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Ensembles of biosocial relations

Knowledge, including (and perhaps above all) biology, is one of the ways by which humanity seeks to take control of its destiny and to transform its being into a duty. For this project, man's knowledge about man is of fundamental importance. The primacy of anthropology is not a form of anthropomorphism, but a condition for anthropogenesis.

Georges Canguilhem, *Knowledge of life* (2008 [1965]: 19).

In a well-known passage in his *Theses on Feuerbach*, the sixth thesis, Marx observed (1998: 573) that 'the essence of man is no abstraction inherent in each single individual. In its reality, it is the ensemble of the social relations.' At least two points are worth noting about such a statement. For one thing, it suggests a relational, constitutive notion of the human being, an 'ensemble' firmly embedded in the company of others. A fifteenth-century term derived from medieval French (*ensemble*), 'ensemble' denotes 'all the parts of something considered together and in relation to the whole' or 'a unit or group of complementary parts that contribute to a single effect' (The Free Dictionary 2010), one example of which would be a musical band. The other point concerns the notion of the 'social' which, for Marx, served to establish a contrast with Feuerbach, for whom the essence of humans could only 'be regarded ... as "species", as an inner, "mute", general character which unites many individuals only in a natural way' (Marx 1998: 573; emphasis in the original). In *Grundrisse*, Marx similarly challenged the 'illusion' of the natural individual 'posited by nature' rather than 'arising historically' (1973: 83). A growing body of scholarship uses the sketch of Marx's sixth thesis to engage with the human production

of nature in the context of environmental issues. Loftus (2009: 161), for instance, suggests that "'Society" and "nature" are ... thoroughly interwoven as an ensemble of socio-natural relations'. What might be gained by expanding Marx's notion of the ensemble to address human becomings, by speaking of *biosocial* relations, and by collapsing the distinction between that which is posited by nature and that which arises historically? How might the life sciences of the twenty-first century, including anthropology, benefit from such an extension?

Etymologically derived from *nascere* ('to be born'), the concept of nature has connoted that which is given from birth or independent of human activities - in opposition to the 'artificial' products of human labour. Some things are provided by nature while others are constructed by humans. The naturalizing of phenomena renders them as given, elevating them to a large extent above consciousness, debate, and political action. While some schools of thought, including structuralism and evolutionary psychology, present the nature/culture axis as an essential classificatory, theoretical, and existential device, operating at the deep level of cognition, myth, language, and evolution, many scholars argue that it is neither an ethnographic nor a historical universal (see, for instance, Descola and Palsson 1996, Ingold 2000, 2011, Müller-Wille and Rheinberger 2007). Indeed for years if not decades, the nature/society divide has been subjected to critical discussion in anthropology and several other fields, including biology and philosophy. Such critique has gained increasing support as a result of growing recognition of the artificiality of nature, represented by the reconfiguring of 'life itself' and large-scale human refashioning of the global environment. This is the so-called Anthropocene, characterized by both escalating human impact and human awareness of it.

Arendt's work *The Human Condition* provides some useful insights on this score. 'For some time now', she begins, citing attempts 'to create life in the test tube', 'a great many scientific endeavours have been directed toward making life ... "artificial", toward cutting the last tie through which even man belongs among the children of nature' (1958: 2). For Arendt, the activity of labour which 'remained stationary for thousands of years, imprisoned in the eternal recurrence of the life process to which it was tied' was finally 'liberated ... from its circular, monotonous recurrence and transformed into a swiftly progressive development whose results have in a few centuries totally changed the whole inhabited world' (1958: 46-47). Such developments, Arendt suggested, destabilized the nature/society divide: 'The social realm, where the life process has established its own public domain, has let

loose an unnatural growth, so to speak, of the natural' (Arendt 1958: 47; my emphasis). Arendt's work foreshadowed later understandings of the implications of biotechnology and the new genetics in highlighting the human refiguring of genomes (see, for instance, Rheinberger 1995, Rabinow 1996, Goodman, Heath, and Lindee 2003, Landecker 2007), in particular recent attempts in 'synthetic biology' to design and construct new life forms from scratch. What are the implications of the 'unnatural growth of the natural' for understanding human becomings and for the study of humans and its fragmentation?

My main concern here is with the splitting of the study of humans along the biology/society axis. While this is the central division of anthropology, separating its main tectonic plates, so to speak, it makes little sense, given the conflation of the biological and the social, failing to do justice both to the 'unnatural' growth of the natural and to some of the voices we often encounter in the field. I suggest that much depends on what is meant by the concepts of the 'biological' and the 'social' and how we see their articulation, an issue addressed by Ingold more than two decades ago in terms of a kind of 'relationships thinking' (1990: 208). As Gare argues, if the divide between nature and culture is to be bridged, 'it will be necessary to develop a science which takes becoming as basic . . . and conceives "beings" as islands of stability within the flux of becoming' (Gare 1995: 107). Attempting to move beyond both dualism and simple interactive frameworks linking separate domains of human existence, I argue that it makes sense, paraphrasing early Marx, to speak of human becomings as the configuration of ensembles of biosocial relations. The 'nature' with which we are born and which we develop is thoroughly biosocial, embodied through human activities.

