

## **Biology, Biography, and Technology: Review in Kinship and Genetics**

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Bamford, Sandra 2007. *Biology Unmoored: Melanesian Reflections on Life and Biotechnology*. Berkeley: University of California Press.

Bestard, Joan with Gemma Canal, Júlia Ballabriga, and Carles Carrasco 2003. *Parentesco y reproducción asistida: Cuerpo, persona e relaciones*. Barcelona: Universitat de Barcelona.

Konrad, Monica 2005. *Nameless Relations: Anonymity, Melanesia and Reproductive Gift Exchanges between British Ova Donors and Recipients*. New York: Berghahn.

Pálsson, Gísli 2007. *Anthropology and the New Genetics*. Cambridge: Cambridge University Press.

*This review considers four recent works on in vitro fertilization; human egg donation; the relation among family, kinship and nature; genetic databases, and medical research. Assisted reproductive technology has increasingly become a tool for the artificial production of body parts. Anthropology is reformulating kinship and family theories, taking into account their relationship with biology (in the strict sense of body) and technology as primary “agents” of reproduction and the socio-cultural constitution of selves.*

**KEYWORDS** *commodification, genetic technology, Kinship*

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## INTRODUCTION

A number of recent works—including the books under review and others like Edwards and Salazar's (2009) *European Kinship in the Age of Biotechnology*, Parkin and Stone's (2004) *Kinship and Family: An Anthropological Reader*, Franklin and Mackinnon's (2001) *Relative Values: Reconfiguring Kinship Studies*, and Bamford and Leach's (2009) *Kinship and Beyond: The Genealogical Model Reconsidered*—point to significant developments in anthropology. It is clear that we are facing processes and contexts that pose challenges to anthropology's old conceptual models of kinship, genealogy, family, and consanguinity, which combine notions of body, relatedness, and spaces of interaction. The works at hand show how the changing empirical scene—including technological advances in artificial reproductive techniques and commodification of bodies—is influencing anthropological approaches and theoretical constructions. The monographs under review are welcome contributions to this new line of thought for their greater breadth and depth of focus on particular cases. Less diffuse than edited volumes, they give readers a more substantial knowledge of the contexts framing their analyses.

PRODUCTION AND REPRODUCTION: BODY IN *LABOUR*

*Parentesco y reproducción asistida: Cuerpo, persona e relaciones* by Bestard, Canal, Ballabriga, and Carrasco (2003) is based on ethnographic research conducted among infertile persons who submit to *in vitro* fertilization treatments, an assisted reproductive technique, in two infertility clinics (one private and the other public) in Barcelona, Spain. The authors state that their goal is to understand not only interaction in doctor-patient relationships or patients' rationalizations for and explanations of this medical procedure, but also how this experience shapes patients' social relations outside the clinic.

*In vitro* fertilization is a method used on infertile women that consists of fertilizing a woman's ovum outside the womb, introducing it again into her uterus so she can carry a pregnancy. To help couples who opt for these treatments to fulfill their wishes to become parents, this technology includes devices such as Petri dishes where the sperm is inserted to fertilize the egg, test-tubes, and ova extraction utensils, which play the role of mediating instruments assisting biological reproduction.

This process is characterized by its exceptional nature: the passage from a condition of infertility to a fecundated egg and pregnancy, not achieved via sexual intercourse (considered even by the patients as the normal way), but, instead, from the joint efforts of the couple, doctors, nurses, assistants, devices, and machines. Conception in this case is not achieved privately

and in an intimate environment, concealed from the public eye, but in a laboratory environment, with the intervention of parties other than the future parents.

