1 Introduction

"Incidentally," Paul Rabinow (1996: 99) remarked in his *Essays on the Anthropology of Reason*, "there is no entry for 'life' in *Keywords*." He was referring to the first edition of Raymond Williams's heavily cited reference work, first published in 1976. "Life," in other words, wasn't of significance in late twentieth-century discourse. How could that possibly be the case? The "omission," if that is the right term, in a work that has proved to be a valuable guide to modern thought, at least Euro-American discourse, is remarkable. Could it be that "life" had not yet emerged as an epistemic object? In a sense, the fascination with *some* concept of life is cross-cultural and panhuman, dating back to early myths at the dawn of humanity. And, after all, the European Enlightenment sparked immense interest in "life," "nature," and related themes. A whole army of Enlightenment naturalists explored and theorized the history of the planet, the evolution of organisms, and different forms of life (see, for instance, Rudwick 2014). Life was intensively scrutinized through the modernist gaze of "disciplines," each with its own intellectual terrain, its schools, chairs, and disciples.

If the Enlightenment marked the birth of biophilia (literally, "the love of life"), the *absence* of "life" from Williams's *Keywords* signified its death, a mysterious disappearance. Originally used, it seems, by Eric Fromm in the early 1960s (Kahn 2011: 11–26), the term "biophilia" has been developed by several scholars for related purposes. During the last century, especially the second half, a new surge of interest in "life" developed. Schrödinger's book *What Is Life?*, originally published in 1944 (Schrödinger 2006), launched a wave of inquiries into "life itself" in the natural sciences, the humanities, and the social sciences (see, for instance, Jonas 2001 and Dupré 2012). This has generated new kinds of concerns and new epistemic spaces (Canguilhem 2008, Rheinberger 2010). Popular culture, too, is saturated with references to life. John Lennon wrote that when he went to school he was once asked what he wanted to be when he grew up. "Happy," he wrote down. His teachers told him he didn't understand the assignment, but Lennon told them they didn't understand life. It seems safe to say that life has recaptured the imagination of the public, environmentalists, and academics across the disciplinary terrain.

Anthropology (following Kohn 2007, Kirksey and Helmreich 2010, and some others) can usefully be expanded and redefined as the study of more than one species, as the "anthropology of life": "to encourage the practice of a kind of anthropology that situates all-too-human worlds within a larger series of processes and relationships that exceed the human" (Kohn 2007: 6). In this perspective, the study of humans is inseparable from the study of other organisms. Many ethnographies already support such an argument, giving voice to those who reject categorical distinctions between humans and other beings that characterize modernist discourse. I take the reference to "anthropologies of life," in the *plural*, to mean several things, including multi-species ethnography, comparisons of ethnobiologies (the endless variety of folk accounts of species differences and relations), anthropological inquiries into "life itself" (sometimes redefining and refashioning *bios* as we know it), and the ways in which anthropologists "dissolve" the human into "life," biological and social. While "social life" and "life itself" were separated by Enlightenment thinkers, they now seem to be recombined under the banner of the "biosocial turn" in several fields (Meloni 2014), including anthropology.

This introduction outlines broad trends of anthropologies of life, the theoretical and empirical terrain covered by the book, some of the literature it draws upon, the key concepts developed, and the themes connecting different chapters. All of the chapters address some aspect of life – problematizing "life itself," documenting and reflecting on human entanglements and the changing human condition, while engaging with the complexities of genomes, bodies, and biospheres. To facilitate understanding of such a broad terrain, I suggest a general theoretical perspective that centers on biosocial relations. In the plural, however, anthropologies of life are not restricted to multiple ethnobiologies, the endless variety of folk accounts of species differences and relations. Also, and more importantly, the term may be taken as inquiries into life itself, the processes and metaphors through which people distinguish (or refuse to distinguish) between life and non-life, sometimes redefining and refashioning *bios* as we know it.