In the rest of this chapter I proceed in outline as follows: The next section discusses the collapse of the theoretical notions of the biological and the social. This is followed by a discussion of the limits of gene talk and the usefulness of reimagining humans as ensembles of biosocial relations. Focusing on name talk, in the next section I argue that such reimagining resonates with a good deal of ethnography. Finally, I conclude with some general observations. Kohn reminds us (2007: 5) that while such terms as 'nature-cultures', whose current use is a 'necessary strategy', may sometimes reproduce the very dualisms we seek to overcome, they point to 'very real connections of which we need to be aware', facilitating a perspective that 'might allow us to better account for the work that goes on in the space that the hyphen seeks to bridge'. Similarly, in the absence of a better non-dualistic

language, the notion of ensembles of biosocial relations may help us move beyond what Fox Keller refers to as the persistent 'mirage' of a space between nature and nurture (2010), challenging current understandings of the division of biological and social anthropology and their essentialist perspectives on key issues, including those of human nature and relatedness and the interdependencies of humans and other kinds of beings.

RETHINKING THE BIOLOGICAL: LIFE IN CONTEXT

In his heavily cited essay on the growing artificiality of life itself in the wake of the new genetics, an essay that effectively launched the concept of 'biosociality', Rabinow remarks that a 'crucial step in overcoming of the nature/culture split will be the dissolution of the category of "the social"' (1996: 99). Since the publication of Rabinow's piece, 'the social' has been scrutinized and deconstructed. While the term 'biological' has also received considerable attention it has probably remained more stable. Why should this have been the case and what might be gained by a similar dissolution of the 'biological'?

Twentieth-century biology was the culmination of a long process drawing upon several conceptual developments, including the notions of the genetic code and the cell, both of which contributed to the individuation of life. In earlier European theories of generation, Müller-Wille and Rheinberger note, 'nature and nurture, or heredity and environment, were not yet seen as oppositions' (2007: 4); the metaphors of alchemy and art were the dominant ones. Darwin and Galton, they suggest, launched a new 'epistemic space' with the application of the metaphor of *heredity*, a term (derived from the Latin *hereditas*) borrowed from the legal sphere where it was applied in the context of inheritance and succession. Anthropology positioned itself at the centre of emerging debates about this new epistemic space as 'one of the "hot spots" Clearly, this was a field that could not be directly accessed by experiment, the only substitute, though with its own irresolvable aporias, being the observation of "savage children"' (Müller-Wille and Rheinberger 2007: 22).

Interestingly, in his *Variation of Animals and Plants Under Domestication, Volume II*, published in 1868, Darwin referred to 'invisible characters, proper to both sexes . . . and to a long line of male and female ancestors . . .'; 'these characters', Darwin added, 'like those written on paper with invisible ink, lie ready to be evolved . . .' (in Müller-Wille and Rheinberger 2007: 24). Continuing the textual

metaphor, Galton, sometimes seen as the founding father of modern hereditary thought, used the analogy of a post office:

Ova and their contents are, to biologists looking at them through their microscopes, much what mail-bags and the heaps of letters poured out of them are to those who gaze through the glass windows of a post office. Such persons may draw various valuable conclusions as to the postal communications generally, but they cannot read a single word of what the letters contain. All that we may learn . . . must be through inference, and not by direct observation; we are therefore forced to theorize. (Galton, in Müller-Wille and Rheinberger 2007: 6)

The metaphors of the post office, heaps of letters and illegible words of course foreshadowed the modern notion of the genetic code of the autonomous organism. While modern students of genomics are no longer 'forced to theorize' to the same degree as Galton's contemporaries, thanks to technological and digital apparatuses that allow them to gaze into what they sometimes call the 'universe within', the metaphors still draw upon the notion of the 'book of life' – indeed even more so than in the past.

The notion of the cell, another key term of modern biology, also has an interesting social history of its own. Canguilhem emphasizes (2008) that the development of the concept was intimately related to the concept of the individual. Not only, he points out, was 'cell' borrowed from the contained world of the beehive in order to represent the autonomy of the living organism, but also, unconsciously perhaps, it introduced the notion of cooperation characteristic of the construction of the honeycomb: 'Just as a honeycomb cell is an element of an edifice, bees are . . . individuals entirely absorbed by the republic. . . . It is certain that affective and social values of co-operation loom, near or far, over the development of cell theory' (Canguilhem 2008: 30).

It now seems as if a new epistemic space has been fashioned, downplaying the emphasis on individual autonomy and cooperative interaction while highlighting the mutual relationship of organism and context. Canguilhem anticipated some of the developments involved: 'would it . . . be possible', he asked, 'without rendering biology suspect, to ask of it an occasion, if not permission, to rethink or rectify fundamental philosophical concepts, such as that of life?' (2008: 59). 'The notion of milieu', he observed, echoing the *Umwelt* semiotics of von Uexküll (1982) and the dwelling perspective of Ingold (2000), 'is becoming a universal and obligatory mode of apprehending the experience and existence of living beings; *one could almost say* it is now being

constituted as a category of contemporary thought' (Canguilhem 2008: 98; my emphasis). For Canguilhem, the 'individuality of the living does not stop at its ectodermic borders any more than it begins at the cell. The biological relationship between the living and its milieu is a functional relationship, and thereby a mobile one' (2008: 111).