This implies—as can be observed in the other works considered in this article—a pairing of biology and new reproductive technologies, revealing how technological devices currently used by medicine are reshaping and modulating conceptions surrounding body, reproduction, kinship, and even the intrinsic physicality of these relations. This work shows us that since the hegemonic notion in Western society is that the relation between parents and children is based on purely physiological continuity, people incapable of making such a link are stigmatized and disadvantaged. As some of the women interviewed in Bestard et al.'s book state, being infertile or simply not having children puts them in a position of exclusion from parts of society, as though they were incapable of being whole persons—understood as those who successfully form a family outside their family of origin. Thus, for these women, becoming a parent is more than the need for physical reproduction or emotional fulfillment; it is also felt as a mandatory cultural and social achievement, whose failure is accompanied by frustration, a feeling of having a *spoiled body*, a sense of being someone who does not live up to expectations, that is, to achieve motherhood, to be a full person. The same is noted by Sarah Franklin (1997) in her excellent study on assisted conception through *in vitro* fertilization, when she describes women's feeling of living in a permanent limbo, facing what she calls a "tentative future" marked not only by the (long) treatment itself but also by the prospect of conceiving a child.

One of the most positive aspects of the Bestard et al. work is its ability to convey and illustrate the existence of a liminal stage faced by infertile persons in this situation: the passage that occurs here (only in cases where treatment is successful) is the shift from non-parent to parent, since the infertility feature of the body is permanent, even when there is a successful pregnancy.

This work brings up another relevant issue where infertility is considered: the relationship among medical treatment, psychological therapy in group context, and stigma, as shown in chapter two, where infertility is considered. Voluntary infertility, the authors state, achieved through contraceptives, is socially accepted. In the same way, involuntary infertility is commonly considered a natural contraceptive method rather than an illness needing medical treatment or a problem requiring therapy. So, people in this situation feel they are cast into a doubly stigmatizing role. According to the patients interviewed, this derives from their inability to conceive on their own and having to resort to artificial reproduction without official recognition that their condition is incapacitating. They are marginal in the sense that they are unable to have children on their own—looked upon as incomplete persons—and they are also marginalized because they are not recognized as having an infirmity or handicap, either socially or politically. They are thus,

for instance, denied financial support that would be available to a person with an officially recognized medical condition.

To understand the impact of artificial fertilization on people's social relations, the authors conducted in-depth interviews with patients to identify features of interaction that arose within their families, at work, and among close friends, as well as the meanings and perceptions surrounding the body and its own functioning. The authors also had the opportunity to attend support meetings held in the clinics, where therapy is the prime component and includes the presence of psychologists and medical staff. This aspect of the work documents how a feeling of community among patients is generated, much like the one we can find in most self-help and mutual-help groups, namely through the sharing of similar life experiences. In this case, shared experiences are connected with assisted reproduction techniques and the whole treatment process.

Bestard (2004)—returning to this empirical data in another work where he analyzes it with notions of kinship, morality, science, and biogenetics—claims that a kind of “imagined community” is formed in the process. That is, the sense of communion and sharing of physical and social experiences generates a feeling of belonging to a group, which, in spite of not assuming itself openly as such, in fact functions as one during the term patients remain in the clinic, whether during briefings to exchange information or other moments of interaction among patients inside the clinic. Which common features do members of such a group share? Their incapacity to conceive children unassisted—their infirmity—the therapeutic process they undergo, and even more importantly their experience of social relations outside the clinics, for while inside the environment of those facilities they are accepted and recognized; outside of them they are a minority who, despite having a common condition, do not form a community as such.

Despite all the medical and practical information patients receive, their perception and interpretation of that information is prone to great oscillations. This may be explained by their feeling that ultimately the whole process is, in their terms, a “lottery,” where “luck” and “bad luck” in becoming pregnant and having a biological child play a major role. This subjective component is relevant in the sense that patients' personal expectations and their subjective interpretations are not treatable in the same way that their bodies are, regardless of the level of medical technology used. While bodies can be induced to *produce* a certain kind of material—in this case eggs to be fertilized—human minds and rationales are less easily manipulated. In this essay the term *production* is used to emphasize the sense of labor, following the definition provided by Heather Miller (2007:5): “*Production* is the actual process of fabrication or creation, including both the material objects involved and the techniques or gestures used.”

Given the valuable material accessed by the authors, a glimpse of which the reader is given in this text, I was left with the feeling of unfulfilled

potential. Ultimately, this work amounts to a collection of short pieces grouped in chapters, which in some cases would easily fit into sections. The data gathered in this book are rich enough to deserve a more extensive analysis. A broader perspective on its subject matter would afford greater insight into the implications of this treatment on patients' lives outside fertility clinics. Nevertheless, this is a good introductory work to *in vitro* fertilization in the Spanish context.

