


From Blood to Genes?

Rethinking Consanguinity in the Context of Geneticization



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Kinship has returned to the pages of anthropology journals with a vengeance, but also with a twist. With the revitalization of one of its hallmark concepts, anthropology is once again plunged into controversy about blood, genes, inheritance, descent, and reproductive biology—just as in its founding throes a century ago, although today with a greater focus on industrialized societies, and on the role of biomedicine and the new genetics.¹ Central to this reconfiguration of kinship studies is a resurgence of interest in European societies within social anthropology, as well as a re-examination of the concepts of the biological and the technological. This chapter explores the new connections between blood and genes in anthropology—particularly in the context of biomedicine—in three parts. The first section provides a brief and very basic overview of the historical importance of kinship studies to anthropology. This sets the context for examining the new focus within anthropology on geneticization and new genetic technologies in the second and third sections.²

The Importance of the Kinship Concept to Anthropology

In modern European society, knowledge about reproductive substance and the hereditary transmission of characteristics is largely taken to be knowledge about the natural facts of life (biology), so that kin relations are seen to have a basis in natural facts—themselves often depicted as the material substances of kinship, such as blood, genes, or DNA. These models of substantial connection, organized as a bilateral, brachiating structure, are also crucial to the emergence of modern biological science. Darwin famously borrowed the analogy of blood relations to describe life's genealogical interconnectedness in the late nineteenth century, and from this, Foucault has argued, modern biology and its foundational concept of "life itself" were derived.³ In return, as Marilyn Strathern has argued, the blood-based analogy of biological relations "travelled back" to naturalize human kin connections: a family's genealogical unity recapitulated the genealogical unity of all mankind and, indeed, the natural system (evolution) connecting all living things.⁴ We can thus refer both ordinarily and literally today to a biological, or even a genetic, relative.

How people in different societies interpret the significance of connections established through "biological" ties in terms of kin obligations, family formation, marriage proscriptions, and so forth, has long been held to be a matter of social, cultural, and historical diversity, and within Anglo-American kinship theory, this topic was classically investigated in relation to a presumed opposition between "natural and social facts."⁵ However, since the 1980s, with the rise of feminist anthropology as well as scholarly attention to the social construction of gender more widely, the natural and social/cultural dichotomy as a cultural and historical artifact has been subjected to a serious and productive critique.⁶ From this perspective, kinship is no longer interpreted as deriving from a set of immutable biogenetic facts but must be read as a system of cultural knowledge through which biological and social practices are constantly remixed and remade in what is described as a hybrid, or plural, fashion. The question of kinship within social anthropology therefore turns not so much on the question of how ideas of relatedness are "culturally constructed" on a naturalized or "real biological" base, but on the wider question of how kinship models enact or perform culturally specific ways of knowing about the world at large.

Descent and parenthood are not the only sources of kinship models in social anthropology. In European societies, the relations that are considered kinship are also considered to be those derived through, or modeled on, marriage, residence, filiation, and locality. The study of mar-

riage systems, including both fields of relations established through the prohibition of ties based on consanguinity (incest) and affinal relations of marriage (alliance), comprises a major strand of theoretical interest within social anthropology and also a source of divergence between its different articulations. The focus on marriage and exchange patterns has been most notably a result of the influential work of Lévi-Strauss, who sought to establish a universal basis for the analysis of human cultural systems (structuralism), and to verify a single hypothesis connecting the origins of marriage to the incest taboo.⁷ In contrast to the emphasis on biology and descent in British and US anthropology, the Francophile tradition, focused on alliance and filiation, has tended to be less biologically orientated in favor of an emphasis on complex marriage patterns, following the precepts of structuralism.⁸

Considerable debate in the past has occasioned the question of the extent to which kinship systems derive their sociological importance from their role in structuring inheritance patterns, and it is an interest in African unilineal descent groups that shapes much of the work on jural and political relations associated with the British structural functionalism of Radcliffe-Brown, Meyer Fortes, and Evans-Pritchard.⁹ This focus is also associated with a strand of social historical literature examining structural inheritance patterns. In the European context, a significant conjuncture between anthropology and social history has resulted in a large body of research investigating changing family formations over time, often through the use of genealogical records and other documents.¹⁰ These studies, partially based on the analysis of rural peasant societies and often tied to the analysis of gender and household structure, comprise a large area of research in which kinship has a particular descriptive meaning and empirical importance that overlaps substantially with usages of these terms in social anthropology.¹¹

In addition to ties through procreation, marriage, filiation, descent, and inheritance, the study of kinship within anthropology includes a wide range of so-called fictive, ritual, or spiritual kinship practices. On the one hand, there are types of honorary or ceremonial kinship, such as the institution of *compadrazgo*, which is a form of baptism, godparenthood, or “second birth” found widely in Europe, the Middle East, and Latin America.¹² Similarly, there are numerous practices of fostering and adoption, sometimes related to substances, as in “milk kinship” practices that are found worldwide.¹³ On the other hand, there are numerous practices related to friendship and support networks, in which the establishment of reciprocal ties and obligations creates a kinship network of sorts.¹⁴ These ties may replace, parallel, or complement consanguineal or conjugal relationships. The use of the term *fictive*, like the adjective

pseudo, is consequently used less often, as it reflects the essentialist presumption of a biological “base” to the kinship superstructure.

Finally, relations built on kinship may be seen as those involving residence and household composition, reciprocal ties of mutual support and obligation concerned with nurture, child rearing, and other, often domestically related activities through which recognized definitions of closeness and distance are established practices—what could also be called kinship “processes.”¹⁵ An important component of such studies is the emphasis upon the range of kinship practices that may affect an individual over the life course, the wide range of persons who may play kinship roles, and the broad range of how such roles can be defined (for example, through the adoption of sibling terminologies of *brotherhood* and *sisterhood*).

In sum, kinship studies comprise both a major area of study within anthropology and a significant point of conjuncture between anthropology and other disciplines, in the European context most notably with sociologists, historians, and demographers. Quite a wide range of behavior may be classed as kinship or kinship-related activity, and several schools of thought have historically cohered around specific questions concerning kinship as a cultural idiom and as a mode of social organization.