The constitution of the category of the milieu was delayed by the successes of the new genetics in the 1950s and 60s and the more recent mapping of genomes which shifted attention from organisms to genes. Ironically, even Canguilhem himself seems to have been swayed by the rhetoric of the code of life. Now, however, as the category of the milieu is finally taking off, Canguilhem's qualification 'one could almost say' is no longer needed. The focus on milieu does not mean that the living organism has disappeared from sight, devoid of agency: on the contrary, the organism is the radiating centre of pragmatic activity: 'Biology must first hold the living to be a significative being, and it must treat individuality not as an object but as an attribute within the order of values. To live is to radiate; it is to organize the milieu from and around a center of reference, which cannot itself be referred to without losing its original meaning' (Canguilhem 2008: 113–114).

Given the embeddedness of the organism, its fleeting boundaries, the fuzzy nature of 'genomic stuff' (Palsson and Prainsack 2011) sometimes regarded as informatic assembly and sometimes as a material thing, and the co-production of organisms, species, and environments, it is difficult to see how the Aristotelian category of *zōē* – of the simple fact of living, life itself, life as such, or bare life, to mention some of the popular terms in the literature – can remain intact, as a realm separated from *bios*, the ways of life in the *polis*. 'Bare life', as Thrift remarks (2004: 147), 'is now heavily politicized'. In light of this, anthropology might 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). Kohn suggests that expanding the relational gaze to other kinds of beings necessitates inhabiting their multiple natures or *umwelts*, a transformative process of ontological blurring that he calls 'becoming' (2007: 7). In this vein, drawing on Haraway's argument (2008: 244) that 'becoming is always becoming *with*', Kirksey and Helmreich argue (2010) for a broad 'multispecies ethnography'. Indeed, it seems reasonable to broaden the discussion presented here and to regard animal becomings

in general as the configuration of ensembles of biosocial relations. In this perspective, the study of humans is inseparable from the study of other animals (Palsson 2013). Many ethnographic studies would support such an argument, giving voice to people who refuse to make a fundamental difference between humans and other beings in this respect. Thus, Fuentes has analysed the relationships between macaques and humans in Bali as 'a suite of ecological, biological, and social processes that act as niche construction mechanisms' (2010: 605). Elsewhere (Palsson 2009), I have suggested it may be useful to speak of 'biosocial relations of production' to capture the different regimes and hierarchies of interspecies collaboration.

BEYOND NATURE AND NURTURE

The discovery of the double helix by the middle of the last century fostered the notion of genes as the 'secret of life', accounting for practically everything from speciation to ontogenic development, health risks and personality traits. Genes, it was assumed, kept the conversation of life going. With the development of biotechnology and the mapping of genomes, gene talk dominated the scene for years. The horizon, however, has been significantly broadened step by step, as we will see, moving from the level of single genes to large-scale environmental regimes. The failure to make significant medical predictions on the basis of single genes, apart from accounting for a few 'Mendelian' diseases, meant that analyses of genotype-phenotype correlations increasingly turned to multigenic studies assuming complex interaction and articulation. The genome, it turned out, although many laboratories still busily search for signals, did not have much to say. Moreover the stability of the genome has been seriously questioned. While it has been known for decades that cells under stress may mobilize systems that *reshape* their DNA by turning genes on and off (Jablónka and Lamb 2005: 88), the genome has largely been seen as 'an ensemble of genes strung along the chromosomes' (Barnes and Dupré 2008: 76) with identical copies in every cell. It now seems, however, that considerable variations creep in and that, as a result, 'the dogma that all the cells of an individual contain the same DNA needs revision' (Sgaramella 2010: 33). Perhaps this underlines Canguilhem's point that one must not lose sight of the radiating organism. If it turns out that the genomes of many organisms, including humans, are unstable and variable assemblies, it becomes increasingly difficult to sustain claims about authentic or 'real' genomes. It is not obvious, though, what this

means for the biosocial argument developed here. Three complications of greater relevance need to be added.

For one thing, many genomes host a set of 'alien' genes, horizontally or laterally borrowed from other 'unrelated' organisms. As a result of such borrowing, the genealogical view of life that emerged in Europe during the Middle Ages – a view that drew upon the metaphor of common 'roots' – is being replaced by rhizomatic notions of relations (see, for instance, Ingold 2000, Palsson 2007a) that challenge the basic assumptions of genetic determinism, and that qualify or even undermine the verticality of established discourses of genetics, relatedness and the 'tree of life'.

Even more importantly, perhaps, growing evidence suggests that the human genome is fundamentally entangled with the microbiomes of other organisms. The human body carries with it a vast number and variety of mutually beneficial microbes, constituting about 90% of its cells and including some 99% of its genes. 'If humans are thought of as a composite of microbial and human cells', as Turnbaugh and his colleagues point out (2007: 804), and if we see 'the human genetic landscape as an aggregate of the genes in the human genome and the microbiome, and human metabolic features as a blend of human and microbial traits, then the picture that emerges is one of a human "supra-organism"'. The same applies to many other organisms. As a result, as Barnes and Dupré suggest (2008: 136), 'rather than thinking of ... genomes as the exclusive property of individual organisms, we should think of a *metagenome* encompassing all the genomic resources available to a microbial community'.

