry. In recent years, the field of biological inquiry has become so vast, that it needs to be more closely circumscribed for the purposes of the inquiry which makes up this book. Thus, a very general but necessary distinction will be adopted here between "green" biology (concerned with plant life) and "red" biology (researching cellular structures).[2] Within this framework, the argument presented here is almost exclusively concerned with the "red" variant of biological knowledge and structure: the basic organizational units of human or animal life (such as cells), its essential, sustaining processes (enzyme-induced chemical reactions) and the extra-cellular matrix (ECM) which regulates cells' relations with their environment. Aside from its obvious practicality, such a narrowing of focus has also been adopted in recognition of the vast and rich field of ecological criticism and environmental studies which are themselves vast fields of scholarly inquiry that are playing a great role in the Humanities today.[3]

[2] This distinction is well-established in research. In a 2014 editorial, the journal *Protoplasma* rehearsed this distinction to explain its new editorial policies (cf. Nick, Peter, and Reimer Stick. "Transcending Borders – Integrating Cell Biology in the New Protoplasma." *Protoplasma* 251.5 (2014): 989-90. Print.).

[3] For an overview of ecocriticism as a discipline cf. among the countless number of books Clark, Timothy. *The Cambridge Introduction to Literature and the Environment.* New York: Cambridge UP, 2011. Print. For German contributions cf. especially Mayer, Silvia, and Catrin Gersdorf, eds. *Nature in Literary and Cultural Studies: Transatlantic Conversations on Ecocriticism*. Amsterdam: Rodopi, 2006. Print. and the older collection Glotfelty, Cheryll, and Harold

I have spoken about recent times, and indeed, there is also a more contemporary concern involved in the focus adopted here on the biology of the human body. Since the 1950s and with growing momentum since the 1980s,[4] molecular biology especially and its cognates have attained a status by near common consent accorded to nuclear physics, namely that of a strategic field of Research and Development (R&D), with the potential of transforming the realities of life on the planet. It is no surprise, therefore, that both, biological structures and the knowledges attained about them, have for a long time in human history been critical fields of action in political (biopolitics) and socio-economic contexts. In the twentieth century especially, biology has become a major motor of innovation: In its technological applications side ("biotech"), it has produced new options for radical interventions, in the make-up of organic life, animals, and increasingly often now also human beings. These options have to no small degree determined the cultural presence of biology, tipping the scales in favor of biology as the site of a new utopia, a *science* fiction in the original meaning of the term. As will be shown in more detail below, this is especially so in the United States whose cultures can in important ways be said to be dynamically intermeshed with biology as structure and knowledge.

This comprehensive, in-depth public presence of matters biological has been complicated somewhat by the fact that especially the structures and processes explored by molecular biology and related fields are not always easily accessible. In fact, it has taken a long time during the evolutionary history of humankind plus sophisticated technical apparatuses to detect and describe them, even more to be able to intervene in them. Situated at the far end of what Jacques Rancière would call "the distribution of the sensible," these (molecular) biological

Fromm, eds. *The Ecocriticism Reader: Landmarks in Literary Ecology*. Athens: U of Georgia P, 1996. Print.

[4] Without aspiring to give a complete historical narrative of the development of molecular biology, two crucial events may be named here: In 1953 the molecular structure of DNA was identified, and during the 1980s methods were developed to trace genetic finger printing. Also, the genes "responsible" for color blindness were for the first time isolated (based on Wynbrandt, James, and Marc D. Ludman. *The Encyclopedia of Genetic Disorders and Birth Defects*. New York: Infobase Publishing, 2010. Print.).

data are anything but "self-evident facts of sense perception that . . . disclos[e] the existence of something in common" (12). Instead they are almost always sub-empirical and inaccessible to observation, except for small coteries of experts. Such a diagnosis has epistemological but also cultural-political dimensions to it. For Rancière, the distribution inside the public sphere of what is or is not visible and thus open for debate is an intensely political question, one which determines the collective's ability "to think politics" (52). Biology as structure and knowledge is thus, especially in its contemporary molecular variants, imbricated in the distribution of power and attention in a given social and cultural formation.

Questions of access to biological (subject matter) will be repeatedly discussed in this volume. One central aspect which I want to point out at this early moment is the question of *mediation* which will surface time and again in later chapters as well. Since the arcana of cellular biology are difficult to comprehend, also for those usually mediating the public sphere, problems of expression, communication, transcription, even translation will inevitably surface between the objects and processes of scientific inquiry and their presence outside the confined spaces of the laboratory. These questions are not "scientific," but social and cultural, a form of "literary inscription," as Bruno Latour and Steve Woolgar, among others, have shown (52). And so most knowledge people have of the processes going on inside the body is of an indirect kind, *metaphorical knowledge*, expressed in *metaphorical language,* or other modes of indirection, loaded with all the epistemological and affective baggage contained in rhetorical troping.[5] This is true for laypersons, but also, as will be seen, for experts as the popularity of the text-life analogy in molecular biology may show (see "Semantics and Semiotics"). This does not stop, on the contrary, it is perhaps even the pre-condition for why the adjunctive signifier "bio-" is traveling widely across various domains of private and public life. As the brief enumeration above of "bio-" fields has shown, biology has become a truly capacious term which encompasses a large number of perspectives and interests. It is

[5] This issue opens up into the larger field of language use in research and reporting of the sciences; cf. Gross, Alan G. *The Rhetoric of Science.* Cambridge: Harvard UP, 1996. Print.

also the name for a discursive machine of vast proportions whose outreach can be demonstrated by a brief look at the contexts in which biology, increasingly often in the conventional form of conceptual shorthand, is made to matter in even the most mundane pursuits of everyday life.

