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BOOK REVIEW

# The primal path to kinship: a critical review of Bernard Chapais, *Primeval Kinship: How Pair-Bonding Gave Birth to Human Society*

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Like other major aspects of sociality, kinship receives distinctive treatments from biologists and anthropologists. For anthropologists, the study of kinship has traditionally been an arena for documenting cultural diversity, and about finding patterns in the midst of, and trajectories through, that diversity. Throughout most of anthropology's disciplinary history, kinship was thought to hold at least one key to understanding human cultures, both to how those cultures are related to one another and to understanding the structure and function of other large-scale cultural institutions, such as those associated with religion or economic exchange. By contrast, mention kinship to your average biologist and you'll likely be directed to research focused on *Hymnoptera* and *Termita*, and models addressing general evolutionary puzzles—for example, the problem of evolutionary altruism and the phenomenon of reproductive specialization—that have been applied paradigmatically to the social insects, with secondary applications to creatures more obviously like us, such as mammals in general and nonhuman primates in particular.

The trans-disciplinary contrast here has been exacerbated by a recent, decidedly anti-biological turn in the study of kinship in anthropology. Influential internal critiques of the study of kinship as involving little more than the ethnocentric projection of cultural forms from the West to the Rest, such as those of David Schneider 1972; Schneider 1984, identified *biological* conceptions of kinship as lying at the core of such a projection: while we conceptualize our kinship structures in terms of notions of reproduction, shared biological substances, and genetic codes, this is not what one finds in other societies. On this view, the traditional claim that kinship was a universal feature of human societies that had developed over time from more primitive to contemporary forms turns out to be little more than a projective fantasy in the minds of anthropologists. This critique led to a decided lull in kinship studies that displaced the study of kinship from the centre of the

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discipline to a meandering alleyway for nostalgic lost souls. Moreover, the revival of interest in kinship sometimes referred to as the "new kinship studies" (Carsten 2004; Franklin and McKinnon 2001; Strathern 1992) explores forms of kinship in Western societies, such as gay kinship and parenting via reproductive technologies (Levine 2008; Weston 1997 [1991]), that are thought to take up a post-biological notion of kinship, thus underscoring the emphasis on kinship as a distinctively *cultural* institution (Franklin 2007; Strathern 2005).

Almost as striking as the differences between "biological" and "anthropological" clusters of approaches to kinship is the relative paucity of recent constructive work that bridges between the two. Biologists entering the world of human kinship do so under suspicion of reductionism, biocentrism, and worse from cultural anthropologists, while recent anthropologists attending to the biology of kinship are more likely to do so as ethnographers or as critics of the study of kinship than as kinship theorists looking to adapt biological models and theories to the domain of human kinship.

Bernard Chapais's stimulating *Primeval Kinship* aims to change that by integrating evolutionary and cultural perspectives on kinship, with a focus on primatology and traditional anthropological work on kinship. Chapais is inspired by early evolutionists focused on the development of "primitive society", such as Henry Maine, John McLennan, and Lewis Henry Morgan, as well as by the brief resurgence of evolutionism almost 100 years later in the mid-twentieth-century work of Elman Service, Julian Steward, and Leslie White. Unlike the former, Chapais is not concerned with the examination and ranking of contemporary societies or the forms that human kinship takes now; and unlike the latter, Chapais's views of early hominid kinship structures are informed by detailed work on nonhuman primates undertaken since this second burst of evolutionism, with especially significant findings coming in just the past 20 years.

If these two waves of cultural evolutionism inspire Chapais, the real heroes in his narrative are Claude Levi-Strauss and Robin Fox. From Levi-Strauss, Chapais takes reciprocal exchange of females as the key to understanding the deep structure of human society; from Fox, he adapts the comparative treatment of kinship as a biologically-based structure, updated and adjusted to take account of recent primatological data. Given the wide-ranging critiques of Levi-Strauss's views on kinship within cultural anthropology (which are largely ignored by Chapais), and the relative neglect of the views of Fox by kinship theorists, Chapais takes what we might think of as the high-road in developing and presenting his views, one that extracts valuable ideas from sources that may lack credibility with a core part of his audience as the latest (or most insightful) word on kinship.