1.1 What, then, is life?

On the microcosmic scale, with the new genetics and associated advances in bioinformatics and engineering, life has become increasingly unstable. Interestingly, as Keller (2003) points out, as biology has become Big Science, escalating the study of life itself on an unprecedented scale, it also has *dissolved* the essence of life, partly through "synthetic biology," the "making" of life from chemical building blocks. With the upgrading of the life sciences to Big Science, then, life has become both a focus of attention and a foggy terrain. Schrödinger's question "what is life?," as a result, has become more

tricky and pressing. Or is it beside the point? For many scholars, as Dupré and O'Malley suggest, the border case of viruses highlights the fuzziness of life (see Dupré 2012: 208). While viruses are capable of entering cells and moving DNA from one organism to another, they can neither metabolize in the usual sense nor can they reproduce themselves autonomously. No doubt, the exact definition of life will remain elusive and contested, frustrating taxonomic enthusiasts, even more so than in the past. At the planetary scale, the rhetoric of the "Anthropocene" has rendered humans as a geological force, capable of leaving a massive and lasting imprint on the biosphere of the planet. Perhaps in the future we will speak of "synthetic geology."

The gene talk of the second half of the last century – in the wake of the discovery of the double helix and the mapping of the human genome – reinforced the idea of life as a biological given, as a platform on which social life was established and played out. The successes of the new genetics and the idea of the "secret" or "blueprint" of life both delayed genuine biosocial syntheses and silenced critique of the notion of the biological given. Ingold (2011: 3) suggests that generations of theorists "have been at pains to expunge life from their accounts, or to treat it as merely consequential, the derivative and fragmentary output of patterns, codes, structures or systems, variously defined as genetic or cultural, natural or social." His own work for the past quarter of a century, he suggests, has been driven by an ambition to reverse this emphasis, to "restore anthropology to life," through several avenues, including the phenomenological notion of dwelling and the idea that life is lived along lines.

It is one thing, perhaps, to bring *anthropology* to life, moving beyond codes and scripts, and quite another to bring *life* to anthropology, to think comparatively about life and its diverse manifestations and conceptions (Pitrou 2014). Drawing upon the "biopolitical" works of Foucault, many scholars have usefully directed critical attention to the life sciences, in particular the radical refashioning of living matter and its broad impact on social life. As Fassin (2009: 46) has pointed out, however, in Foucault's biopolitics "'life' remains largely elusive." For "the lived" – "life which is lived through a body (not only through cells) and as a society (not only as species)" – Fassin (2009: 48) proposes the label "life as such," to avoid a narrow focus on "biological" phenomena. Lemke (2014: 8, 11) seeks to qualify Fassin's analysis of Foucault's understanding of life, arguing that in some of his last works on the "government of things" Foucault goes beyond the dualistic and anthropocentric limitations of his social-constructivist works on biopolitics. For the post-human Foucault, "the milieu articulates the link between the natural and the artificial without systematically distinguishing between them"; "the biological can only play out in a certain 'milieu.'" This would resonate, Lemke (2014: 11) suggests, with current forms of vitalism and new materialist

scholarship; "life is not a given but depends on conditions of existence within and beyond life processes."

The chapters in this book seek to address different conflated zones of life at particular times and scales, from the genome to the human body and the global environment. Life itself is currently one of the most active zones of politics and economic production, as biological material is increasingly the subject of engineering, banking, reproduction, and exchange. The description and broad implications of these developments represent some of the most challenging issues on the academic agenda at the beginning of the twenty-first century. This is highlighted by numerous recent studies in the social sciences, humanities, and life sciences. Often associated with the "culturing" of life and the biosocial turn, these events suggest new kinds of concepts, theoretical perspectives, and politics, calling for new forms of engagements – and new anthropologies of life.

Speaking of "biosocial relations," I am arguing, helps to capture the hybrid nature of life itself; in particular, it facilitates sensitivity to differences and similarities in hierarchies involving the fashioning of life, the reproduction of bio-objects, exchange between humans and across the species divide, and the co-constitution of humans, other animals, and, more generally, the environment. The discussion moves along broader spheres of life – biomes, ecosystems, and the Earth itself – to illuminate different contexts of life, associated notions of agency, and their place in various forms of environmentalism and biopolitics.