Finally, moving beyond genes and genomes, organisms are partly regulated through a host of environmental forces that leave an imprint on their genomes that is passed on from one generation to another. Growing evidence suggests that such epigenetic regulation is prevalent in the human genome. Non-DNA related aspects of our developmental trajectory turn out to be inherited, allowing us to be the heirs of our biosocial heritage. The lives of our parents and ancestors, in other words, and the traditions and conditions of their communities in all their complexity, from dietary factors and exposure to toxic substances to behavioural habits, are embodied and memorized in our genomes, turning on some genes and silencing others, leaving a lasting 'hereditary' impact in a somewhat neo-Lamarckian fashion. Sometimes this produces severe adverse effects, including several forms of cancer. Food seems particularly important in this context. According to the growing field of nutritional epigenetics, as Landecker points out (2011: 177), 'food enters

the body and *never leaves it*, because food transforms the organism's being as much as the organism transforms it. It is a model for how social things (food, in particular) enter the body, are digested, and in shaping metabolism, become part of the body-in-time, not by building bones and tissues, but by leaving an imprint on a dynamic bodily process'. Some argue that epigenetic evidence is already profoundly affecting legal and ethical discourse on genetics, equity, and justice, and that 'what is now known may only be the tip of the iceberg' (Rothstein, Cai and Marchant 2009: 22). 'The silence of the genome', as Franklin puts it, 'has given way to the cacophony of the epigenetic' (2006: 169). While the notion of epigenetics is used in different ways among biologists, social scientists and humanities scholars, it need not confuse us here. 'Biology', in any case, is far more fleeting and complex than normally imagined. And heredity and generation are biosocial things.

Years ago, Waddington (1957) launched the notion of 'epigenetic landscape' in order to move beyond simplistic genetic models of inheritance. While epigenetics is a move in the right direction, emphasizing the complexities of generation both laterally and vertically, the term itself - epigenetics - assumes an epistemic space with gene talk at the centre, juxtaposing genetics and everything else ('beyond genetics'). One of the figures Waddington presents in his book, significantly entitled *The Strategy of the Genes*, presents the 'system of interactions underlying the epigenetic landscape' (see Figure 2.1). The accompanying text underscores the 'modeling' impact of genes: 'The pegs in the ground represent the genes; the strings leading from them the chemical tendencies which the genes produce. The modeling of the epigenetic landscape, which slopes down from above one's head towards the distance, is controlled by the pull of these numerous *guy-ropes which are ultimately anchored to the genes*' (1957: 36; my emphasis). A similar genes-and-the-rest flaw is exemplified by the title of Richerson and Boyd's recent book, *Not by Genes Alone* (2008), which seeks to introduce culture into the epigenetic landscape. Dual categorizations of genes and everything else are beginning to look outdated, given the complex array of theoretical and empirical innovations nowadays associated with life itself, including those of microbiomes, 'molecular vitalism' and 'developmental systems' (see, for instance, Kirschner, Gerhart and Mitchison 2000, Oyama, Griffiths and Gray 2001), innovations that tend to characterize living regimes as ensembles of biosocial relations.

One illuminating context for research on some of the biosocial complexities discussed above is that of so-called 'extreme environments'. Irrespective of whether they are located in the Arctic or outer

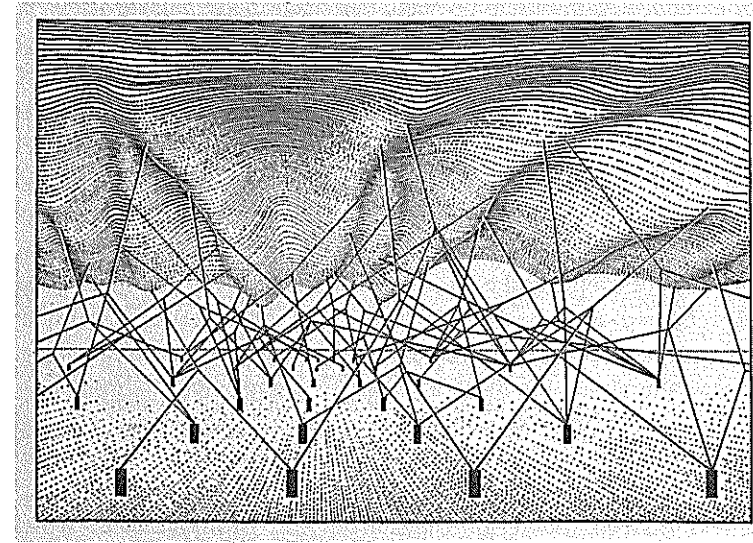


Figure 2.1. Waddington's epigenetic landscape (Waddington 1957: 36; courtesy of Taylor & Francis Books).

space, they seem necessarily to generate concerns with the constitution of the milieu and the essentials for human becoming and survival. Drawing upon her own ethnography of astronauts and Canguilhem's work on 'milieu', Olson refashions and expands the notion of biopolitics to speak of 'ecobiopolitics' as 'truth claims based on knowledge of milieu processes, power relations that take milieu as their object, and the modes of subjecthood and subjectification that designate subjects as milieu elements' (2010: 181). Space biomedicine, she argues (2010: 179), places the human species 'within a cosmic techno-ecological context of "becoming"', problematizing in the process the categories of 'life itself' and 'ecology'. While the notion of 'ecobiopolitics' grew out of a project on outer space, it is not, as Olson acknowledges (2010: 181), 'a far-out concept when put into historical context'. Along with historians and philosophers, anthropologists are exploring 'milieu's conceptual revival in today's post-genomic research in gene expression, gene regulation, and epigenetics' - in other words, rethinking the constitution of the organism and its relation to environment. It becomes increasingly difficult, in these circumstances, to maintain any kind of distinction between nature and nurture.