Chapais's primary conclusion is that there is a 12-component *exogamy complex* that is the distinctive mark of human kinship, and he attempts to show how this complex was derived, in three phases, from a base in primate sociality. Chapais is not concerned to try to put dates on each of these phases in hominid evolution, though the first phase begins with the last common ancestor to *Pan-Homo* 5–7 million years ago and the third phase may not have transpired until *Homo erectus*, 3–5 million years later (cf. p. 178). During this time, new components are being added to the primeval exogamy complex, and old components modified, to align

mating and reproduction, parental care, and broader social features, such as cooperation and conflict.

*Primeval Kinship* is composed of 18 chapters organized into four parts, plus an introductory and a concluding chapter. The four parts are on primatologists as evolutionary historians, on the decomposition of exogamy, on the evolutionary reconstruction of exogamy, and on unilineal descent. Roughly speaking, the chapters in the first two parts are preparatory work, clearing the way of objections to the very enterprise and illustrating how key components to his model, such as the account of incest avoidance, manifest themselves in a precursory form in nonhuman primate societies and take shape as part of a distinctively human configuration, the exogamy complex. The chapters in the final two parts discuss each of the twelve components of the exogamy complex in detail, with the single feature of unilineal descent receiving three chapters of its own. Although I shall discuss the exogamy complex in more detail below, we can begin with a general summary of what it is comprised of and how Chapais sees it as having evolved from nonhuman primate social structures.

In the first phase of hominid kinship, human societies have a multi-male and multi-female composition with male residence and female dispersal giving rise to a basic form of outbreeding. A form of uterine kinship exists, stemming from the basic facts governing parturition and infant care amongst primates. Incest avoidance among primary uterine kin exists, but mating is otherwise sexually promiscuous in the group. Parenting is monoparental, paternity is either not recognized or inconsistently recognized, and siblinghood is weak. Chapais bases this characterization largely on evidence from contemporary chimpanzee group living (since corresponding bonobo evidence is more scant) and generic features of nonhuman primate social organization, using a parsimonious, cladistic model of the last common ancestor between the two *Pan* species and *Homo sapiens*.

During the next phase, the key changes are the evolution of both monogamous and polygynous forms of pair-bonding as a mating system, and the consistent recognition of paternity, with four major effects: incest avoidance is extended to father-daughter dyads, parenting becomes biparental (though not immediately so), sibling bonds are strengthened, and kin recognition is extended to patrilateral kin. Here we have the beginnings of multifamily groups, with biparental care a later consequence of the mating system shift from sexual promiscuity to pair-bonding.

In the third phase, resulting in the full-blown exogamy complex, matrilateral kin come to be recognized, sibling bonds become lifelong or at least extended over time and space, and there is a diversification from previous patrilocal residence patterns. This generates fully bilateral descent and the possibility of a supragroup kinship structure, what Chapais calls "the tribe", that creates the opportunity for non-hostile, pacifying relationships between local groups. Chapais places special importance on the evolution of siblinghood, viewing the brother-sister complex in particular as "perhaps the single most original trait of human kinship from an evolutionary outlook" (p. 129); as already noted, he follows Levi-Strauss in taking female exchange between groups to mark off distinctively human kinship. Unlike Levi-Strauss, however, for Chapais female exchange is just one of twelve features of early human kinship, there are nonhuman primate precursors to all twelve

components, and language plays no role in the establishment of distinctively human kinship.