One of the obvious gaps in this work—and Konrad's (2005) considered below, is that it considers infertility treatments *only* from the perspective of the women involved in these processes. In fact, the male or female partners of these patients are absent from the analyses of most works studying *in vitro* fertilization and egg donation. In both these books we never learn how the prospective fathers live through this experience and how, if, or when they share the inherent difficulties of their wives and companions. This is especially egregious if we consider that the authors of Bestard et al. were present in meetings where the couples were reunited. Similarly, Konrad's study focuses on egg donors and recipients without offering the reader an account of how these women's companions understand these "gifts," as she calls them. In short, we are left wondering what it is like to become a father in these circumstances, not being able to conceive a child without a third party involved, particularly when this third party may not only be another person but also a technological device.

#### KONRAD'S "NAMELESS RELATIONS"

*Nameless Relations: Anonymity, Melanesia and Reproductive Gift Exchanges between British Ova Donors and Recipients*, by Monica Konrad (2005), gives a comprehensive account of how egg donations are processed in the British context, including the relations (or "non-relations" as the author defines them) between donor and recipient, and how connections between body and kinship are established and understood by those who submit themselves to this treatment in this particular setting. This work makes a significant contribution to the field of reproductive technology studies—given its in-depth ethnographic research based on participant-observation, interviews with patients, practitioners, and medical support staff—attempting to reach a wider audience involved in this particular agenda: fertility experts, biologists, decision-makers, and ethics committees.

Konrad's work cleverly offers a double-sided perspective. She presents the views, both of women who want to become pregnant and have biological children, and of women who undergo *in vitro* fertilization in order to produce eggs for donation to others, and for whom this is the only way to have children.

The title of this book deserves a commentary regarding its reference to Melanesia. The potential reader may be misled into believing that the book is

a comparative study, dealing with the problematic of anonymity and egg donation in British and Melanesian contexts. However, that is not the case. Despite making a few references in the first pages of the book to the exchange processes in Melanesia, Konrad's book is entirely focused on the egg donation and exchange system in Great Britain, and the role of anonymity in that context alone. Given that Konrad's work does not include any field research in Melanesia—unlike Sandra Bamford's (2007) book which as we will see combines extensive fieldwork in Melanesia with an analysis of the European and North American debates on cloning, genetic interventions, and reproductive techniques—we are left with the question of how the author uses the Melanesian literature and the role it plays in her analysis. In my reading, Konrad uses this source mainly to support her central argument: to assert the existence of relations based solely on the act of unilateral gifts structured on anonymity. That is, Konrad uses the Melanesian literature on reciprocity as a point of departure to show how in her specific case study, gift exchange does not generate new relationships among the persons involved, once they are not based on the reciprocity, but rather on its opposite: the isolated act of giving and receiving without the necessity of compensation or the obligation of giving back.

The main body of this work—which is divided in three parts—is found in part ii, where Konrad analyses discourses of both donors and recipients (although it clearly places greater emphasis on the former), to build the central argument that, as the women interviewed state, this is an act of giving, a gift with a particular feature: egg donation happens anonymously. Apparently there is no relationship between donor and recipient beyond the donation itself. Anonymity's importance in this context is fundamental given that people choose to conceal their legal and bureaucratic identity, thus eliminating potential relations between or among two or more people (since donors produce eggs which may be used by more than one person) and the attribution of responsibility by virtue of its result: the possibility of conceiving a child.

While we could assume that a woman in these circumstances is in fact giving away part of herself, Konrad shows us that the great majority of patients do not perceive their donation as being separated from what could potentially be their own child (with whom they would develop a physical and affective relationship), but think of it as simply supplying the material which will make this possible for others. The conceptions surrounding the body, its functioning, the significance (or not) of genetic material, and the identity features it contains seem to have little significance in this context. It appears that the donors distance themselves from these issues, thinking about their eggs only as fragmented body parts.