Although the study of kinship is central to the discipline of social anthropology, neither the study of European societies in general, nor of European kinship systems in particular, has figured prominently within the discipline’s foundational literature—which is instead largely focused on non-Western societies. It is only in the latter half of the twentieth century that ethnographic studies of the social relations of kinship and the cultural values ascribed to them in modern European societies have begun to play a more prominent role, and only in the past two decades that such studies have begun to gather momentum in the kinship literature. Several factors account for this pattern, which deserve brief mention. In part, this tendency is the result of the general orientation of anthropologists toward non-Western and pre-industrial societies throughout much of their discipline’s development. The importance of kinship within anthropology, for example, can be seen to be in approximate proportion to its significance within the societies studied by anthropologists. In the late nineteenth century, when anthropology began to emerge as a discipline, much attention was focused on social formations in which kinship was seen as a primary institution providing the organizational structures of social and political life. This pattern continued as anthropology expanded, with the consequence that the study of kinship remained central to those theoretical concerns focused on social organization, most notably in the British functionalist and structural-functionalist traditions.¹⁶

An increase in attention to the cultures of modern industrialized nations accompanied the growing European interest in American cultural anthropology in the 1970s. Consequently, theoretical interest in kinship in terms of social structure began to diminish somewhat, although the influence of structuralism remained strong, and continues to hold great sway in the French traditions. Several developments in the 1980s and 1990s signaled a renewed interest in kinship in Europe. One was the recognition that although as social institutions kinship systems may not have had the same prominence in Europe as they do in societies organized into corporate descent groups, they are nonetheless integral to cultural identities. Indeed, as many kinship theorists in the 1990s began to argue, their importance had probably been underestimated.¹⁷

Alongside this renewed interest in kinship was also evident a surge in anthropological activity within Europe. This was most readily evident in the formation of the European Association of Social Anthropologists in 1990 (now with more than a thousand members), which in turn functioned as a major impetus for a resurgence of interest in kinship studies, in general, within the discipline of social anthropology. This trend has been reinforced by an increasing emphasis on kinship in the context of new reproductive and genetic technologies—a literature that includes a large number of influential studies based in the industrialized West. In sum, kinship was most theoretically important to social anthropology when the societies of Europe were most neglected. Notwithstanding numerous significant exceptions, the broad pattern characterizing mid-twentieth-century anthropology was a non-European focus and a predominant concern with Third World societies. As the study of contemporary European culture began to emerge as a field in its own right toward the end of the twentieth century, the theoretical importance of kinship studies within anthropology had waned significantly, and even come in some quarters to be considered indexical of an old-fashioned, colonial anthropology that had rightly been left behind.

Although for all of the reasons outlined above, European kinship has not been as widely studied as its counterparts in many other parts of the world, it should also be stated that a substantial body of literature addressing a wide range of kinship phenomena across Europe was nonetheless published during the mid to late twentieth century.¹⁸ Indeed, a 1991 survey, "Kinship Studies in Europe," revealed an unexpectedly large and coherent body of scholarship on this topic, confirming that the alleged decline of kinship studies was partly misperceived.¹⁹ Were one to speculate that loss of its former theoretical prominence (the importance of kinship to anthropology has been compared to that of the nude to art) perhaps partially eclipsed the actuality of its continuing empirical

importance, the complexity of the situation would no doubt be better captured.

Two final points need to be made concerning the origins of a return of anthropological attention to kinship, and these are of particular importance as they bring us into conversation with the question of kinship in the context of new reproductive and genetic technologies—which began to acquire increasing prominence from the 1980s onward. To begin with, an important source of the impetus to re-examine kinship derived not only from its long-standing theorization as a social practice that, though incontrovertibly rooted in the actual biological facts of sexual reproduction, nevertheless varied cross-culturally, but also from the entire nineteenth- and twentieth-century model of biology as a set of “true facts” on which society is “based.” As noted earlier, the critique of the taken-for-granted equation of biological facts with incontrovertible and pre-determined social truths—such as the idea that the association of women with the domestic sphere derives from their biological role as mothers—had taken considerable impetus from feminist anthropology. Famously, in her 1985 paper at the American Anthropological Association meetings in Washington, DC, at a panel honoring the American anthropologist and kinship theorist David Schneider, feminist anthropologist Sylvia Yanagisako argued that Schneider’s entire theory was flawed in that he had overlooked the most important implications of his own argument, which concerned the gender differences necessary for biological reproduction.²⁰ Schneider’s presentation, “Doctrine of the Genealogical Unity of Mankind,” was intended as a mocking jibe toward the Anglo-American over-reliance on a presumed genealogical (biological) “base” to kinship superstructures everywhere. He claimed this “doctrine” was ethnocentric: biology, in his view, was doing “symbolic” work not only within kinship systems but also in the anthropological study of kinship. In essence, he argued that anthropologists were projecting their own kinship values onto the people they studied and masking this ethnocentrism as scientific objectivity.²¹ Yanagisako argued that “the model of natural difference” implied in the “biological facts of sexual reproduction” organized far more than kinship: it organized gender too and by implication also reproductive labor, family structure, and so forth (this argument was to reach a much fuller form shortly afterward in Judith Butler’s *Gender Trouble*, probably the single most influential work of feminist theory since *The Second Sex*).²²

A second major influence contributing to the resurgence of kinship studies was the re-evaluation of scientific knowledge coming from the broad area now known as science studies. Work by feminist theorists such as Donna Haraway from the 1970s onward, and also from scholars

such as Bruno Latour, who took a quasi-anthropological approach to the laboratory in his famous study, *Science in Action*, began to introduce new models of “fact-making” in science that began to unsettle the categories of the “natural” and the “biological.”²³ Since the 1980s, a steady stream of such studies by a growing number of scholars, including anthropologists, has contributed to the emergence of the study of science as culture as a subdiscipline in its own right.²⁴ This has been further aided by an increase in the number of ethnographic studies dedicated to bioscience and biomedicine.²⁵ The “biological facts of sexual reproduction” took a further stride into uncertainty with the onset of “the age of assisted conception,” followed quickly by the scientific excitement and popular debate over cloning and stem cells. Today, of course, we live in a context in which, as Ian Wilmut has said, “nothing is biologically impossible anymore.”²⁶

While self-evident, the value of studying such changes anthropologically has been offset by the considerable debate about how best to do so. Moreover, while disappointing, it would be fair to say the question of kinship and the new biologies remains somewhat marginal to mainstream anthropology in Britain, Europe, and the United States. That said, there is nonetheless a significant core of studies of kinship in the context of new genetic technologies—and in particular genetic screening—to which this chapter will now turn.