As the preceding description might suggest, the aims of *Primeval Kinship* can be cast in both modest and ambitious terms. On the modesty side, it aims to perform some much-needed bridgework between research on the structure of primate social life and ongoing work on human kinship. On the side of ambition, it proposes a specific account of nothing less than the origins of human society, harking back to visions guiding anthropology's origins as a discipline in the work of Edward Tylor and Lewis Henry Morgan. But even much of Chapais's bridgework has an ambitious edge to it, fired as it is by the relative neglect of evolutionary considerations in anthropological work on kinship. This neglect leads Chapais to observe that to

> all intents and purposes, then, the evolutionary history of human society is an orphan research topic. The upshot is that sociocultural anthropology is a science whose study objects (societies) are evolved entities—that is, whose unitary core structure has a phylogenetic history—but whose research program largely neglects this basic fact. It is in the position of a planetary science that would concentrate on planets and their interrelations and overlook the question of the origin and evolution of the solar system. Yet the origin of human society is no less sound a research theme than the origins of language or bipedal locomotion, for example. It is a subject for which methods, hard data, concepts, hypotheses, and partial answers do exist. It is also a fundamental question in the true sense of the word; it is foundational. (pp. 5–6)

Although Chapais proclaims sociocultural anthropologists as a part of the core intended audience for his book, I suspect that this kind of indictment of the field, together with Chapais's explicit appeals to Levi-Strauss and Fox, will predispose many members of that audience to dismiss his approach as naïvely reductionist in nature and as unduly insensitive to core anthropological data concerning not only the diversity of kinship systems but also kinship in a post-biological world. That said, the perspective that Chapais brings to bear on human kinship is one that will find sympathy amongst those expressing recent sentiments that kinship is overdue for "re-biologizing", recovering, at last, from the post-Schneiderian chill (see, e.g., Allen et al. 2008; McConvell 2009 unpublished; Stone 2008).

Even those coming in from the cold, however, might think that the distance between human, especially contemporary human, kinship structures and those that Chapais identifies, limits the value of Chapais's primatologically-focused approach. It is interesting that Chapais mentions the study of both the origins of language and bipedalism in the preceding passage, for one might consider what a parallel project to his on either of these would look like. Such a project on language would recognize language as uniquely human (as is full-blown, early kinship for Chapais), but then look to phylogenetic, socio–ecological, and other information in our nearest living ancestors to formulate hypotheses about the nonhuman primate precursors to language that share components with language. Historical linguists, Indo–Europeanists, and others dedicated to the project of meaningful language family

reconstruction, let alone other linguists, might be less than fully impressed by such a study, insofar as they find that the gap between such precursors and distinctly human languages is so great as to render whatever interesting findings emerge about "proto-linguistic structure" non-revelatory about the phenomenon of language per se.

One wonders whether Chapais would share such a view of language—and so argue that there are relevant differences with kinship here—or argue that the two cases really are parallel, and so linguists who would neglect this (imagined) parallel work in "comparative sociology [linguistics], but one carried out at the interspecific level" (p. 17), perhaps in a book called *Primeval Language* and focused on nonhuman primates, were guilty of disciplinary bad faith. The same question could be asked of human movement studies and *Primeval Bipedalism*. Even if nonhuman primates provide the chief phylogenetic evidential base for inferences about such origins, as surely they do, one might hold that all of the most significant additions that make for distinctly human kinship, language, or movement are sufficiently distant in time from the last common *Pan-Homo* ancestor 5–7 million years ago, and the explosion in the complexity of each of these phenotypes so massive since that time, that primeval forms are of limited significance for an understanding of contemporary forms of each. (Kinship and language, being more intimately related to various cognitive capacities, might also be distinguished from bipedalism with respect to the question at issue here.)

So Chapais faces at least two *prima facie* challenges in convincing those who have had the greatest disciplinary investment in the study of kinship, cultural anthropologists, to view his work as contributing to that study: he will be taken to operate with a naively biological notion of kinship, and he will be seen as offering at most a pre-history of kinship, perhaps interesting in its own right, but one too far removed temporally to shed more than a few photons of light on the forms that human kinship takes now. My own hope is that these will be merely *prima facie* challenges, and that cultural anthropologists interested in kinship will grapple with Chapais's ideas, as should anyone working on kinship.