As Bestard et al. also noted, this is not a simple treatment and requires immense effort and commitment from the person subjected to it: daily drugs, the need to change life habits, suffering from unwanted secondary effects

such as depression, physical discomfort, and insomnia. It is a violent process to which these women subject themselves, and apparently they receive nothing in return from the recipient, for even when money is given in exchange (which is not the case here), it is not given directly by the person who receives the egg. What encourages these women—who in their great majority already have children of their own—to voluntarily submit to this process, and how can we speak of an exchange? The answer lies in what the donors themselves refer to as the “moral reward,” which both explains their motivation and fills the gap left by the absence of reciprocity. These women feel they are helping other women accomplish something they cannot do on their own: being mothers and conceiving a child.

The body as a working instrument, or in other words, as an object that can be induced to work, to produce a certain material, is central in a context where we consider biology, reproductive techniques, and medicine. Konrad illustrates this by referring to “superovulation.” That is, whereas the body normally produces a single egg monthly, in this case it is stimulated to produce several eggs, which will be retrieved from one woman to be used by others. Thus, the idea of *production* associated with a material reward, or the idea of gift as part of an exchange system are in a sense subverted, or more precisely, they are neither rationally nor verbally acknowledged by these subjects. Expressions such as “give freely requiring or expecting no reward” or “giving up, giving for free” are significant in this context because they can be understood as manifestations of an attitude, characterized by maximum detachment and altruism, underlying this kind of donation.

But that does not mean there is an absolute lack of expectation. The women involved are expecting to obtain a gain or an ethical surplus which is verbalized as the wish to become better persons, but also to live unique personal experiences which most people (that is, those who have not gone through the same process) do not have access to, and are therefore unable to understand. From their perspective, what could be more gratifying than to give part of oneself openly and freely expecting nothing in return? And here the same experience of community of which I spoke earlier is implicit: sharing the same trajectories unites these women in a spirit of communion and gives them a sense of personal achievement inaccessible to the majority.

The question is why the anonymous character of the relation between donor and recipient does not cancel the donor’s underlying expectation, to which reciprocity seems to cling. These women know what the ultimate goal of their actions is, and they are aware that it implies two parties, even if they seem to perceive this process exclusively as their *own* action, in the sense that what they do with their body concerns only them. As we follow these women’s discourses, the problem’s complexity is revealed. Most of these women state that even though they produced and donated eggs that will cease to be theirs after the treatment, it does not necessarily follow that they do not feel affection for them. Despite accepting and assuming that their

participation ends the moment the eggs are retrieved, feelings of possession and belonging remain with these women. We realize that the purpose of anonymity is in fact to enable the termination of this non-relation, which would otherwise persist. In place of anonymity, we would have a kinship relation.

Anonymity may be considered advantageous in attributing responsibility for the egg-child, while simultaneously presenting a potentially negative aspect: not knowing who the donor is also implies that nothing is known about the genetic material and the inherent risks of disease a particular child might have (as we will see, Pálsson's [2007] book describes medicine's current efforts to fight this problem). What is at stake is not only reproduction or biological and emotional bonds of kinship, but the emergence of a family. An important point when we consider biological and emotional bonds—and especially a common genetic identity—in light of these works, is that we are facing an alternative form of parentage, resulting in what could be called a family crossing. That is, a mixture of genes and bloodlines that is gaining increasing importance nowadays given the possibilities provided by medical techniques and genetic research (see Fox 1993). These possibilities bring new meanings to notions of descent, paternity, maternity, and biology, and more importantly, technological devices intercede at the center of the reproductive act.

I must at this point, however, make some comments on a particular aspect of Konrad's treatment of anonymity, since it is a notion with which I am familiar. In a work where the role and importance of anonymity are crucial to sustain the author's argument, there is a surprising lack of dialogue with other works focusing on this concept, thus weakening the significance of one of the author's key operative concepts for interpreting both the reality under analysis and the possibility of further interpretations. Konrad is right when she says that her work is relevant in illustrating how anonymity can be used to think about social environments; her demonstration of how it operates in this context is both efficient and convincing, giving us an accurate measure of its significance. But it is hard to accept her claim that "the concept of anonymity has been virtually absent from scholarly study, being deemed neither sufficiently interesting nor worthy a topic for critically sustained empirical or theoretical analysis" (2005:5).