Just as biology has expanded its horizon from the gene to epigenomes, metagenomes, and large-scale biological regimes, linguistics

has extended its discussion beyond 'language ... in and for itself', as Saussure had it (1959[1916]: 232), to the context of the speaker, cultural conventions, and discursive communities. While such extensions enhance understanding of the process of life, they have their limits. On its own, the extension of causality beyond the gene and the cell simply complicates and expands the rules of the game, much as sociolinguistics complicates and expands the rules of grammar, phonology, and syntax – the 'dictionary' in people's heads – to embrace the characteristics of events and contexts. The organism and the speaker are still rendered as if operated by codes and rules, however complex they may have become. To the extent that the metaphor of language helps to illuminate life itself, a pragmatic perspective along the lines of Malinowski and Voloshinov might offer a better way forward. As Goodwin and Duranti point out (1992: 4), a relationship of mutuality in the making of a larger whole is 'central to the notion of context (indeed the term comes from the Latin *contextus*, which means "a joining together")'. Given such a perspective, they suggest, the relationship between a speech act and context is 'much like that between "organism" and "environment" in cybernetic theory'. Context and talk, they emphasize, drawing upon Voloshinov's critique of Saussurean linguistics, 'stand in a mutually reflexive relationship to each other, ... talk, and the interpretive work it generates, shaping context as much as context shapes talk' (Goodwin and Duranti 1992: 31). Just as speakers and their utterances are inseparable from the community in which they are embedded, so the organism is inseparable from the environment.

Moss (2003) suggests such a pragmatic perspective as a way to theorize life beyond codes and genes, highlighting the roles of agency and conversations. Pointing out that much of the recent debate between gene-centrists and advocates of a new epigenesis 'can be construed as a debate about the *scope* of coding' (2003: 184), he emphasizes that the 'critical decisions made at the nodal points of organismic development and organismic life are not made by a prewritten script, program, or master plan but rather are made on the spot by an ad hoc committee [of signaling and regulatory molecules]' (2003: 186). 'After the (conflated) gene',² he concludes, 'it is the living organism, as an

² To explain the word 'conflated': Moss argues that the idea that genes 'code for' phenotypic traits is based upon an illicit conflation of two legitimate gene concepts embedded in different disciplinary practices, i.e. Genes-P, which track phenotypic markers but are indeterminate with respect to DNA sequences

active agent of its own adaptive ontogeny and evolvability, that is once again poised to move back into the ontological driver's seat' (Moss 2003: 198).

THE EPISTEMIC SPACE OF NAME TALK

The preceding discussion of biosocial relations and epigenetics is echoed in several ethnographic analyses of naming practices and name talk. Anthropologists often argue that their ethnographies need to be taken seriously, as evidence of genuine theorizing among the people with whom they study, on many of the key issues addressed by their discipline, including notions of becoming, personhood and agency. Because they are right under our nose, taken for granted, and essential to every person everywhere, personal names have often eluded the theoretical and analytical scrutiny they deserve. Focusing primarily on modern Anglo-Saxon naming practices, Finch suggests (2008: 709) that 'sociological research on names and their use is surprisingly sparse given their social significance'. Due to their central importance in our everyday lives we tend to take an ethnocentric approach to names, ignoring the variety of practices documented through ethnography and history and assuming we know all there is to know.

However, anthropology and related disciplines have created a fairly extensive literature on the variety of systems of naming in different times and cultural contexts (see, for instance, Bodenhorn and vom Bruck 2006), emphasizing that naming is a speech act shaping the life course and the person involved. The reason why names 'stick' and become powerful agents – why the speech acts work, guaranteeing what Pina-Cabral (2011) refers to as the 'ontological weight' of names – is that somehow the acting speaker is granted the licence to name by the community involved, through a formal or informal social contract. Otherwise the person would not embody his or her name, and the name would simply be discarded like worn or irrelevant clothes. Subjectivity and identity, then, are informed by the social and political environment in which naming is embedded. This is why naming practices are often a contested issue for groups campaigning for human rights and social justice.

(since these are typically based on the lack of something) and Genes-D, which are defined by nucleic acid sequences but are indeterminate with respect to phenotypic outcomes (due to the multilayered contingencies of developmental context).

One intriguing ethnographic case testifying to the significance of name talk for the understanding of human becomings is that of the Inuit of the Arctic. Throughout Inuit territory, from Alaska to Greenland, name talk has an important role to play (Bodenhorn 2000). While ethnographic interpretations do not always agree and there are significant differences between Inuit communities, the formation of an Inuk's person largely takes place through the bestowal of personal names. Names imply certain traits that are passed from one person to another, recycled with each new generation. Relatives, friends and acquaintances give each other names both as children and later in life. The set of names for a given person, as a result, is repeatedly expanded and revised during the life course. For Inuit, naming is a powerful speech act that constructs the person. The 'same' individual can be different persons depending on context and, moreover, several persons at the same time.

The role attributed by many Inuit to personal names is both similar and dissimilar to that of genes in the program theory of genes. As I have argued elsewhere:

... some ethnographers have used a quasi-genetic language of 'vehicles', 'mutations', and 'substance' similar to that of mainstream genetics ... While, however, for many Inuit the role of personal naming is similar to that of hereditary material in modern gene talk, there are important differences. Essentially, Inuit discourse on identity and relatedness is non-reductionistic and relational, in line with the principles of epigenetics. For Inuit and other epigenetic theorists, 'biology' (in the conventional Western sense) is beside the point; fatherhood and motherhood are always 'real' and embodied. ... It is partly through naming that children are positioned in a relational field, through which their biosociality unfolds. (Palsson 2008: 557)

Inuit name talk, then, represents an epistemic space, addressing fundamental issues of human existence, including those of human becomings, relatedness and identity.