As we have seen, a key idea for Chapais is that there are meaningful precursors to each of the components to the exogamy complex that marks human kinship, knowledge of which can be gleaned from knowledge of the social structure of contemporary primate societies. Those precursors do not amount to, and are not themselves sufficient for, the forms that human kinship takes. What does and doesn't this key idea presuppose about such precursors?

First, on the "doesn't" side of the equation, it doesn't presuppose that such precursors are *homologous* to features of human kinship systems, since, as Chapais points out (pp. 23–24; cf. 150–151), they could well be homoplasies that had evolved through convergent selection pressures, rather than derive from a shared common ancestor. This is not to say that they are *mere* homoplasies, as wings in bats and wings in insects are. If a trait in lineage A is a *precursor* of some kind to a trait in lineage B and is not a homology, then it can't be a mere homoplasy, since, to draw on a helpful, simplifying notation that Chapais uses in several places, homoplasy + shared ancestors somewhere or other $\neq$ precursor trait. (Example: wings in bats and wings in insects + very distant shared ancestor $\neq$ precursor trait.

Example closer to home: grooming in chimps and hair brushing in humans + recent common ancestor ≠ grooming as a precursor to hair brushing.) So the traits that Chapais identifies as precursors to components of human kinship either are homologous to those components, or are special kinds of homoplasies (e.g., those evolving through convergent pressures), ones that license an inference that is not valid, in general, for mere homoplasies.

Second, this entails that institutional, symbol-laden traits in hominids, such as marriage, can have precursors in nonhuman primates, such as simple pair-bonding, where such precursors are neither institutional nor symbol-laden. Since homologies are often glossed as *the same trait* occurring in distinct species or lineages, for at least homologous precursors this means that neither the institutional nor the symbolic aspect to these features are essential to them (if they were, we would not have the same trait in both instances). Some cultural anthropologists may want to dig their heels in about how either or both of these aspects of human kinship structures *are* essential to them, in which case the very project that Chapais is undertaking could be seen as question-begging against views they think they have good reasons to accept, at least when it comes to homologous traits. But, of course, Chapais could raise just the flip charge against them, unless they are able to provide an independent, non-question-begging ground for thinking that institutional and symbolic features of kinship structures are essential to those structures. I am skeptical of the value of playing the "symbols/institutions as the essence of kinship" card in this context. Moreover, Chapais has a persuasive (if brief) discussion of how merely behavioral regularities could serve as precursors to rule-governed, normative practices (chapter 6, pp. 71–89) that advances discussion here. Chapter 5, on primate precursors to *incest avoidance* provides relevant background to this discussion.

Chapais (pp. 62–68) identifies nine principles that constitute a theory of this phenomenon in nonhuman primates, principles that govern behavioral regularities in those primates closest to us. They are: (1) Inbreeding avoidance is adaptive; (2) Dispersal limits inbreeding substantially; (3) Incest is avoided systematically only between relatives who may recognize each other through association; (4) Incest avoidance decreases steeply with decreasing degree of genetic relatedness; (5) The Westermarck Effect is at work in primate societies; (6) Dispersal patterns and the Westermarck Effect may be two aspects of the same process; (7) Females seem to have a higher motivation than males to avoid incest; (8) Both heterosexual and homosexual activities are avoided between close kin; (9) Sexual activity between kin, when it occurs, is unlikely to have reproductive consequences. A key part of Chapais's theory is that incest avoidance predates pair bonding, and that it has a primate precursor, both views that contradict what has passed as anthropological knowledge on the topic, stemming in part from Levi-Strauss's views in *Elementary Structures*.