I am willing to acknowledge this in regard to anthropological studies, but the claim cannot be generalized to all of scholarship given the vast amount of scientific literature and the many working groups currently addressing the topic. Consider for instance the enormous multidisciplinary group *On The Identity Trail*, active from 2004 to 2008 and entirely devoted to the study of anonymity and its different expressions (including medical, financial, philosophical, etc.) relating it to topics such as privacy, confidentiality, and surveillance (Anonymous 2009). Directly related to Konrad's interests in the field of medicine, there are also essays from Shenfield and



Steele (1997) on anonymity and secrecy in egg donation and its inherent legal discussion (Frith 2001; Pennings 1997). Though Konrad's is undeniably a work of ethnographic and analytical excellence, I believe the book would have gained from a more exhaustive review of the literature on anonymity at different levels and in other contexts.

### *THE WEST AND THE REST: SANDRA BAMFORD'S CONTRIBUTION*

Sandra Bamford's (2007) book, *Biology Unmoored: Melanesian Reflections on Life and Biotechnology*, begins with an account of a medical experiment, describing the first attempt at *in vitro* fertilization in 1973, which failed due to the medical and ethical problems that this kind of intervention posed at the time. I must say that Bamford's work was particularly stimulating for me, both challenging and pleasurable to read. Besides being elegantly written, the book manages to make a comparative exercise in which Bamford considers Euro-American concerns with genetics, parentage, body, and social relations, providing us at the same time different understandings of these issues with a very good ethnography on the Kamea of Papua New Guinea, where she conducted ethnographic fieldwork.

As she notes in the Introduction, this kind of comparison is often criticized and considered unproductive. But notwithstanding the fact that it deals with two extremely distinct cultural realities—especially regarding technological sophistication—she manages to bridge this gap convincingly, providing us with a valid example of how to reflect on the relations among biology, kinship, and genealogy. In the books discussed above, we were shown “new” forms of child conception (or egg production), which interfere with the physical relationship associated with the act of sexual intercourse and with the possibility of tracing one's genetic genealogy.

In contrast, Bamford (2007:5) proposes to make “a detailed analysis of what it means to live in a world that is not structured in terms of biological thinking.” Unlike European cultures, which immerse people in a sense of cumulative, historical, physiological genealogy, Kamea culture immerses people in a sense of relatedness through the land and the non-human environment. This provides Bamford an opportunity to study how, under these cultural conditions, the Kamea perceive links among people.

On the one hand, Bamford provides an observation of Euro-American medical, scientific, and political debates around egg and sperm donation, *in vitro* fertilization, and cloning. On the other hand, she shows us how for the Kamea these problems are not an issue, since their relations are defined through bonds with the land and nature itself, thus detaching their conception of physicality from their sociability.

Mothers (and potentially all females) are thought of as “containers” of children—it is interesting to consider this term in connection with the donors

and “recipients” that Konrad describes—who will eventually undergo a process of “decontainment.” This process is particularly significant, marking the precise moment when the bond between mother and child is definitely broken. It occurs differently for each sex: boys’ initiation is made by the father when he teaches his son to cultivate the land and to constitute his own link with different generations of males, while young girls are prepared by their mothers to become “containers” themselves, that is, ready for marriage.

These processes are important in terms of sibling relationships—defined as “one-blood” relations (that is, deriving from the same mother’s womb)—but are not relevant to the way Kamea comprehend inter-generational ties. In Bamford’s (2007:58) words, “bodily substance occupies an important place in terms of how *same-generation* (i.e., sibling) relations are conceived, but is of little or no importance to how they are tracked through time.” Female relations are defined as being horizontal, while Kamea men establish relationships of continuity with other men through land.

Kamea conceptions of kinship, bodily ties between child and parents, and the relevance of motherhood and fatherhood are pertinent when looked at through the lenses of some controversial Euro-American cases presented by Bamford as examples of situations in which affinity or property ties could be seen as problematic for those directly involved, genetics researchers, politicians, and the public. For example, there are cases of mistakes that occurred with the donation of sperm that spawned public and legal debates, such as a situation in which a woman carried children from two different fathers (one by mistake). Her other examples include debates over the right of widows to extract their dead husbands’ semen in order to conceive a child, in what is called a posthumous paternity; the current practice of men being sperm donors for their daughters-in-law so as to give their sons genetically linked offspring; and the separation of the legal rights of the fetus and the mother, considering both as individually autonomous.