There are good grounds for rethinking the human condition and the Kantian question: "What are human beings?" For one thing, the post-human condition is rapidly advancing, with the growth of artificial intelligence, human prosthetics, and cognitive science. With the new genetics, moreover, what used to be called "life itself" is increasingly modified by humans through artificial means, undermining the separation of the "natural" and the "artificial." As Rabinow (2008: 14) argues, this calls for systematic theoretical reflection and ethnographic documentation: "[T]he *logos* of *bios* is currently in the process of rapid transformation. Therefore, a central question before us today is: given a changing biology, what *logos* is appropriate for *anthropos*?" Often associated with the notion of "biosociality," this turn of events was first documented in the context of feminist studies of reproductive technologies (Martin 1987, Carsten 2004, Franklin 2013). While the new genetics and reproductive technologies firmly placed biosociality on the theoretical agenda, in an important sense biosociality is characteristic for human life (Dupré 2012, Ingold and Palsson 2013). This seems to demand new kinds of concepts for anthropology and related fields.

Speculations about the unity and integrity of the discipline of anthropology have been recycled repeatedly. As early as 1936, Franz Boas remarked that for

a few decades physical and social anthropology had been drifting "more and more apart" (Boas 1940: 172). It may seem that, especially with the new genetics, the ruptures within the discipline have become terminal – continental plates, in geological terms – with profound translation problems between subdisciplines, and there are recent cases of departmental fission along these lines in North America, defying the classical four-fields approach. Thus, Segal and Yanagisako (2005) suggest that it is time to question what they call the standard oath of loyalty to the unity of the discipline. Moreover, European biological and social anthropologists continue to operate on different terrains in the disciplinary landscape (Ingold 2001), often speaking past each other. Yet the overall trend does not seem to be toward a complete split along the nature/society divide. Indeed, there are growing demands for reintegrating the natural and the social and for strengthening transdisciplinary forums and collaborations, some of which have genomics-and-society as an important theme.

The trajectories of the two major subdisciplines of social and physical anthropology thus invoke Zeno's paradox of Achilles and the tortoise. Challenging Achilles, a skillful athlete, to a race, the tortoise reasons that it is bound to win as long as Achilles gives it a small head start. Achilles concedes the race, convinced by the argument of the witty tortoise that it would be endless: Once Achilles covered half the distance between them, he would have to cover half the remaining distance, and so on forever. Whereas Achilles and the tortoise imagine that the distance between them will be successively reduced without ever being eliminated, biological and social anthropology seem to refuse to separate despite continually drifting apart for over a century and despite the apparent acceleration of the drift in the wake of genomics. The paradox may be resolved not by logical or mathematical tricks along the lines of the ancient Greek but by the fact that nature and society have been redefined.

One important focus of recent debates on anthropological theory relates to the notion of the biological and the ways in which it – rather arbitrarily, I argue – splits the discipline of anthropology. One of the avenues with important implications for anthropologies of life might be called the "biosocial turn." Given such a turn, anthropology has become an integral part of an expanding network of diciplines that embraces and advances dialogues between social and biological perspectives that have tended to be separated.

1.2 The biosocial turn

One of the early precursors to the concept of the biosocial is Mauss's reference to the "biologico-sociological" in his classic essay "Techniques of the Body" originally published in 1934 (Mauss 1973). For Mauss, the "habitus" represented by acts like walking, swimming, and dancing was both a biological and

a sociological phenomenon; movement was normative both because it was bodily inscribed and because it was informed by the traditions of the community involved. Since the 1960s, at least, following the launch of the *Journal of Biosocial Science* in 1969, which replaced the *Eugenics Review* published by the Galton Foundation, the concept of the "biosocial" has often been used loosely with reference to "the common ground between biology and sociology," to quote the journal's home page (Journal of Biosocial Science 2007). In a review of the first issue of the journal, published in *Man*, Roberts (1970: 133) suggested the main problem for the journal would be to establish meaningful common ground, emphasizing that it was "not sufficient merely to put papers on human biology within the same cover as others dealing with the social sciences." A similar concept of the biosocial has been highlighted by The Biosocial Society (2007), an international academic body which "aims to foster closer collaboration between those biological and social sciences engaged in exploring human biological and social diversity."