Included in Chapter 6 is a deft reply to those who have argued that behavioral regularities and norm-governed behaviors represent exclusive alternatives, such that the existence of one (say, behavioral regularities concerning incest avoidance in nonhuman primates) would obviate the need for the other (say, social rules making incest a taboo in human primates). Here Chapais focuses on the Westermarck

Effect: those who are raised together have a natural aversion to having sexual relations. An influential line of objection to Westermarck's thesis, originating with Sir James Frazer and echoed more recently by Meyer Fortes 1983 claims that if this effect exists as a behavioral regularity in nonhuman primates (and so in early hominids), social rules prohibiting incest would not be necessary in human primates. Given that we do have such rules in our societies, how can there be such a natural aversion at all, let alone one that has a deep seat in our primate heritage?

Chapais shows that not only these kinds of objection to the Westermarck Effect, but also the contrast between pre-cultural regularities and cultural rules on which those objections rest, constitute mistakes in reasoning. Rejecting the idea that there is some kind of natural opposition between natural behaviors and socially-imposed rules—as one finds in Freud's view of incest as naturally manifested as the Oedipal complex thwarted by social rules prescribing incest avoidance, a view puzzlingly influential in cultural anthropology (see Gates 2004)—Chapais takes up Westermarck's own claim that there are reasons to expect social rules to *reinforce* natural dispositions. Those dispositions might be aversive, as in the case of incest, or they could produce "positively felt" social behaviors, as in the case of maternal attachment; in the former case, the corresponding social rules are proscriptive, in the latter, they are prescriptive. Here social rules build on our natural sentiments; what those natural sentiments are is informed by the kind of careful review of our primate heritage that Chapais provides.

Chapais is sketchy on just how empathy, emotional responses, conceptualization, and self-consciousness make for the transition from mere behavioral regularities to socially-sanctioned rules, resting content here with a modest extension of some ideas on this from Westermarck, which were focused on the feeling of aversion. To this, Chapais adds possession of the *concept* of siblingship and an ability to apply it in the first-person case (pp. 84–86) as additional psychological capacities. I predict that central to further accounts here will be feedback loops between existing behavioural regularities, emerging cognitive and emotional capacities, and nascent social rules that gradually build relevant, full-blown psychological capacities and social rules. Just as recognitional capacities that are psychological in nature play a role in the phasal evolution of the exogamy complex only in conjunction with shifting patterns of residence, dispersal, and sibling bonding, so too should the role for psychology here be decidedly non-reductive in nature. I suspect that the most promising accounts here will draw on attachment theory (see Erickson 2004 and other essays in Wolf and Durham 2004).

Back to the more general issue, one that has little to do with primate kinship *per se*, of how adequately Chapais engages with recent work on kinship that questions whether kinship is or can be most profitably be treated as a *biological* notion. Chapais does devote a short chapter (just 12 pages, pp. 48–59), Chapter 4, to the shift from traditional genealogical to more recent "social constructivist" views of kinship, the latter of which he associates with David Schneider. He sees the main challenge to his perspective to arise from work preceding Schneider that documents much of the cultural variation to kinship, including classificatory kinship systems that categorize across traditional genealogical boundaries and so suggest that genealogy is neither necessary nor sufficient for kinship categories. Chapais treats

the challenge posed here together with one posed by sociobiological approaches, which accord genetic relatedness a privileged role in explaining prosocial behavior, especially toward kin. Chapais says that both are "basically irrelevant" (p. 54) to his enterprise. Taking up the claim, initially made by Schneider, repeated by Fox, and commonplace in kinship studies, that there are societies in which biological motherhood is denied, Chapais says

> whether the mother's role in procreation is recognized or negated—whether in any particular society the 'genealogical grid' applies to motherhood or does not—the fact remains that motherhood creates genealogical kinship. Whatever the ideology of procreation, the biological facts of pregnancy, parturition, lactation, and maternal care translate into matrifilial links. And regardless of cultural beliefs in the procreative role of mothers, matrifiliation generates preferential bonds between maternally related kin. Offspring recognize their mother, siblings recognize their common mother, and individuals recognize their matrilateral kin: their mother's parents, sisters, nieces, and so on. Motherhood cannot be removed from the genealogical grid. Motherhood creates kinship whether or not mothers are believed to be involved in procreation. (p. 55)

There are at least three ways to understand the central claim here, none of which is likely both to satisfy social constructivists about kinship *and* allow one to arrive at the position that Chapais defends. Each turns on a particular understanding of what Chapais takes mothering and matrifiliation to be.