Kinship and the New Genetics: From Blood to Genes

Despite the diversity represented within existing studies of kinship in Europe, and at the risk of oversimplifying, two broad patterns can be generalized across the European frame that are of particular relevance to anthropological investigation of kinship in the context of new reproductive and genetic technologies: that European kin-reckoning is primarily bilateral and that blood predominates as the main idiom of shared bodily substance. Bilateral or cognatic kinship systems are defined by a dual tracing of descent through both the mother’s and the father’s “sides,” and this is, of course, the system of kin-reckoning familiar to most Europeans. The system with which it is usually contrasted is unilateralism, as exemplified by patrilineal or matrilineal descent systems creating agnatic or uterine kin groups (unilineal descent groups) as a consequence. It is the absence of unilineal descent systems, and of corporate kin groups of the kind described in the literature for Africa and Oceania, that is one of the most notable characteristics of the European kinship pattern. Equally notable is the evidence, as demonstrated in the

very impressive set of chapters prepared for this publication, that blood is a ubiquitous and overdetermined cultural idiom in Europe, which has taken a wide variety of often conflicting forms. Despite, or more likely because of, this often paradoxical and ambivalent capacity to signify, blood remains a paradigmatic substance of kin connection in Europe. In addition to being a very ancient component of privileged social ties denoted by concepts of spiritual and corporeal personhood, blood and blood connection are widely embedded idioms, central to the scriptures of the early church, to Roman and Teutonic law, and to a range of other foundational and historic traditions grounding contemporary European societies. Through blood is expressed a complex cultural knowledge of origins, descent, inheritance, and degrees of relatedness, in which the content of the blood connection is inseparable from its form (as in coats of arms, which both symbolically and literally, that is, materially, recapitulate and represent the bilateral nature of specific genealogies). Such knowledge is not only essential to individual identity and fundamental to understandings of inheritance and descent, but also the basis for a range of social institutions and practices, now and in the past. A typical example of the characteristic significance of blood in relation to kinship is provided by Elliot Leyton in his study of an Irish village: "A man's 'blood,' the physical and moral qualities of his ancestors, gives him the prestige he will bear as a child. ... The significance of the one blood is a consequence of the villager's beliefs that biological reproduction transmits not only physical characteristics, but also personality and worth. It follows from this that a man is his ancestors."²⁷

The combination of a blood idiom that connects descent to procreation and a bilateral reckoning system which traces kinship equally from both parents is of particular significance in relation to the questions raised by the human genome project and new genetic technologies. What is striking, of course, is the close resemblance between the model of inheritance described by blood-based bilateralism and that described by biogenetics.²⁸ The cognatic model of shared bodily substance emphasizing equal and impartible links through procreation to both parental lines provides the basis on which knowledge about genes represented by scientific discourse can appear to be about "kinship," while kinship reckoning can similarly be understood to be "about genes." Significantly, there is simultaneously great "plasticity" to the blood, so that while a general pattern of bilateral descent based on an idiom of blood ties is evident across Europe, this pattern is enormously diverse in its expression and cross-cut, mediated, and filtered by numerous other kinship practices.²⁹ Very importantly, kinship practices are also "strategic": they may be re-

garded as part of the natural order of events (especially practices based on ideas about growth, nurture, parental care), or be considered of a different order altogether, such as in definitions of relatedness based on law or divine sanction.³⁰ This “switching-back-and forth” capacity, both of the blood idiom and the semi-naturalized connections it is often seen to represent, is very important in terms of what we later learn about genes. As it turns out, this lesson is not exactly what we might have expected.

To understand not only how the rising importance of genes, DNA, and the genetic sciences have reshaped understandings of blood connection, but also the reverse, how blood connection has reshaped ideas of genes, DNA, and the genetic sciences, we need to keep in mind two important facts about bilateralism. Unlike those unilateral descent systems that produce group boundaries by a rule of outmarriage (exogamy), bilateral kinship systems open up an infinite universe of potential kinship, in which “everyone” is eventually “related” by consanguinity. (It is possible that even the complexity of canonical restrictions governing acceptable degrees of relatedness for marriage to occur may derive in part from this “rimless wheel” effect of bilateralism.) It is for this reason that anthropologists studying the blood-based bilateral kinship systems of Europe continuously have pointed out that these systems not only create connections but, due to the unbounded scope of potential interconnectedness, also require means of producing disconnections. There are numerous ways in which this dual process of connection and disconnection can be seen to occur. The means through which individuals discriminate among consanguines, for example, is the focus of a considerable literature, particularly in the British Isles.³¹ The importance of distinctions between “close” and “distant” kin, or “effective” and “ineffective” relatives, and the role of individuals in negotiating these degrees of distance and proximity have been stressed. Strathern expresses this as a fundamental opposition within the cultural values ascribed to English kinship: on the one hand there is a set of a priori ascriptions, on the other, a degree of individual choice.³²

The embeddedness of blood-based kinship ties within other mechanisms for defining relatedness, the necessity for systems of disconnection to curtail the unlimited kin universe produced by bilateralism, and the active selection and negotiation of kin definition and degrees of acknowledged proximity by individual social agents or groups are but three of the well-documented mechanisms through which a potentially endless number of bilateral and cognatic “relations” are delimited in social practice. The mechanisms by which the kinship universes of individuals are extended, altered, restricted, and otherwise manipulated are crucial and

exist both in tension and in necessary complementarity with blood as an idiom for “diffuse, enduring solidarity.”³³ It should be emphasized that the perspective offered from social anthropology affirms repeatedly and across a wide range of contexts that the definition and recognition of kin is selective. Far from formulaic (despite the existence of complex, formal systems of rules and prohibitions), kinship is the focus of concerted activity at the levels of content and form both.

If new genetic technologies may be thought of, then, as new means of representing kinship, their significance thus also lies in both their content and their form: they offer new information about relatedness and a new language for it, as well as new signifiers that belong, not to the traditional “soil-based” arboreal idioms used to express “sides,” “lines,” or “relations,” but to the recent history of molecular biology in the scientific laboratory. This overlap between the biogenetic and European blood-based bilateral models of inheritance, descent, and relatedness creates a new means of switching back and forth between knowledge systems. In both cases, “ties” based on shared bodily substance can be “traced” through procreation, the same two “sides” are recognized, and descent is imagined as a line of connection based on shared bodily substance, etc. This similarity has consequences for understanding, but these consequences have proven somewhat different from expectation, not only because the systems are partially isomorphic but also because significant gaps divide them.