Similarly, among the Yup'ik of Alaska the bestowal of a name signifies both belonging and identity. In the process of naming, the person becomes more than a relative: 'One gains not only social connections but a distinct social identity, becoming a unique "real person"' (Fienup-Riordan 2000: 192). The ceremony during which a child is named is called *kangiliriyaq*, which literally means 'to provide with a beginning'. For the Yup'ik, the essence of what it means to be human passes through the name. Personhood would not be generated without

parents and biological birth, but what matters above all are ancestral names defining a person's identity and position within a particular genealogy.

A further interesting and highly complex ethnographic case is that of the Tsimshian of Northwestern British Columbia analysed by Roth (2008). Roth addresses the key question of what makes a Tsimshian person, emphasizing fundamental differences between Tsimshian and white Euro-American society. For Tsimshian, reincarnation is of central importance, 'an undeniable fact of the universe ... It is a fact of nature rather than an aspect of their "culture"' (Roth 2008: 62). The English term 'reincarnation' is in fact a translation of indigenous terms denoting salmon 'running together' or 'coming back' to their spawning grounds year after year. Such togetherness and continuity is ensured through Tsimshian activities that bring names and bodies together. While much of this would apply equally to Inuit concepts and practices, Tsimshian epistemic space seems even more name-centred than that of Inuit. Thus the act of naming 'gives the person to the name' (Roth 2008: 15), as Tsimshian say, rather than the other way around. Proper names are selected from a 'basket' of 'vacant' or 'floating' names, bypassing names that have been disgraced by a wearer, 'buried' or left vacant indefinitely.

Although Inuit, Yup'ik and Tsimshian discourses are name-centred, there are important differences in emphasis. As Roth suggests (2008: 94), Northwest Coast names in general do not have the standard referencing of the Euro-American person-name format: 'These names, to the extent that they are mere names, do not refer to individuals; they *belong* to individuals and *refer* to, or rather *are*, immortal entities that ... are not souls and not quite sentient agents but are, in fact - there is no other succinct way to put it - *names*' (Roth 2008: 95). 'Tsimshian names', Roth goes on, 'refer to immortal personages - bundles of prerogatives, points or slots in a social structure ... - which are independent of the biological individual: names move from body to body during a lifetime, they can accumulate or multiply on a single body (so that a biological individual can literally *be* several personages), and successive name holders in a lineage can be linked to one another as in some sense the same social person' (2008: 97). It may be tempting to render some of these highly complicated Tsimshian terms as evidence for an essentialist nature/culture divide. For one thing, a Tsimshian name is a full-blown social actor:

Even today, when Tsimshians orate, interact, and exchange wealth in the feast hall they do so not as the individual bodies into which they were born . . . but as names. A name is a fully formed identity – a person – with a gender, a status, a history, a future, and a living social network that links it to other names. (Roth 2008: 32)

Moreover, as Roth observes, Tsimshian name talk makes a distinction between history and structure: ‘An examination of Tsimshian concepts of personhood reveals a distinction between, on the one hand, the onomastic *self*, the *essence* that is prior to any real-world social arrangements, manifested in a name rooted in a matrilineal house, and, on the other hand, the embeddedness of houses in a web of relations with other houses, a social context that is more part of *history* than of structure’ (Roth 2008: 90; my emphases). While, however, the reference to ‘the essence that is prior to any real-world social arrangements’ might be read as a form of gene talk, naming is a biosocial process aligning persons and households through an array of human institutions and activities.

It would be wrong, then, to conclude that Tsimshian, Inuit and Yup’ik have already arrived at a kind of primitive essentialism through their naming theories. Their own form of epigenetics or developmental systems theory, in fact, moves beyond essentialism to relations and processes. Their notions of sociality and personhood evident in much of their name talk highlight the irrelevance of the idea of the autonomy of the ‘biological’ as commonly understood. Although Tsimshian, Inuit and Yup’ik notions of naming and kinship are anathema to genetics, they have a clear bodily reference. We may keep in mind that the *abuse* of names or harassment in the form of nicknames – a practice well documented in the ethnography (Bodenhorn and vom Bruck 2006) – also testifies to the bodily reference; often it involves physical violence in a quite literal sense, generating sensation and shame. As Scheff remarks (1988: 405), drawing upon Goffman’s work on ‘face’, embarrassment is a firmly embodied response, involving ‘a biosocial system that functions silently, continuously, and virtually invisibly, occurring *within* and *between* members of a society’.

Names not only specify and individualize their bearers, they also represent technologies of the self, serving as means of both domination and empowerment, facilitating collective action, surveillance, and subjugation – exclusion as well as belonging. While modern states and empires encourage and sometimes enforce stability of names, assuming the same name from birth to death (Scott, Tehranian and

Mathias 2002), names frequently change. Some extreme cases of renaming come from the history of slavery. Slaveholders were usually keen to rename their slaves, often with names not unlike those applied to pets and livestock. Thus, the persona of the slave was deformed with a new name, torn from its former social environment (Benson 2006: 181). Significantly, when slaves were granted freedom they often insisted upon formally receiving a new name in front of witnesses, to regain dignity and to publicly confirm the ontological weight of the new name.