On the first, Chapais is simply treating "matrifiliation" as referring to a relation that holds between mothers and offspring, potentially in *any species*, one conceptualized basically in terms of parturition. In that sense, "motherhood cannot be removed from the genealogical grid". But then it would be hard to see how it "creates kinship", since kinship, even together with its nonhuman primate precursors, is much more restricted than in the very large number of clades in which there is a biological relation of mothering, so specified.

On the second, matrifiliation *requires* psychological mediation of some kind: it exists wherever there is the relevant recognitional capacity, together with the social circumstances (e.g., matrilocality) that would allow such a capacity to be deployed. If such matrifilial links are between not only a mother and her offspring, but also between other matrilateral kin, then the requisite recognitional capacities must be quite rich, and may not extend throughout the nonhuman primate world, and likely *could* be thwarted by classificatory schemes of kinship. With a richness to recognition capacity comes vulnerability to influence from categorization, and so this conception of matrifilial links seems subject to just the kind of objection posed by the classic literature on the cultural diversity to human kinship systems.

The third interpretation of Chapais's view here, one that fits with his broader views in the book, is one according to which although the "ideology of kinship" can override or distort the operation of basic recognitional capacities for matrilineal kin, it is the presence of those capacities, and not their exercise in any particular cultural context, that suffices for mothering and matrifilial links. On this view, matrifilial links are there, not independently of psychological mechanisms (as in the first

option), nor in as extensive a form as would require rich recognitional capacities (as in the second option), but as an all but inevitable outcome of the basic biological facts mentioned above, together with the patterns of dispersal that trigger the corresponding recognitional capacities. There may be extreme circumstances under which biological motherhood, so conceived, does not exist, but these are likely extremely rare in the history of hominids and even with contemporary technologies they are relatively rare. This is a view that I am sympathetic to, but I suspect that it generates much more restricted matilateral bonds than Chapais ascribes; in particular, I think this will only get us dyadic bonding, not descent-like kinship structure, a point to which I will return.

The way I would prefer to express this point is as follows: even in cases in which some aspects of the biological nexus of kinship are denied, kinship is *redundantly biological* in that there are many other biological aspects to kinship that remain. What kinship concepts can do is deny, or allow for the denial of, some such aspects, whether it be procreation, sustenance, lactation, protection, parturition, etc. But what would be required in a kinship ideology for, say, biological motherhood to be absent would be for *all* or *nearly all* of these dimensions to be denied. There are no known human societies in which this is so. We are also cognitively capable of recognizing all of these dimensions to kinship, even if some are in fact not recognized in particular cultural contexts. Moreover, when these dimensions of motherhood are distributed across different persons, those persons partake in some kind of motherhood, and are recognized as such, as when we distinguish (as we do) between the "donor mother", the "gestational mother", and the "adopted mother" in our own society. Given our cognitive capacities and circumstances of birth and dispersal, such ideological override could happen but it is doubtful that it ever has in a culturally sustained way. Short of that, what we have are cultural elaborations of a biologically-based (at least at the dyadic, filiative level) set of basic kinship terms, terms that refer to *primary* kin.