One of the most interesting comparisons she gives is on cloning and the replication of a person (a child). As is well known, experiments have been done (some of them successfully) with animal cloning—the sheep Dolly, who resulted from a mammal cell artificially stimulated and then implanted in a surrogate mother, being the most famous—and also with embryonic stem cells for medical and laboratory research. However, cloning human beings raises many ethical and legal problems, and remains morally condemned and legally prohibited worldwide.

At a certain point, Bamford analyzes the conclusions reached in a report on human cloning requested by United States President George H. W. Bush in 2002. There are two relevant notions I would like to mention: one is “a discussion of individuality and autonomy, and the presumed importance of these values to the formation of a human self” (2007:120). The other is that a “cloned child would constantly be compared to the ‘original’—and

this would impose undue constraints in his or her life course” (2007:121). Focusing on Kamea to discuss this specific debate, Bamford uses mortuary rites to show that here it is precisely the replication and continuity of identities and relationships that is celebrated through death. That is, as she explains, for Kamea death is not considered as the end of a life which will be replaced by a new (unknown) life as in Euro-American societies, but quite the opposite, since their relationships are not defined through continuity of genealogies but “rather the reproduction of sets of relationships” (2007:148) which are not defined through physiological bonds. This is an important point, stressed throughout the whole book. It allows the reader to understand how some of the current human reproduction techniques commonly considered in the Euro-American cultural world as dangerous, threatening, or unethical would be understood quite differently in other cultural settings, and may be reformulated, even in situations which may seem extreme or bizarre to many Europeans and North Americans.

### *BODIES OR PERSONS? PÁLSSON'S WORK*

In *Anthropology and the New Genetics*, Gísli Pálsson (2007:4) discusses issues revolving around genetic information databanks, human tissues, laboratory experiences, and the Human Genome Diversity Project, to make an argument for “the contribution of anthropology to the understanding of contemporary biomedical debates and issues.” This book is based on his ethnographic work in Iceland (his country of origin) at the deCode Genetics company. The anthropologist carried out fieldwork in this company for several months and at the same time followed political and media debates on human tissue and genetic material at national and international levels. Although there are other similar biobanks all over the world—Pálsson gives the examples of Estonia, Sweden, Tong, the United Kingdom, Québec, and Taiwan—this was the first time that a whole national population (240,000 inhabitants), consented (initially a presumed consent, and later an informed consent) to provide a single company access to its genetic material.

The main purpose of collecting genetic information and creating a national human tissue database was to conduct in-depth medical research on certain types of diseases and disorders (in this case genetic mutations passed down through generations), such as asthma or osteoarthritis. As Pálsson himself recognized, the objective of this collection was simply to contribute to the advancement of medical knowledge, and not to focus on ethics (which the author explores in his chapters on bioethics and biovalues), privacy, the use of this kind of data for identification, commercialization, social sorting, or even discriminatory ends. I cannot avoid being skeptical about the intentions of deCode Genetics, even assuming that in fact their interest was only in medical research, since it is easily recognizable that

DNA databases are one of the topmost instruments for surveillance and identification purposes nowadays (Lyon 2007).

What I believe Pálsson accomplishes with this book is an overall view of what he calls the “new genetics,” focusing on a very well delimited case, and relating it to a debate around identity, the sense of community, kinship and genealogical ties, as well as issues surrounding genetics, biosociality, and the commodification of bodies and body parts in today’s world. He does so successfully, in my view, because identifies two important aspects: first, the impact of this specific project on Icelandic society and second, its wider implications at a theoretical, political, and social anthropological level.