The early predictions, for example by British and European governments, about genetic literalization—that it would exercise a colonizing effect on the older and more colloquial idiom of blood-based consanguinity—foresaw the “language of the blood” becoming, in effect, a subordinated meaning system. Much of the fear of geneticization stemmed from this almost knee-jerk response to the increasing power of the genetic sciences and their object—the gene—a fear that rightly cannot be separated from the use of genetic science to legitimate the German racial hygiene program during World War II. One unwelcome possibility was that far from strengthening existing kinship ties, new forms of “genetic information” might cause conflict among kin. For example, in its Report to the British Government, published in January 1992, the Committee on the Ethics of Gene Therapy expressed the concern this way:

The special qualities of genes and genetic events [may] give rise to different, and possibly conflicting, interests of kindred, including those yet unborn, who share, or might share, the same genes. For example, an individual might be the source of genetic information which is important to relatives. It might be important to their health care, decisions on parenthood, or life

plans which might be influenced by known health risks. Conversely, information which is important to a particular individual might only be obtainable from relatives.³⁴

The difference between blood and genes as idioms of relatedness may be phrased as a contrast between forms of cultural knowledge. Within scientific discourse, genes (despite uncertainty regarding their precise nature) are seen to belong to an empirical order of truth as precise but abstract and disembodied “genetic information.” In contrast, the truth of a blood tie is generally recognized to denote a wide range of diffuse, embodied, and physically shared cultural meanings. This “loose” quality of the blood tie is what enables its continual negotiation, or social “adjustment”—indeed this is what might be imagined to facilitate the use of blood to “make and unmake kin” because, like a bicycle, the blood idiom is ready to hand, and can be made to go “off road” quite easily. Hence, although “blood,” as a symbol of the biological mechanism for the transmission of traits by procreation, may stand for genes, the reverse is not as readily envisaged because genes do not represent all of the meanings of blood—they are, in a sense, “narrower.”

The reason for this can be stated simply. A significant distinction between the concept of blood as an idiom of kin ties and the science of biogenetics as a model of inheritance and relatedness lies in the location of these two knowledge systems. Blood could be described as “thicker than genes” in its longstanding cultural entrenchment in European history, whereas genes are deliberately symbolically impoverished within the system they “belong” to—namely, the authoritative, expert, exclusive, and elite knowledge system of science. Whereas the idea of blood may be encountered in a variety of contexts, among them traditional institutions of European society, such as the church or heraldry, the idea of genes is more likely to be encountered in the context of institutionalized medicine (e.g., prenatal or other genetic screening programs), in media discussions of scientific innovation, or in legal contexts, such as in criminal or family law.

Initially, then, while it seemed that genes, in becoming part of non-expert discourse, might “map onto blood,” it was also feared they might “geneticize” consanguinity—in effect replacing blood with genes. But as the gene has entered increasingly into ordinary speech, in car advertisements showcasing “BMW’s DNA,” or in references to someone as “not my genetic father,” the question of the relationship of geneticization to consanguinity has had to be posed anew. As we shall see, the first crop of anthropological studies over the past decade has shown this relationship is far from straightforward or predictable.

The Bleeding of the Gene

Since the 1990s, a small specialist literature has arisen in anthropology concerning kinship and the new genetics, much of which has been focused on Britain, Europe, and the United States. Taken together, these studies can be characterized as largely addressing the most “obvious” context of the geneticization of consanguinity—that of people (mostly women) in medical settings having to make decisions about either reproductive outcomes (prenatal screening, amniocentesis, pre-implantation genetic diagnosis) or pathology (breast cancer screening). Some other studies have examined adoption. For the purposes of attempting to identify certain of the key dynamics in this literature, instead of providing a comprehensive summary, it is worth looking at two influential recent monographs—by American anthropologists Kaja Finkler and Rayna Rapp—that examine the new social powers of DNA by using the methods and perspectives of ethnography.³⁵

In contrast to the claims of many commentators, such as Paul Rabinow, who have famously argued that new genetic technologies will break down older socialities based on the idea of natural facts and instead will create new “biosocialities” based on cultural values, a minority of scholars, including medical anthropologist Kaja Finkler, have argued that the new genetics have not precipitated the decline of the natural facts / social facts dichotomy, but have instead strengthened this distinction.³⁶ Controversially, Finkler argues that “biomedical explanations reinforce our notions that family and kinship are anchored in genetic ties, flowing from past to future, possessing a permanence that transcends time.”³⁷ She calls this process the “medicalization of kinship,” claiming that “our kinship relations have been given a new dimension that stresses faulty genes.”³⁸ Like the British Ethics Committee report mentioned above, albeit for rather different reasons, Finkler’s main thesis is that “the medicalization of kinship subverts the ideology of choice regarding the people one selects as ones kin.”³⁹

Using case studies of adoptees in search of their biological parents and women at risk of inherited breast cancer, Finkler provides examples of the ways in which individuals become reconnected to wider kin networks through “inherently impersonal” DNA molecules.⁴⁰ By means of family medical history, Finkler argues, peoples’ day-to-day realities are changed by reconnecting to their genetic heritage, acquiring “a new sense of continuity with the past” through ties of suffering.⁴¹ These ties, though urgently prominent, are, in Finkler’s view, fundamentally ambivalent, as she illustrates with examples such as the following case of Karen. At the suggestion of her genetic counselor, Karen, a 39-year-old woman at

risk of breast cancer, initiated a reunion with her 77-year-old maternal aunt, Alice, in order to learn more about her medical background. Finkler describes Karen's feelings of guilt about having lost contact with her mother's sister and re-establishing the connection only to acquire a blood sample. Moreover, Finkler depicts Karen's "contradictory feelings" about the positive outcome of the genetic tests—the option of a prophylactic mastectomy—"which will touch her at the core of her being as a traditional mother and wife and may physically convert her to the protected child she feels she is."⁴² Alice, Karen's aunt, is willing to contribute a blood sample out of a sense of family obligation, even though she herself does not believe the disease is inherited and complains that "Karen just called me because I knew a lot, but they never come to see me."⁴³ Alice, then, may well be what Finkler describes as a paradigmatic "example of someone reunited with a family member only because of genetic ideologies of inheritance," but it is less clear that the example is as "remarkable" as Finkler claims.⁴⁴ The experiences of Alice and Karen may be "especially instructive in how the ideology of genetic inheritance defines for them a relationship with family and kin," but they are less so about what kind of relationship this is: Karen's case is cited as one in which "the belief in the genetic inheritance of disease has unwittingly brought [her] closer to [her] family," yet it is not clear what the "closeness" consists of. It could be said to reinforce their continuing distance in spite of genetic proximity.⁴⁵