Chapais provides an explicit statement of his twelve "building blocks of exogamy" at the conclusion of Chapter 9, marking the transition between Parts II and III of the book. Ordered (roughly, he says) from most primitive to most recent, they are: (a) multimale-multifemale group composition; (b) kin-group outbreeding; (c) uterine kinship; (d) incest avoidance; (e) stable breeding bonds; (f) agnatic kinship; (g) bilateral affinity; (h) the tribe; (i) postmarital residence patterns; (j) the brother-sister kinship complex; (k) descent; and (l) matrimonial exchange (pp. 127–130). Chapais's view is that it is only in human kinship systems that we have all twelve features present, but that we find combinations of many of them in nonhuman primates, sometimes in precursor forms, that constrain any plausible account of the origins of human kinship.

The first five of these features can be found in our closest primate relatives, and as such are the most likely to have been shared by our last common ancestor and extended only modestly since then (unless they were shaped in each lineage separately by common selection pressures operating on other traits, and then so extended). Acceptance of these five features, for which there is solid observational evidence from primatology, commits one to the rejection of other speculative accounts of the origins of human kinship, such as those of Freud and Levi-Strauss,

that view incest avoidance as a uniquely human cultural achievement. Despite that, these five features alone do not take us very far down the path to an account of early human kinship, as Chapais himself likely would agree.

The remaining seven of these components are more distinctively human, although for a number of them (e.g., descent, matrimonial exchange), Chapais insists that they have precursor forms in nonhuman primates. Some of the summary titles here require a little unpacking to indicate what Chapais views as unique about human kinship, and how human kinship evolved from nonhuman primate precursors. Component (h) the tribe, refers to the claim that it is only in hominids that we find social structures larger than the local group that overcome the inter-group hostility that characterizes chimpanzee societies (cf. bonobos in Surbeck and Hohmann 2008); the aspect of postmarital residence patterns that Chapais has in mind in component (i) is their flexibility, taking patrilocal, matrilocal, and bilocal forms. Component (k), descent, refers to unilineal descent groups, and as with residence patterns, Chapais is most impressed here with the flexibility that these have in hominid society. Component (l) matrimonial exchange, is Chapais's most explicit debt to Levi-Strauss, and introduces an explicit trading dimension to female exchange that is found only in hominids. In contrast to the first five components of the exogamy complex, each of these remaining seven rests on a more slender evidential basis in that their ascription rests not on observation of traits in existing primate species but on inferences that make phylogenetic or even logical sense, based on other observations. For example, although (f) agnatic or father-related kinship is not observed in nonhuman primates, paternity recognition and more general kin recognitional abilities have been, and together they make plausible an inference that agnatic kinship was added, at some point, to the exogamy complex. In addition to the epistemic worry that lurks here, there are questions about just how developed any of these seven components could be in precursor versions antecedent to both language and institutional normativity, and to the corresponding explosion in brain size that comes only 4 million years into hominid evolution.

Consider (k) descent, taken by many as the true mark of human-like kinship. Descent groups, as opposed to filiative dyads, require institutions, and since nonhuman primates lack institutions, they lack descent groups, as Chapais notes at the outset of Chapter 18 (p. 276). But what of precursor forms of descent? In the meat of that chapter, Chapais turns to female philopatric primates, such as baboons and macaques, in order to illustrate features of descent groups already present in nonhuman primates. Here he lists 6 features found in those species that give an evolutionary prototype of descent groups (pp. 277–287): (1) group membership through birth; (2) kinship-based segmentation; (3) genealogieal boundaries for exogamy; (4) the unisexual transmission of status; (5) a primitive form of corporateness; and (6) a multilevel structure of solidarity. Chapais is clear that although these features parallel those of *human* matrilineal groups, these are not homologous traits (p. 299)—not least of all because the species in *Pan* are male, rather than female, philopatric. So what is their significance in macaques and baboons? Here such traits "are manifest in, and emanate entirely from, recurrences in the social interactions of individuals" (p. 276) and are "not normative or

symbolically transmitted across generations" (*loc.cit.*). Their significance lies in their providing a kind of rich behavioral template for the development of full-blown descent, which does require such transmission modes.