Given the historical role and significance of patrilineal surnames in Europe, it need not be surprising that they still seem to provide indicators of the regional, cultural and genetic structure of continental populations. Taking a broad geographic perspective, Mateos (2007) suggests that often people’s names offer a convenient window into population structures, especially in the absence of reliable knowledge about self-identified ethnicity, and, as a result, names both open up a new era of genetic genealogy and an important tool for policy in today’s multicultural society. A perennial problem, however, for social and biological analysts as well as policy-makers and administrators is how to define and demarcate human ‘populations’. While molecular studies removed anthropometry and the categorization of races to the sidelines decades ago, at least in scientific discourse, focusing on gene frequencies and sequences rather than phenotypic characteristics, they tend to fall back on problematic notions of populations and ethnic groups. Years ago, Ardener launched a critique of the bounded notion of populations and ethnic groups in demographic studies, a critique that seems pertinent to many modern studies of genomic differences and human variation: ‘are the entities called “populations”’, he asked, ‘*names* or *numbers*? If names: named for whom, and by whom? If numbers: counted by whom, and for whom? In asking the questions “by whom?” and “for whom?” we also ask in particular: by or for the “people” concerned? Or by or for the anthropologist or other scientific observer?’ (Ardener 1989: 110; emphasis in the original). Including the human geneticist and the biological anthropologist, we might add. As many anthropologists have emphasized, among them Ardener, ethnic groups are fluid units with flexible boundaries, subject to both self-identification and naming.

The challenge is to rethink both the social and the biological, as these terms take for granted a western framework that is increasingly suspect and problematic, and, indeed, increasingly deconstructed in biology as well as in anthropology and philosophy. Kinship is both

social and biological or, in other words, 'biosocial'; not however in the reductionist sense that is in common use today (as in such phrases as 'the biosociality of crime'), nor in the sense of the two separate inheritance systems of biology and culture (Richerson and Boyd 2008), but rather in the relational sense of the 'ensemble' that resonates with name talk and naming practices. Such perspectives seem to be quite broadly represented in ethnography from the Arctic to Melanesia, echoing the recent theoretical construct of the 'dividual' person. As Strathern remarks, we are 'forced to collapse the conventional analytical difference between persons and relations. Put abstractly, we could imagine persons as relations, and vice versa' (1991: 198-199; see also Bamford 2004). Relational notions of the person, however, may be closer to the old world than one might think. The historical anthropology of medieval Scandinavia developed by Gurevich, for instance, emphasizes the conflation both of persons and of persons and things and, moreover, 'a general awareness of the indivisibility of men and the world of nature' (1992: 178).

CONCLUSIONS

What are the implications, then, of the epistemic space of epigenetics, ensembles of biosocial relations, and the name talk developed by Tsimshian, Inuit, Yup'ik, medieval Scandinavians, Melanesians and many other anthropological subjects for the disciplining of anthropology and, more generally, of the life sciences? Keeping in mind the preceding discussion of name talk, meta-genomes and developmental systems, it seems pertinent that we turn anthropological boundary expertise and its observant gaze inward – to our own academic communities, to our field, its subfields and practices (Palsson 2010). Broad fields of enquiry, disciplines and subdisciplines arise, develop and (sometimes) disappear. It is important to explore this evolutionary process, how it is disciplined (in the dual sense of controlling and fragmentation), what establishes the candidacy for a field or discipline, and what languages and metaphors might be the most appropriate for the theoretical understanding of current and future developments.

Keeping in mind the biosocial relations discussed here, there are good grounds for reintegrating the two main wings of the study of humans. Given the arguments of the name talk discussed above, embodiment and materiality are not privileged themes for the natural sciences; rather they are open to useful scrutiny and theorizing right across the disciplinary spectrum. As we have seen, the Arendtian

'human condition' – the social and political life of *anthropos* – has been radically expanded and transformed; not only does the modern *polis* admit women, slaves and barbarians; a host of non-human species – animals, plants and microbes – have also entered the scene. If human becoming is best described as the configuration of ensembles of biosocial relations, a radical separation between social and biological anthropology seems theoretically indefensible. We should speak, then, of anthropology as a one-field project.

The notion of ensembles of biosocial relations, I have argued, helps to underline a few related points: humans may usefully be regarded as fluid beings, with flexible, porous boundaries; they are necessarily embedded in relations, neither purely biological nor purely social, which may be called 'biosocial'; and their essence is best rendered as something constantly in the making and not as a fixed, context-independent species-being. While naming theory has some parallels with gene talk, assuming that personhood is generated through the embodied coding of names, the parallel masks a more fundamental aspect, namely the central importance of the practices of personhood and relatedness subsumed under the activity of naming.