Leaving aside the important question of the extent to which such studies might be seen as tautological—by assuming a medical connection is one of "kinship"—the question remains as to whether "the medicalization of kinship" and "the hegemony of the gene" actually have the effect of reinforcing consanguineal ties, de-emphasizing conjugal and affinal ties, and deepening the significance of biological ties to distant kin, as Finkler claims.⁴⁶ In Finkler's view, the language of genetic inheritance "distanc[es] the person from his or her being," opening up a gap between experience and genetic identity.⁴⁷ She describes this situation as a phenomenological paradox in the form of a collision between everything known and familiar in a person's biography and experience and abstract medical knowledge about a genetic disorder. Hence, as Finkler notes, "the compartmentalized postmodern fragmented individual has become joined to his or her ancestors by DNA and to living relatives by the ideology of genetic inheritance."⁴⁸

Rayna Rapp uses the somewhat different analogy of "moral pioneers" in her study of prenatal genetic testing in New York City, which introduces yet another set of "partial connections" at the level of both individual experience and institutional structures.⁴⁹ Rather than alien-

ated postmodern subjects reunited by the truth of their DNA, Rapp finds resourceful immigrants on a new frontier, foregrounding what we might call “discursive resourcefulness,” or what was referred to above, more simply, as switching back and forth. In attempting to provide a “topography” of amniocentesis through a multi-sited ethnographic account of personal and professional encounters with prenatal chromosomal analysis, Rapp describes at length the “inadvertent imbrications” that “frame the social conditions under which prenatal diagnosis became conceivable.”⁵⁰

These “inadvertent imbrications” produce in Rapp’s study, not a genetic gap so much as a genetic knowledge gap, that is a gap between genetic information, which is often highly technical but incomplete, and meaningful knowledge, which, by definition, is socially, not medically, defined, evaluated, and acted upon. This gap is compounded both by the time lag built into the technique of amniocentesis (between extraction of amniotic fluid and analysis of its chromosomal content) and by the social stratifications that mark encounters with the forms of reproductive choice and control the technique is designed to facilitate. Although medical information is understood as “objective,” and genetic counseling is dedicated to the principles of non-interference and neutrality, no one comes to amniocentesis with an objective or neutral social positioning, individual identity, or cultural background. To the contrary, the difficult choices involved in amniocentesis are highly stratified and differentiated by personal circumstances, including gender, racial, ethnic, and class-based forms of privilege, exclusion, and subordination.

These factors produce the “multiple intersections” that require “complex choreography” for both patients and professionals in the world of prenatal genetic diagnosis and decision making.⁵¹ Rapp shows how “alternative and sometimes competing rationales” must be weighed up and evaluated, often in complicated marital or family settings that can generate what she describes as “kinship friction.”⁵² Initially based on her own experience of amniocentesis, involving a positive diagnosis for Down’s syndrome and the subsequently painful decision to terminate her pregnancy, Rapp’s own retrospection about her encounter with prenatal genetic diagnosis frames her investigation of the experiences of others. She is attentive both to the burdens of decision making for those in a position of disenfranchisement and social deprivation, and to the very different burdens of privileged middle-class women, who frequently become highly self-critical despite doing everything in their power to act responsibly toward others. Both the burdens of lack—of literacy, language, entitlement, financial resources, adequate healthcare, and basic social support—and the costs of middle-class privilege, with all

of its overvaluation of control, rationality, and medical technology, are exhaustively chronicled in Rapp's nuanced and compassionate study of what has come to be called the geneticization of reproductive choice.

The concept "inadvertent imbrications" is thus another way to describe the complex linking up of the ordinary and the quotidian into odd, sometimes bizarre, combinations in the context of the new genetics.⁵³ This phrase could describe the circumstances of the well-educated woman who changed her mind about having an amniocentesis because, by coincidence, she met three women who had lost pregnancies after the test shortly before she was scheduled to have it herself—a situation Rapp attributes to "the gap between statistical risk figures and phenomenological experience."⁵⁴ It could also describe the "ordinary laboratory occurrence" of reading a cell with a chromosome count of 47, identifying the extra chromosome as number 21, counting thirty more cells to be sure, and logging a diagnosis of Down's syndrome, destined "to set off an extraordinary reaction in the hearts and minds of pregnant women and their supporters to whom it is shortly reported."⁵⁵ The macro-sociological histories of birth control, access to abortion, attitudes toward disability, and the development of DNA amplification technology are also part of the "potent and heterogeneous social mix" Rapp refers to in her linkage analysis of what is "testing" about genetic tests.

The following case from Rapp's account provides what might be described as an ethnographic fragment, of conjoined and simultaneous dialogue, which is tellingly incoherent, and in which two different logics of genetic interpretation are seamlessly interwoven to produce what Rapp describes as a diagnostic "stand-off."⁵⁶ The background to the case is the discovery of "something ambiguous on the #9 chromosome of the sample" and a provisional diagnosis of "#9+." The closest condition to which this could be assimilated is "some clinical reports on trisomy 9," resulting in physical anomalies and mental retardation. After counseling, the mother decides to keep the pregnancy and gives birth in early June. A month later the genetics laboratory requests a consultation via the mother's obstetrician, and she agrees to attend with her baby son.