In the 1970s, the dualism of the social and the biological was sometimes rendered as "biosocial anthropology." For Fox (1975: 2), biosocial anthropology was neo-Darwinian, a branch of evolutionary biology: "[I]t accepts as its premise the role of mutation and natural selection as the main point of departure for the analysis of anything concerning the life processes of any species. It views social behavior, then, as the outcome of an evolutionary process and analyzes it as such; cultural life being an outcome of the same process and only understandable in these terms." Knowledge of what people make of themselves is subsumed under biological knowledge of the human being. "Biosocial analysis, it should be emphasized," Fox (1975: 2) continues, "is an analysis of the interplay between biological 'givens' – whatever their nature – and cultural responses. Many responses are possible, but always to the same givens. What this mode of analysis opens up is a new possibility for getting at the givens and hence a better chance to understand the variation in the responses." Interestingly, this notion of biosociality seems to have largely been forgotten; it hardly leaves a trace in the rapidly growing literature on biosociality in anthropology. Perhaps it testifies to the dual split of the biological and the social wings or subdisciplines.

In these cases, the biosocial (and the "biologico-sociological") refers to two separate relational systems, one biological and the other social, suggesting a dualistic division of academic labor. Inherited from Durkheimian theory, this dualism was underlined in Mauss's work. For him, the notion of the "cogwheel" (Mauss 1973), a reference to some kind of mediating psychological mechanism, ensured the coordination of the two spheres of the biological and the social. While Mauss and several others drew attention to the body, it remained silent or absent-present in social thought; and either it was marginalized or it was subjected to the reductionist gaze of the

biological and medical sciences. This is what Ingold (2001: 256) refers to as the "complementary approach," an approach that aims to "put together the partial accounts of human life obtainable to each of the two planes, of nature and society, to produce a complete 'biosocial' picture." The alternative "obviation approach," he suggests, would reject the complementarity assumption "not . . . by simply collapsing one side of the dichotomy into the other as in the more extreme forms of socio-biology and social constructivism, but by doing away with the dichotomy itself" (Ingold 2001: 256–257). Franklin (2003: 66) cautions, however, that while it is no longer possible to see the "natural" and the "social" as ontologically different, "the natural facts–social facts distinction may need to be reinvented, rather than discarded, in order to understand the kinds of connections and relations being produced in the context of the new genetics."

A very different notion of "biosociality" from that of Mauss and Fox arrived on the scene in an important essay by Rabinow (1996). In his vision, the conceptual division of nature and culture was about to collapse with the new genetics and the mapping of the human genome, eventually completed soon after the turn of the century. Developing a similar argument, Rheinberger (2000a: 19) suggested that the molecular biology advanced between 1940 and 1970 not only represented a paradigm shift founded on the notion of information, but also gene technology facilitated "the prospects of an intracellular representation of extracellular projects – the potential of 'rewriting' life." Indeed, the root meaning of the word biotechnology is living technology, biological artefacts serving human ends. The traditional dichotomy between "nature" and "culture," then, no longer makes much sense. Arguably, the reality of "biosociality," the conflation of the biological and the social through modern biotechnology, dissolves the earlier concept of the biosocial – the notion of the complementary spheres of biology and society usually seen to underlie the dualistic structure of the discipline of anthropology and, in fact, most academes.