The empirical evidence generated by epigenetic research seems to call for a theoretical approach that abandons the rigid analytical dualism of nature and society. It is important to note, however, that nature and society have *always* been one; thus their merging is not the result of current escalations in the refashioning of life itself, nor do we need to elicit evidence of such escalations in order to demonstrate that they are inseparable. Zerilli points out that Arendt's reference to 'unnatural growth' bears an 'uncanny resemblance to what Michail Bakhtin calls the "grotesque body"... that "outgrows itself, transgressing its own limits". Indeed, this unnatural growth, this grotesque body, stands both as a reminder that nature is always already culture – what else can an unnatural nature mean? – and as an indictment to resurrect ancient borders against the body that knows none' (Zerilli 1995: 176-177). A somewhat similar notion seems conveyed in Plessner's early idea (1975) of the 'natural artificiality' of human existence. It is precisely, however, *because* of the escalations of 'unnatural growth' that we have become aware of the inseparability of nature and culture and sensitized to its implications (Szerszynski 2003). As a result, the dualism no longer sounds convincing.

Some anthropologists have attempted to bridge the nature/culture divide along neo-Darwinian lines. Thus, Richerson and Boyd stress the importance of culture in shaping human affairs, suggesting that

'culture itself is subject to natural selection' (2008: 13). For them, it is essential 'to think of genes and culture as obligate mutualists, like two species that synergistically combine their specialized capacities to do things that neither one can do alone' (2008: 194). While such an approach, in their view, would 'allow a smooth integration of the human sciences with the rest of biology' (2008: 246), it fails to clear the muddy waters. Many anthropologists would reject such an approach, not so much because they 'fear a reunion with biology', as Richerson and Boyd insinuate (2008: 14), but rather because they are uncomfortable with the evangelical commitment to 'smooth integration of the human sciences' (see, for instance, Schultz 2009). Indeed it seems that for Richerson and Boyd, the biological project, and by extension the project of the humanities, has been defined and settled for all time. 'Science', they maintain without a hint of irony, 'is bound by its charter to pursue explanations of human evolution!' (2008: 254; original emphasis). Such pronouncements fail to accept the fuzziness of 'biology' itself. Human becoming is a thoroughly relational, biosocial phenomenon, collective history embodied and endlessly refashioned in the *habitus*. Resisting the biologizing of kinship that pervades western discourse, epigenetics and name talk nevertheless suggest that relatedness is both biological and embodied. In such an expanded sense, biology is destiny.

We may not choose our genes in the way Inuit and Tsimshian choose kin, despite genetic engineering and modern reproductive technology. That does not mean, however, that genes are us. To reduce our 'biology' to genetic makeup, along the lines of mainstream gene talk, is to ignore the embodiment of our everyday experience (Ingold 2001a), including that of prenatal development, the intonation of language and musical sensibilities. It is difficult to see why the term 'biology' should be restricted to a fraction of what we are 'born' with. Not only would it overlook 'the relative arbitrariness of birth as a point of demarcation' (Fox Keller 2010: 75), missing the entire parenting process from conception to birth, not to mention 'labouring' itself; it would also disregard the ways in which postnatal development and becoming are outcomes of biosocial relations. An expanded notion of biology would include everything that is embodied during our development, the broad ensemble of biosocial signatures generated and assembled in the course of our lives. Such an expanded notion is equivalent to that of 'society'. Thus, the two terms have been radically merged, beyond mere 'overlap' and 'interaction'. After all, 'biology' and 'society' are not separate categories of being. As Canguilhem suggested, biological knowledge is, above all, 'one of the ways by which

humanity seeks to take control of its destiny . . . The primacy of anthropology is not a form of anthropomorphism, but a condition for anthropogenesis' (Canguilhem 2008: 19). One form of anthropogenesis is the growing industry of personal genomics, both co-produced and studied by anthropologists (see, for example, Palsson 2012).

Epistemic space, of course, does not arise from thin air. Müller-Wille and Rheinberger suggest (2007) that the modern notion of heredity was partly the product of bourgeois culture and its preoccupation with property. Moreover as we have seen, and as Canguilhem has argued (2008), the concept of the cell is inseparable from the political history of the concept of the autonomous individual. What developments in the larger world might have generated the epistemic space for developmental systems and associated theoretical constructs – and, for that matter, for name talk? While a solid answer to such questions necessitates a thorough ethnographic and historical investigation of its own, it seems safe to assume that theorizing along these lines is related to globalization and the current environmental crisis.

ACKNOWLEDGEMENTS

Research for this chapter has been supported by the University of Iceland Research Fund. I thank Carole Browner (University of California at Los Angeles), Sigurður Örn Guðbjörnsson (University of Iceland), Emma Kowal (University of Melbourne), Hannah Landecker (University of California at Los Angeles, Center for Society and Genetics), Lenny Moss (University of Exeter), Barbara Prainsack (King's College, London) and Christopher Roth (University of Wisconsin–Milwaukee) for stimulating discussions on some of the issues covered in the chapter.

Biosocial Becomings

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Biological
Anthropology

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 **CAMBRIDGE**
UNIVERSITY PRESS

2013

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town,
Singapore, São Paulo, Delhi, Mexico City

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press,
New York

www.cambridge.org
Information on this title: www.cambridge.org/9781107025639

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First published 2013

Printed and bound in the United Kingdom by the MPG Books Group

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data
Biosocial becomings : integrating social and biological
anthropology / edited by Tim Ingold, Department of Anthropology,
University of Aberdeen, and Gisli Palsson, Department of Anthropology,
University of Iceland.

pages cm

Includes bibliographical references and index.

ISBN 978-1-107-02563-9

1. Ethnology. 2. Physical anthropology. I. Ingold, Tim, 1948-

II. Gisli Palsson, 1949-

GN316.B55 2013

306-dc23

2012047938

ISBN 978-1-107-02563-9 Hardback

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