In order to encourage the acceptance of this project, considering the medical interest of such an endeavor to collect samples of human tissue, deCode Genetics provided Icelanders (arguably, in exchange for their collaboration) with a database containing each citizen’s genealogical history, giving them open access to all available information on their ancestors. The possibility of gaining exhaustive knowledge of their family tree had a huge impact in Icelandic society since, as the author explores in chapter 3 on “Genealogies, Relationships, and Histories,” there is immense interest in this matter among Icelanders—whose common belief in their descent from the Vikings and the collective notion that they inherit unique characteristics that should be somehow preserved and perpetuated—would make them particularly receptive to such medical research. But still considering the notion of community (Pálsson speaks of genetic community), we should observe that the availability of this information through the web in the *Book of Icelanders* (to which each person may have access using a Personal Identification Number code), had in fact an effect on Icelanders, who are reshaping their own social relationships and ties by virtue of this knowledge.

The case is a situation in which genetic research and medicine are actively intertwined to form a person’s conception of his or her ancestors, influencing the construction of social ties. But perhaps one of the most important questions (which I repeatedly found myself puzzling over, especially as I was reading the last chapters on bioethics, biobanks, biovalues, and the commodification of bodies) is this: are we talking about persons or bodies? In other words, are we considering *biography* or *biology*? This may prompt an obvious answer, or lead to more than one answer according to different approaches.

However, my concern is mainly with the use of genetic technologies to collect samples or build databanks in which body parts are used to provide what is called personal information, though they actually contain no personal (subjective) information whatsoever. It is an issue I have been dealing with in my own work on surveillance practices (Frois 2008, 2009), where body data (DNA, fingerprints, eye scanning) are collected and used to identify citizens, ignoring the subjective elements of a person’s identity. As Nancy Scheper-Hughes (2001) shows, the body can be alienated, objectified, and part of a

flourishing commercial market. Tissue, blood, organs, fingerprints, and genetic information can travel, and be used, bought, or stolen without the involvement, consent, or even knowledge of person to whom it “belongs.”

Pálsson addresses some of these topics in his book, though I think his work would have gained from greater empirical knowledge or ethnographic fieldwork among Icelanders, besides the brief accounts collected mainly through newspapers and the Internet. Once more, we are facing an act of exchange, such as the one described by Konrad, here applied to the population of a whole country and a single company. But this exchange is unequal, even though paradoxically it is not perceived as such by its participants. While subjects believe that they are giving deCode Genetics only a small part of themselves such as blood or saliva—considered non-invasive techniques of extracting DNA (Marx 2006)—in exchange for access to their familial inheritance through the *Book of Icelanders*, the amount of information that can be had from those samples, and its potential uses (medical, pharmaceutical, economical, etc.), surpasses the apparent insignificance of their contribution.

## DISCUSSION

First of all, I would like to offer an explanation for the order in which I chose to present the works in this review. I tried to establish some sort of timeline, conducting the reader from the past to the present, and by past I am referring to the reproduction technique which has been in use longer—*in vitro* fertilization since the 1970s—followed by egg stimulation and donation, to an overview of recent cases of reproduction attempts in a comparison between Euro-American and the Kamea conceptions of family and kinship, and finally a book that delves into the origins and essential features concerning human reproduction, that is, the genes, but which is simultaneously the one that most clearly points toward the future.

Bestard et al. (2003) and Konrad (2005) reflect on different ways to overcome female infertility, whether through *in vitro* insemination—that is, the fertilization of an egg outside the uterus—or through a process of stimulating egg production for donation. Ultimately, these authors are dealing with the new kinship relations that arise in these particular contexts. This is so first, because they are constituted artificially and are mediated by a whole array of medical procedures, as opposed to the “natural” conception achieved through sexual intercourse, and interfere with the bodies of women who submit to such treatments. Second, techniques of assisted reproduction raise questions regarding the strict notion of filiation, especially in Konrad’s case, where the act of giving carries some ambiguity regarding who the “real” mother is—is it the one who produces the egg or the one who carries out the pregnancy and gives birth? A similar issue is brought up by Elisabeth

Roberts (2008:87), also in the context of *in vitro* fertilization treatments and egg donation, but this time in connection to genetics and bio-sociality, when she recounts a question put by a patient's husband to their doctor: "if they [the receiving couple] used donor eggs would any of his wife 'be in the child'?" The doctor explained that the "donor would give the genetic information" (2008:87) and the father, contributing his sperm, would also give a part of himself. Apparently, the wife who became pregnant was considered merely the carrier of the child. However, Roberts adds, "The mother exchanges blood with the baby" (2008:87).