He was a six-week-old Haitian boy named Etienne St-Croix. His mother, Veronique, spoke reasonably good English and good French. His grandmother, Marie-Lucie, who carried the child, spoke Creole and some French. The two geneticists spoke English, Polish, Hebrew, and Chinese between them. I translated into French, ostensibly for the grandmother and mother. ... The geneticist was gracious with Veronique but after a moment's chit-chat asked to examine the baby. She never spoke again to the mother during the examination. Instead, she and a second geneticist, both trained in pediatrics, handled the newborn with confidence and interest. The counselor took notes

as the geneticists measured and discussed the baby. "Note the oblique palpebral fissure and micrognathia," one called out. "Yes," answered Veronique in perfect time to the conversation, "he has the nose of my uncle Herve and the ears of Aunt Mathilde." As the geneticists pathologized, the mother genealogized, the genetic counselor remained silent, furiously taking notes, and the anthropologist tried to keep score.⁵⁷

This episode, from Rapp's chapter "Refusing," is presented as an example of the problem of diagnostic ambiguity, and also as "a dramatic instance of interpretive standoff between biomedical discourse and family life."⁵⁸ The geneticists are working from known precedents to increase their scientific understanding by comparing a new case with previous cases through physical examination of the newborn "trisomy 9." Rapp observes that

while the geneticists are confident that this child will share the developmental pattern reported in the literature for other children with very similar chromosomal patterns, the mother was quite aware of the idiosyncratic nature of the case, its lack of a clear-cut label and known syndrome. She therefore decided that the contest for interpretation was still an open one.⁵⁹

Here, then, is the opposite finding from Finkler, in which a medicalized version of a genetic tie is resisted in favor of a more colloquial and adamantly familial one. The rejection of the medicalized version of genealogical connection is, furthermore, underscored by the decision to have the child—more or less against the medical advice. Asked about her decision after the examination is over, on the way to the subway, Veronique explains,

If it had been Down's, maybe, just maybe I would have had an abortion. Once I had an abortion, but now I am a Seventh Day Adventist, and I don't believe in abortion anymore. Maybe for Down's, just maybe. But when they told me this, who knows? I was so scared, but the more they talked, the less they said. They do not know what this is. And I do not know either. So now, it's my baby. We'll just have to wait and see what happens. And so will they.⁶⁰

In one sense, a perfectly comprehensible exchange has taken place between two sets of interested parties who have both different relationships to Etienne's birth and different knowledge priorities about the future. The shared context of diagnostic ambiguity is not a source of conflict: all of the parties involved, including the genetic counselor and the anthropologist, leave the conversation with their pre-existing assumptions unaffected, despite their lack of a shared interpretation or

standpoint having been reinforced and the seriousness of the occasion in terms of what is at stake in the form of suspected genetic impairment.

For Rapp, what is important about this scene is not only that it is paradoxical, contradictory, and made up of “alternative and competing rationales,” but also that it involves a direct rejection of biomedical expertise.⁶¹ Using Rabinow’s concept of biosociality discussed above, Rapp argues that “biomedicine provides discourses with hegemonic claims ... encouraging enrolment in the categories of biosociality. Yet these claims do not go uncontested, nor are these new categories of identity used untransformed. Religious orientations and practices, informal folk beliefs, class-based and ethnic traditions as well as scientifically-inflected counter discourses also lay claim to the interpretation of extra chromosom[al material].”⁶²

What is clear from both Finkler’s and Rapp’s ethnographic accounts of the new genetics is the resilience of strategic agency in the face of conflicting versions of normality and abnormality. There is a lot of picking and choosing at the level of determining which information is accepted as useful knowledge, what kinds of authority are relied upon, and how individual decisions are reached amidst often conflicting individual, marital, and familial priorities. The central paradox of prenatal testing is that it is primarily sought as a form of reassurance that everything is “normal,” when it is designed to detect exactly the reverse. Moreover, it is only in the event a test returns a “positive” finding that there are difficult decisions to be made. The most difficult decisions of all occur when normality is no longer a predicted outcome, which is, ironically, after the test has been “successful” in detecting genetic disease.

However, two different models of geneticization also emerge from these ethnographies. In Finkler’s terms, geneticization is the cause of genealogical reconnection—it re-establishes kinship. For Rapp, existing social definitions of kinship can supersede geneticization, displacing it in favor of stronger, pre-existing kinship ties.

As Rapp notes, “in some sense, all positive diagnoses appear ambiguous to pregnant women” because genetic information is always partial.⁶³ Even when a chromosomal analysis is known with all possible certainty, it will not reveal how serious the disease will be, when its onset will occur, or how it may affect a child’s lifespan. Even in the very rare cases of single gene disorders such as Tay-Sachs disease, spinal muscular atrophy, or Duchenne’s muscular dystrophy, where the outcome can be predicted with tragically accurate clinical precision, the potential offspring is never fully reducible to a potential syndrome, even if the condition is terminal. Hence, the assumption that genes make us who we are is both too true to ignore and too partial to be enough truth by itself.

Conclusion

Jeanette Edwards and Marilyn Strathern describe the “recombinant” quality of European kinship as one of its defining features: “at the core of English kinship thinking for much of the twentieth century has been the combination and division of phenomena for which at the end of the century we are just beginning to find metaphors.”⁶⁴ While it would not be appropriate to generalize from this English example to the rest of Europe—where Anglophone accounts of kinship have already held too much sway—the framing of the question in this way is suggestive. What is noticeable is that this “recombinant” quality, the ability to shift explanatory registers and thus to “negotiate” the genetic “gap” that often arrives in lieu of genetic knowledge or understanding appears all the more prevalent in the context of the new genetics. While increasingly more precise authoritative scientific information about genes might be imagined to confirm beyond any doubt that kinship is indeed a social system “based on” the biological facts of genetic connection, the question of what this information means to people and the overwhelming ethnographic evidence that it is far from straightforward—no matter how “scientifically literate,” well-educated, middle-class, or even medically trained its interpreters are—suggests a new paradox to kinship thinking: that greater scientific precision about shared genetic substance exists in inverse relation to the plasticity of kinship thinking. In other words, far from the impartiality of scientific discourse narrowing the meanings of genes, their revealed partiality actually increases their plasticity in social contexts.

In the context of this volume, we might ask further if this paradox presents another occasion to examine “what the blood is all about” as well. Certainly one of the most predominant findings in recent studies of the new genetics—so much so that it is increasingly hard to find any exceptions—is that the somewhat worrying, and flattening, effect of a geneticization of consanguinity, which it was imagined might possibly confirm the colonizing power of expert scientific discourse on DNA, is less in evidence than something that looks like the reverse. We would better describe the empirical findings from at least a dozen major studies were we to claim that expert discourse on DNA has in fact been “blooded” by being remodeled on the template of the traditional plasticity of the blood idiom. This suggests the “traffic in analogies” between blood and genes may be more defined by the lengthy history of the blood idiom than it is by the much shorter history of DNA. This ambiguity of genes is confirmed by the fact that the imagined causal power of the gene is in some disarray scientifically at present.⁶⁵ We can safely

conclude that we may be just beginning to appreciate how much more the kinship significance of blood has to teach us about understandings of genetic relations, rather than the other way around.