Chapais calls the resulting female kin groups "precultural matriclans" (p. 289), suggesting their precursor status to human descent. Now we have just seen that such matriclans are not homologous to the human matrilineal clans, and so, as precursors, they must be homoplasies of a special kind (e.g., those that evolved through convergent selection pressures). But such precultural matriclans also lack altogether many (if not all) of the features in the exogamy complex beyond the first five components, including agnatic kinship and bilateral affinity. In Chapais's theory, descent is a third-phase addition to the exogamy complex, one added to the complex relatively late, but the form of descent he ascribes to early *Homo* on the basis of the macaque/baboon model does not sound like a late addition, not proto-descent but something more like proto-proto-descent. Thus, there is a real question of how far this model advances our understanding of early human kinship. I say this *not* because I think there is an unbridgeable gap between behavioral regularities and rule-governed, normative behavior, but because of the relative poverty of the resulting descent structure.

Putting this issue to one side, what is the *phylogenetic* precursor to human descent groups then? Given the assumption that the last common ancestor shared by *Pan* and *Homo* had a patrilocal residence pattern, matrilineal descent was not possible (beyond uterine kinship). And because paternity recognition was absent or very limited, patrilineal descent was not possible. These are components of the exogamy complex that arise, if at all, only likely during the third phase of Chapais's three-phase model (pp. 304–305). The crucial breakthrough, as Chapais says, is the advent of pair-bonding in conjunction with paternity recognition; given uterine kin recognition and female dispersal, we then have the potential for something identifiable as an early, patrilineal form of descent, one realized in behavioral templates, rather than symbolically. Chapais seems happy to concede that crossing the divide to symbolic mediation must await language, but the question is whether the structure identified to this point is *descent* (rather than, say, *filiative bonding*).

One of the key cognitive differences here is between recognizing uterine kin in a local provisioning setting and tracking individuals who reside in other groups and which are only intermittently encountered, if at all; the corresponding emotional gap is between maintaining some kind of bond with those you are in constant and physically intimate contact with (e.g., feeding, eating, sleeping, grooming), and extending even a minimal sense of a felt tie to those having had such contact at most in the past. The psychological demands here strike me as non-trivial extensions of face-to-face capacities. We (now) are able to manage both the cognitive and emotional demands of descent-group living primarily with a brain three times the size of nonhuman primates, and through the labeling of individuals, the construction of narratives about them, and with the help of a variety of rituals, such as the celebration of birthdays and festivity-gathering, that underscore our connectivity, often in the absence of any other evidence of such connections. Just how our hominid ancestors lacking *all* of these could do the same—even precursorily—is not clear.

A similar point could be made with respect to female dispersal, which has a relatively low cognitive burden, and "matrimonial exchange", for which the cognitive demands are relatively high. In Chapter 15, where Chapais notes the significant differences between mere female dispersal (or male philopatry) and marriages as between-group arrangements, and in Chapter 16 in defending the idea that the fundamental "atom of exogamy" is the brother-sister-husband triad, there is no discussion of the differential cognitive, emotional, and motivational demands that transition to full-blown primeval forms of these structures impose. Phenotype matching is one pre-linguistic psychological mechanism that Chapais appeals to briefly in discussing paternity recognition (e.g., pp. 189–190), and while it may play a role here as well, one wonders what else would be used to fill in the considerable cognitive gap between earlier and later phases in the exogamy complex. My view is that Chapais has over-estimated how far behavioral templates will take one, and correspondingly under-estimated the cognitive demands made by at least his third-phase achievements, precursor (but non-symbolic) versions of the brother-sister complex, descent and matrimonial exchange.

These final comments could be taken to reinforce the earlier-flagged concerns about just how far *Primeval Kinship* takes us to understanding human kinship, or simply as pointing to further details required for the account that Chapais offers us to be convincing. But in either case, *Primeval Kinship* offers an informed, thought-provoking perspective on the relevance of the latest work on primatology to early hominid social life that should become standard reading for anthropologists "rethinking kinship", yet again.

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