The convergence of genetic heritages resulting from cases like this contributes to debates on reshaping the genealogical model that can be found in the recent collection of essays edited by Bamford and Leach (2009), of which some particularly provocative essays stand out. Jeannette Edwards's (2009) "Skipping a Generation and Assisting Conception," for example, concerns the idea of genetic confluence and some of the cases considered by Bamford (2007), like sperm donation between fathers and their sons' wives as a way to ensure the continuation of family features and parental recognition.

The discussion surrounding the donation or sale of body parts is paramount in this context. Two dimensions are worth considering: the ethical and the moral. In Magill's (2003) formulation, the former concerns the individual's choices, while the latter belongs to the realm of a society as a whole, where it is constantly being constructed and reshaped. In my view, we can establish a close correlation between the works of Konrad (2005) and Pálsson (2007) concerning this issue. Even though Konrad deals strictly with the exchange of female body parts, while Pálsson considers the wider case of genetic material being surrendered, in both of these books we face the commodification of the body and its parts through removal from a closed environment into the open market, in this case made possible by technologies that enable people to transport organs and material data around the globe.

The changing possibilities for kinship relations and for bodies themselves are precipitating a radical transformation in the relationship towards the body—as substance and as a feature of personality or selfhood—in Western societies. It would be interesting, for instance, to compare some of the books cited here with the work of Peter Loizos and Patrick Heady (1999) regarding procreation, fertility, and growth, given its differences and similarities on the concepts of kinship, reproduction, nature, and culture.

Returning to the use of the concept of community—either as imagined in Bestard et al. and Konrad, or as genetic, mentioned by Pálsson—and relating it to the notion of bio-sociality, it is worth mentioning the reflections of Rose and Novas (2005) on biological citizenship. "Biosocial communities" unite people around the globe through the Internet and self-help and activist groups concerned with the body, its illnesses, symptoms, genetic inheritance,

and biological traits. The *in vitro* fertilization context studied by Bestard et al. provides a similar case of women experiencing feelings toward estrangement, as though there were some mismatch between who they *really* are and their self-perceptions or life projects.

A strictly biological or objective approach to these issues points us in directions that I have not yet touched on. For example, there are archaeological implications of the information provided by DNA. One of the arguments propounded by the Human Genome Diversity Project, explicitly in the Icelandic case, is that collection of the DNA of a whole insular country's population can offer knowledge of its inhabitants and their ancestors that is based solely on contemporary biological characteristics, without the need to study of artifacts or behavior. Given the information provided by medical records, it is possible to gain more extensive knowledge of ancient eating habits, life expectancy patterns, and specific illnesses, combining both archaeological and biological dimensions with an accuracy unattainable through other techniques. As O'Rourke (2003) notes in his review of anthropological genetics studies since the 1960s, molecular anthropology's studies of genetic variation since the 1980s and the great expansion of available databases with this kind of information present a whole new potential for understanding human variation around the globe.

These works introduce vocabulary and concerns familiar to biologists, geneticists, medical doctors, and biological anthropologists and those of social and cultural anthropologists interested in kinship and genealogies. See, for example, how O'Rourke (2003:107) article on anthropology and genetics concludes: "If anthropological genetics developed from the productive intersection of biological anthropology and human geneticists three years ago, its modern descendant is a subdiscipline that melds not only these two disciplines but also portions of molecular biology and bioinformatics."

Personally, I have to say that I find this melting pot a little too big. The literature produced within genetic anthropology in many ways goes beyond the limits and some of the concerns of social science. Nevertheless, the works under review point to a preoccupation with what seem to be new paths for contemporary studies in anthropology and a reminder that neither should physical anthropology neglect the importance of ethnographic accounts, where the subjects and face-to-face interaction are paramount, nor should cultural anthropology neglect scientific study of the physical body. This is obvious in the reproductive and medical technology arenas. In my assessment, the authors of the four books reviewed here accomplished this, each in different ways. Moreover, these works show us how social life, kinship, and genetics are being reshaped, while providing anthropology with new paradigms for analysis and interpretation without losing sight of either anthropological theory produced in previous centuries, or the human dimension of the subjects under analysis.

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