Notes

1. Several recent monographs and anthologies address the “new kinship studies,” including Sarah Franklin and Susan McKinnon, eds., *Relative Values: Reconfiguring Kinship Study* (Durham, NC, 2001); Janet Carsten, ed., *Cultures of Relatedness: New Approaches to the Study of Kinship* (Cambridge, 2002); Janet Carsten, *After Kinship* (Cambridge, 2004); Marilyn Strathern, *Kinship, Law and the Unexpected: Relatives are Always a Surprise* (Cambridge, 2005); Ladislav Holy, *Anthropological Perspectives on Kinship* (London, 1996); Linda Stone, ed., *New Directions in Anthropological Kinship* (Lanham, MD, 2000).
2. This chapter draws on two previous publications. I am grateful to Marilyn Strathern for permission to reproduce sections of a co-authored 1991 Report for the European Commission Human Genome Division, Ethical, Legal and Social Implications Programme; Sarah Franklin and Marilyn Strathern, *Kinship and the New Genetic Technologies: An Assessment of Existing Anthropological Research* (Department of Social Anthropology, University of Manchester and EC, Brussels, DG VII). I am also grateful to the editors of *Anthropological Theory* for permission to reprint sections from “Re-thinking Nature-Culture: Anthropology and the New Genetics,” *Anthropological Theory* 3, no. 1 (2003).
3. Charles Darwin *On the Origin of Species by Means of Natural Selection* (New York, 1864); Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York, 1970).
4. Marilyn Strathern, *Reproducing the Future: Anthropology, Kinship and the New Reproductive Technologies* (Manchester, 1992); Marilyn Strathern, *After Nature: English Kinship in the Late Twentieth Century* (Cambridge, 1992).
5. J. A. Barnes, “Physical and Social Kinship,” *Philosophy of Science* 28 (1961): 296–99; J. A. Barnes “Physical and Social Facts in Anthropology,” *Philosophy of Science* 1 (1964): 294–97.
6. See in particular Carol MacCormack and Marilyn Strathern, eds., *Nature, Culture and Gender* (Cambridge, 1980); and Jane Collier and Sylvia Yanagisako, eds., *Gender and Kinship: Essays Toward a Unified Analysis* (Palo Alto, CA, 1987).
7. See Claude Lévi-Strauss, *Structural Anthropology* (London, 1963); and Claude Lévi-Strauss, *The Elementary Structures of Kinship* (London, 1969). For the expansion of these themes in contemporary French anthropology, see Françoise Héritier, *L'exercice de parenté* (Paris, 1981); and Marc Augé, ed., *Les domaines de la parenté* (Paris, 1975). For a review of the history of French kinship theory, see Martine Segalen, “The Shift in Kinship Studies in France: The Case of Grandparenting,” in *Relative Values*, ed. Franklin and McKinnon, 246–73.
8. See Segalen, “The Shift in Kinship Studies in France.”
9. Meyer Fortes, *Kinship and the Social Order* (Chicago, IL, 1969); E. E. Evans-Pritchard, *The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotic People* (Oxford, 1940); A. R. Radcliffe-Brown, *Structure and Function in Primitive Society* (Glenhoe, IL, 1952).

10. Peter Laslett and R. Wall, eds., *Household and Family in Past Time* (Cambridge, 1972); J. L. Flandrin, *Families in Former Times: Kinship, Household and Sexuality* (Cambridge, 1979); Philip Aries, *Centuries of Childhood: A Social History of Family Life* (New York, 1965); Catherine Hall, *Family Fortunes: Men and Women of the English Middle Class, 1780–1950* (London, 1987); Elizabeth Bott, *Family and Social Networks*, 2nd ed. (London, 1971).
11. See in particular Martine Segalen, *Historical Anthropology of the Family* (Cambridge, 1986); Jack Goody, Joan Thirsk and E. P. Thompson, eds., *Family and Inheritance* (Cambridge, 1976); Jack Goody, *The Development of the Family and Marriage in Europe* (Cambridge, 1983).
12. Maurice Bloch and Stephen Guggenheim, "Compadrazgo, Baptism and the Symbolism of a Second Birth," *Man* 16, no. 3 (1981): 376–86.
13. Peter Parkes, "Milk Kinship in Southeast Europe: Alternative Social Structures and Foster Relations in the Caucasus and the Balkans," *Social Anthropology* 12, no. 3 (2004): 341–58; Morgan Clarke, "The Modernity of Milk Kinship," *Social Anthropology* 15, no. 3 (2007): 287–304; Peter Parkes, "Milk Kinship in Islam: Substance, Structure, History," *Social Anthropology* 13, no. 3 (2005): 307–29; Corinne Fortier, "Blood, Sperm and the Embryo in Sunni Islam and in Mauritania: Milk Kinship, Descent and Medically Assisted Procreation," *Body Society* 13 (2007): 15–36.
14. Sandra Bell and Simon Coleman, eds., *The Anthropology of Friendship* (Oxford, 1999).
15. See Janet Carsten, *The Heat of the Hearth: The Process of Kinship in a Malay Fishing Community* (Oxford, 1997), for a useful discussion of kinship systems based on feeding and dwelling rather than descent or filiation—an approach that has come to be associated with kinship as a precessual, cumulative activity (an approach I refer to as the feeding rather than seeding approach).
16. For example, see Jack Goody, ed., *The Character of Kinship* (Cambridge, 1975).
17. This interest lay less in the power of kinship as a form of social organization than as a mode of perception, or cultural knowledge. See, for example, Mary Bouquet, *Reclaiming English Kinship: Portuguese Refractions of British Kinship Theory* (Manchester, 1993); Joan Bestard-Camps, *What's In a Relative: Household and Family in Formentara* (London, 1991); Strathern, *After Nature*; and Strathern, *Reproducing the Future*.
18. Anthony Cohen's anthology *Belonging: Identity and Social Organisation in British Rural Cultures* (Manchester, 1982) offers an excellent example of the strong tradition of kinship studies that continued in the context of the study of regional and rural identities. Urban identities were also linked to kinship, as in Raymond Firth, Jane Hupert, and Anthony Forge's famous 1969 publication, *Families and Their Relatives: Kinship in a Middle-Class Sector of London* (London, 1969); see also C. C. Harris, ed., *Readings in Kinship in Urban Society* (Oxford, 1970).
19. David Schneider *American Kinship: A Cultural Analysis* (Englewood Cliffs, NJ, 1968).
20. Sylvia Yanagisako, "The Elementary Structure of Reproduction in Kinship and Gender Studies," paper presented to the American Anthropological Association, Washington, DC (1985); and see Sylvia Yanagisako and Jane Collier, eds., *Gender and Kinship*.
21. David Schneider, *A Critique of the Study of Kinship* (Ann Arbor, MI, 1984).
22. For a fuller discussion of Schneider's work and Yanagisako's critique, see Sarah Franklin, *Embodied Progress: A Cultural Account of Assisted Conception* (London, 1997), esp. 17–72; Carsten, *After Kinship*; and Strathern, *After Nature*. In the same