The product of a long process of evolution spanning at least 200,000 years, humans now reinvent themselves in a new sense and on a fundamentally new scale, deliberately altering their bodily constitution and development partly by exchanging genes, tissues, and organs with both conspecifics and other organisms. Foucault's works on biopolitics (see, for instance, Foucault 1994) have obviously contributed critical insights with respect to the current refashioning of the human body, illuminating the political and governmental dimensions of these developments (Rose 2005, Gottweis and Peterson 2008). Recently, a series of scholars have revisited the early writings of Marx, sometimes in combination with Foucauldian perspectives, in their attempt to make sense of the political economy of modern biotechnology, including the fragmenting of body parts and the labor process involved.

Underlining the conflation of the social and the biological, Thacker (2005: 17) has recently argued that with biotechnology human bodily material has been turned into machines: "Using the cut-and-splice techniques of genetic engineering, scientists can insert the human gene into the bacterial plasmid . . . As the bacteria replicates, so will the inserted human DNA, making for a kind of biological copy machine." Knorr-Cetina treats laboratory mice used in the production systems of experimental science as "biological machines." To her, the notion of the machine can be used as "a master analogy for the ontology of objects" in the experimental system of the laboratory: "The autonomous production units into which organisms are decomposed . . . are *molecular machines*. Other materials in the lab may not function on a molecular level, but they are still used and usable as *biological machines*" (Knorr-Cetina 1999: 149; emphasis in the original).

Like many other anthropologists, Lévi-Strauss was concerned by the neo-Darwinian reduction of social practices and institutions to evolutionary processes of selection, fitness, and the like. Given the enormous theoretical significance he attributed to the nature/culture divide, the key binary opposition in his structuralism, one might not, perhaps, expect Lévi-Strauss to be prepared to go beyond it. Nevertheless, he seems to have sensed the destabilization of the nature/culture divide itself in the wake of the new genetics. When pressed about the implications of genetic discoveries and the extent to which they might eliminate the distinction between nature and culture, he responded that the distinction maintains its value in that it "provides a barrier against those offensives, such as sociobiology, made by simplistic and limited minds, that would have cultural phenomena reduced to models copied from zoology" (Lévi-Strauss and Eribon 1988: 106). However, he adds an important qualification:

> If one day the boundary between nature and culture vanishes, it won't be along what we refer to today as the interface between human and animal phenomena, i.e., there where certain human characteristics, such as aggression, seem to resemble what is observed in the behavior of other species. *If this change takes place, it will occur elsewhere, involving the most elementary and fundamental mechanisms of life and the most complex human phenomena*. If the boundary is to disappear it will be behind the scenes where partisans of culture and nature are presently debating. (Lévi-Strauss and Eribon 1988: 106; emphasis added)

For a long time, anthropologists have pointed out, drawing upon their ethnographies from non-Western contexts, that the nature/culture opposition is not a universal one. Although the Hageners of Papua New Guinea, Strathern (1980) argued, *did* make a distinction between the wild and the domestic, that distinction did not seem to carry the main connotations usually applied to nature/culture discourse, including the idea of natural law and human mastery. More recently, some anthropologists have argued that while dualism may be

evident in some non-Western contexts, it may take radically different forms. Thus, Viveiros de Castro (1998) suggests the term "multinaturalism" to capture the essence of Amerindian conceptions, in contrast to the multi*culturalism* of Western cosmologies. Amerindian concepts, he suggests, reverse the key axis of modernist thought by setting human culture, not nature, as the universal or the *a priori*, assuming that *nature* is differentially constructed by cultural subjects. Perhaps, the Amerindian perspective of multinaturalism testifies to the resonance of many "indigenous" views with the recent notion of biosociality.