This proliferation of the descriptor "bio-" and its polymorphous significations make plausible what will be one of the recurrent arguments presented in this book: that matters biological are not at all the province proper of the Life Sciences so called, of anatomy, biochemistry, botany, ecology and other environmental studies, epidemiology, genetics, immunology, medicine, neuroscience, pharmacology, plant sciences, zoology, to name only a few.[6] Instead, biology can be said to have reached out into areas hitherto pretty much sealed from it: the social sciences, law studies and the Humanities. As a consequence of this process which is (as will be shown below) still going on, biology (however conceived or even mis-conceived) has become thoroughly *culturalized*. It is an integral, even indispensable part of the public life and the public culture of our time, not only in the United States, but certainly and emphatically there. Even more, biology has become a discursive anchor in debates about what can count as a good life worth having, what relations humans develop toward their bodies, their offspring, their own old age. And so the project I have in mind here can connect with a host of related scholarly activities, especially so since "the question of the biological seems to be looming larger in the humanities in recent years" (Wald, "We" 953).

The relationships of the biological and the cultural past and present are not exhausted by the inveterate debate about the "Two Cultures" (Snow) nor by the equally timeworn series of cultural, even philosophical dualisms, chief among them those of body and mind (Descartes), φύσις/nature and θέσις/construct (Platon), nature and history (Kant), nature and culture, soma and sem. Concerns about ecology and the sustainability of human life on this planet have added

[6] The relative weight of the sciences vs. other fields of knowledge is object of an ongoing debate. So, in the U.S. it is sometimes argued "that natural science has a more direct access to the 'truth' of the body [is] still commonplace today, although they may be contested even by natural scientists" (Fraser and Greco 7).

new urgency to questions concerning matters biological so that their relation to culture has in our time become fraught with new ambivalences and contradictions. Thus, "the inextricability of culture and biology" ("American Studies" 190) of which Priscilla Wald has recently spoken, must not be read as a seamless amalgamation of both fields but rather as a call to review the entrenched apartheid of these two discursive fields.

By bringing into focus the nature/culture dichotomy, biology is a site which involves fundamental questions about human life in time and space—questions which innervate the "human" in the Humanities. These questions may in some ways be transcultural and transhistorical; nonetheless the specific formulations of this dichotomy are at all times culture- and situation-specific (as Latour and Woolgar also insisted). This new cultural urgency of biological concerns has perhaps become nowhere more noticeable than in the contemporary United States, where "biomatters" operate at core sites of debates about the present and future fate of U.S.-Americans and their nation, particularly issues relating to the security of persons, corporations, or the nation itself (Helmreich). Most notorious is of course the ongoing "War on Terror" which is frequently envisioned in terms borrowed from biology such as the ominous "self-replicating sleeper cells" of terrorists living undetected in the country (National Intelligence Estimate 2007 qtd. in Mitchell xii; M. Cooper, "Pre-empting Emergence" 118). Beyond that, the biological has insistently insinuated itself into arguments from which it has hitherto been largely absent: public and private finances, economic and urban planning, citizenship rights and other entitlements. And these references are by no means trivial or recondite. A study has shown that in the decade from 1991 to 2000 alone an estimated 880,000 deaths among African Americans could have been averted if their mortality rates had—through better health care—been equal to that of Caucasian Americans (Woolf et al., "Health Impact" 2078-81). In other words, a focus on human biology can make transparent how the most commonly shared aspects of human existence, its biological features, serve as the basis for social and cultural divisions and divisiveness. Humans are biological beings but do not equally share the benefits of their biological endowments. Instead, forms of biology-based apartheid have been a salient feature of practically all social and cultural formations.

As biological concerns have migrated into—some would say, invaded—the public culture, especially the popular culture of modern capitalist nations of which the U.S. clearly is the avatar, a vast new field has emerged of biology-related inventions, interventions, speculations, utopic projections, and the like.[7] As Stanley Aronowitz has argued, "[i]ndividual and collective identities are constructed on three articulated sites: the biological the social, and the cultural" (Aronowitz 135). In keeping with this premise, the following pages will trace various sites of articulation, in moments of encounter with social and cultural others, in the normative frameworks of what counts as a good life, in moments of pain and life-threatening illness, in age and disability, and in projects to improve the human lot by "more biology" in the form of biotechnological interventions.

All these sites are sites of *biological imaginaries*, some of ancient provenance, others of more recent date. These imaginaries are more than so many examples of the cultural currency of biology-inflected meanings; rather they are evidence of a larger seismic shift in the private and public meaning of human life. How matters biological, and especially the biology of human life, emerge and are given presence in the public sphere is always also a theoretical and conceptual act of coming to terms with the dialectic of the one and the many, self and others, the relationalities in which human beings are involved. In other words, culture here offers important insights into how a given social formation imagines the biology of human life *as a model for organizing, managing, but also imagining a collectively shared space*.

This is the moment to remind ourselves that such imaginaries are not the province proper of some individuals, however socially or intellectually privileged they (especially as scientists) may be but a communal if not a collective project. Against the widespread misconception that the biology of human life is the domain of the personal, some inward and private matter, it will here be understood as what they have always been, a constellation of material, social and economic relations. For such a move, an observation made by Fredric

[7] For an extended elaboration of this context see Gibbs, Raymond W. *The Poetics of Mind: Figurative Thought, Language, and Understanding* Cambridge: Cambridge UP, 1994. Print.