- way Yanagisako re-read Schneider as identifying a problem he did not fully diagnose, Butler reads De Beauvoir, but more radically: one does indeed become a woman—but through the repetitive, “styling” effects of gender, rather than by the pre-given biological fact of sex; see Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity* (New York, 1990).
23. Donna Haraway, *Simians, Cyborgs and Women: The Reinvention of Nature* (London, 1991); Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Cambridge, MA, 1987); Bruno Latour and Steve Woolgar, *Laboratory Life: the Social Construction of Scientific Facts* (Beverly Hills, CA, 1979).
 24. Sarah Franklin, “Science as Culture, Cultures of Science,” *Annual Review of Anthropology* 24 (1995): 163–84.
 25. See, for example, Paul Rabinow, *Making PCR: The Story of a Biotechnology* (Chicago, IL, 1996); Paul Rabinow, *Essays on the Anthropology of Reason* (Princeton, NJ, 1996); Paul Rabinow, *French DNA: Trouble in Purgatory* (Princeton, NJ, 2002); Sarah Franklin and Margaret Lock, eds., *Remaking Life and Death: Towards an Anthropology of the Biosciences* (Santa Fe, NM, 2003).
 26. Ian Wilmut, Keith Campbell, and Colin Tudge, *The Second Creation: The Age of Biological Control by the Scientists Who Cloned Dolly* (London, 2000).
 27. Elliot Leyton, “The One Blood: Kinship and Class in an Irish Village,” *Newfoundland Social and Economic Studies* No. 15, Institute of Social and Economic Research (Saint Johns, 1975), 20.
 28. See for example Carina Dennis, Richard Gallagher, and Philip Campbell, “Everyone’s Genome,” *Nature* 409 (2001): 815.
 29. For a comprehensive account of this plasticity, see Jeanette Edwards and Carles Salazar, eds., *European Kinship in the Age of Biotechnology* (Oxford, 2009).
 30. Charis Thompson devised the phrase “strategic naturalisation” to refer to the dis-embedding, re-embedding, and selective emphasis that enables couples using non-standard means of conception, involving genetic contributions from third parties, to re-normalize their family structures through a highly intentional and selective use of some biological facts to the exclusion of others. See Charis Thompson, *Making Parents: the Ontological Choreography of New Reproductive Technology* (Cambridge, MA, 2005).
 31. See, for example, Marilyn Strathern, *Kinship at the Core: An Anthropology of Elmdon, a Village in North-West Essex, in the 1960s*, foreword by Audrey Richards (Oxford, 1981).
 32. See Strathern, *After Nature*; and also Jeanette Edwards, *Born and Bred: Idioms of Kinship and New Reproductive Technologies* (Oxford, 2000).
 33. The expression “diffuse, enduring solidarity” comes from David Schneider, who used it to describe the character of the “American” kinship tie; see Schneider, *American Kinship*, 65.
 34. *Report of the Committee on the Ethics of Gene Therapy*, col. 1788 (London: Her Majesty’s Stationery Office, 1992), 16.
 35. Kaja Finkler, *Experiencing the New Genetics: Family and Kinship on the Medical Frontier* (Philadelphia, PA, 2000); Rayna Rapp, *Testing Women, Testing the Fetus: the Social Impact of Amniocentesis in America* (New York, 1999).
 36. For one example of this position, see Paul Rabinow, *Essays on the Anthropology of Reason* (Princeton, NJ, 1996).
 37. Finkler, *Experiencing the New Genetics*, 43.
 38. Finkler, *Experiencing the New Genetics*, 181.
 39. Finkler, *Experiencing the New Genetics*, 185.

40. Finkler, *Experiencing the New Genetics*, 187.
41. Finkler, *Experiencing the New Genetics*, 186.
42. Finkler, *Experiencing the New Genetics*, 69.
43. Finkler, *Experiencing the New Genetics*, 73.
44. Finkler, *Experiencing the New Genetics*, 74.
45. Finkler, *Experiencing the New Genetics*, 74.
46. Finkler, *Experiencing the New Genetics*, 208.
47. Finkler, *Experiencing the New Genetics*, 209.
48. Finkler, *Experiencing the New Genetics*, 209.
49. Rapp, *Testing Women*, 306.
50. Rapp, *Testing Women*, 34.
51. Rapp, *Testing Women*, 24, 100.
52. Rapp, *Testing Women*, 10, 153.
53. Rapp, *Testing Women*, 34.
54. Rapp, *Testing Women*, 175.
55. Rapp, *Testing Women*, 219.
56. Rapp, *Testing Women*, 188.
57. Rapp, *Testing Women*, 187.
58. Rapp, *Testing Women*, 188.
59. Rapp, *Testing Women*, 188.
60. Rapp, *Testing Women*, 188.
61. Rapp, *Testing Women*, 10.
62. Rapp, *Testing Women*, 302, emphasis added.
63. Rapp, *Testing Women*, 188.
64. Jeanette Edwards and Marilyn Strathern, "Including Our Own," in *Cultures of Relatedness*, ed. Carsten, 163.
65. See Wilmut, Campbell, and Tudge, *Second Creation*; and Evelyn Fox Keller, *The Mirage of a Space Between Nature and Nurture* (Durham, NC, 2010).