The nature/society divide in social and biological theory has been heavily theorized and criticized for decades. For some scholars, as a result, "biosocial" thinking is simply old wine in new bottles. It would be a mistake, however, to dismiss current thinking along these lines as mere repetition. A broad biosocial momentum seems to be taking place across academe, in both the social and the life sciences. The deep-rooted antagonism of the social and the life sciences, each of which has sought to debunk or colonize the other, has somewhat surprisingly and rather quietly given way to an open collaborative zone that renders the nature/society divide utterly trivial and out of place. As Meloni (2014: 3) puts it, "the two extreme wings of the nature/nurture dichotomy are equally destabilized by the new biosocial terrain." Drawing upon recent developments in neuroscience, genomics, epigenetics, and social studies of race and inequality, he concludes that "the contemporary presence of genuine conceptual transformations in so many disciplines is unprecedented and has never been favoured by scientific evidence to the extent it is today" (Meloni 2014: 11). For Meloni, the "extreme sociality of biology" is not the product of some cultural logic but "*a realist sociality*, so to speak, something that is intrinsically part of the functioning of the facts of life" (2014: 13; emphasis in the original).

One sign of the current biosocial momentum is the growing dissatisfaction with the interactionist rhetoric of gene–environment, body–society, and nature–nurture. The language of interactions, it is argued, misconstrues life itself, artificially separating in advance the domains that supposedly interact in the process of life. In Ingold's words:

> That life unfolds as a tapestry of mutually conditioning relations may be summed up in a single word, *social*. All life, in this sense, is social. Yet all life, too, is *biological*, in the sense that it entails processes of organic growth and decomposition, metabolism and respiration . . . It follows that every trajectory of becoming issues forth within a field that is intrinsically social and biological, or in short, *biosocial* . . . This is why we speak of humans . . . not as species beings but as biosocial becomings . . . *The domains of the social and the biological are one and the same*. (Ingold 2013: 9; emphasis in the original)

A similar idea that moves beyond the interactionist perspective is that of "body worlds" in some recent archaeological works. The common-sense view of the

body as a natural, physical object eventually dressed up in "culture," Harris and Robb (2013b) argue, is not only a historical product, emerging with the "body as machine" in the sixteenth century, it is also seriously flawed and incomplete in that a universal "natural" body doesn't pre-exist the "social" body: "[H]umans can never not be social. The very structures and processes of the physical body itself always develop within social relations" (Harris and Robb 2013b: 213). The fact that body worlds differ with time and place doesn't mean that there is "a single 'real' (biological) body" (Harris and Robb 2013b: 215); the body is biosocial throughout.

In some ways, the framework of biosociality captures what is often referred to as "nature-cultures" in the literature. Some interpretations of the latter, however, suggest a critical difference that needs to be addressed. Goodman (2013: 361) rightly points out that "the division between biology, the humanities, and the social sciences has reinforced an understanding of bodies as unchanging natural entities." The notion, however, of "cultural-biologicals" which he advances to capture "the cultural that is always in human biology" seems to assume the existence of a "pure" biological substrate, some kind of bare life, that becomes infused with culture through practice: Such a notion, Goodman argues, will advance "appreciation of how the local *gets into bodies* and becomes biological" (2013: 360; emphasis added). The "local" is always necessarily there.

1.3 Biosocial relations

As I have argued elsewhere (Palsson 2013), humans can be seen as ensembles of biosocial relations. Human becoming, in fact, is a thoroughly relational, biosocial phenomenon – collective history embodied and endlessly refashioned in the *habitus*. Race, gender, social class, and other themes on human variation are social as well as biological, embodied signatures of human relations and histories, indicators of degrees of well-being (Bliss 2012). "Biology," in such a broad biosocial sense, is destiny. This is not, however, to succumb to dual determinisms, one social and another biological. Humans fashion their lives and contexts through their agency, practices, and politics. Fortenberry (2013: 165) suggests, in the context of the significance of microbiomes, that rather than avoiding the issue of "color" (becoming color-blind) microbiome researchers should closely attend to it since it is likely to reflect racial disparities in health: "[T]he microbiome becomes a critical tool for understanding the pervasive influences of inequality that are the social, psychophysiologic, and environmental contexts that link racial/ethnic categories and health."

An extended notion of social relations of production may be useful for capturing new hierarchies and articulations of the social and the biological in