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Early Human Kinship was Matrilineal

Chris Knight

It is said that kinship is to anthropology ‘what logic is to philosophy or the nude is to art’ – it is ‘the basic discipline of the subject’ (Fox 1967: 10). To ask questions about early kinship is to return to many of the fundamental historical and philosophical issues out of which anthropology emerged.

Humans do not tamely accept the ‘facts’ of their biological relatedness. They collectively shape and reconstruct those facts. Following the philosopher John Searle (1996), let’s begin by drawing a distinction between ‘brute facts’ and ‘institutional facts’. Birth, sex and death are facts anyway, irrespective of what people think or believe. These, then, are brute facts. Descent group membership, marriage and property *are facts only if people believe in them*. Suspend the belief and the facts correspondingly dissolve. But although institutional facts rest on human belief, that doesn’t make them mere distortions or hallucinations. Take the fact that these two five-pound banknotes in my pocket are equal in value to one ten-pound note. That’s not merely my subjective belief: it’s an objective, indisputable fact. But now imagine a collapse of confidence in the currency. Suddenly, the realities in my pocket dissolve.

For scholars familiar with Rousseau, Marx or Durkheim, none of this is especially surprising or difficult to grasp. Some kinds of facts are natural. Others are ‘social’ or ‘institutional’. Since the inception of their discipline, however, anthropologists have been unable to apply such understandings to kinship. In Searle’s terms, they have argued over whether the facts of kinship are ‘brute’ or ‘institutional’.

What is it to be a ‘son’ or a ‘daughter’, a ‘mother’ or a ‘niece’? Taking careful notes among his Native American informants in 1846, Lewis Morgan (1871:3) discovered to his initial surprise that an Iroquois child had several ‘mothers’. Early in the twentieth century, Bronislaw Malinowski (1930) reacted against this idea, reshaping anthropology on the basis that it was patently absurd. No child could possibly have two mothers. Malinowski acknowledged that his Trobriand Island informants, like many other people, might systematically ‘distort’ the true facts of kinship. Two sisters, for example, might describe themselves as ‘mothers’

to one another's offspring, their children correspondingly addressing both as 'mother'. However, Malinowski insisted that such notions were ideological fictions, not to be taken seriously. Correctly analysed, the facts of kinship would always turn out to be (a) biological and (b) individual.

Classificatory kinship is anything but 'individual'. It expresses the principle of 'the equivalence of siblings' (Radcliffe-Brown 1931: 13). It is the kind of kinship we would expect if bonds of siblinghood consistently prevailed over marital ties. Let me be more precise. It is the kind of kinship we would expect if groups of sisters drew on support from brothers in periodically standing up to husbands – a reproductive strategy aimed at enhancing female bargaining power and driving up male mating effort (Knight 1991: 281-326; Power and Watts 1996; Power and Aiello 1997). For obvious reasons, opposite-sex siblings cannot always 'stand in' for one another in quite the same straightforward way as same-sex siblings. But where kinship is classificatory, sibling unity in general is accorded primacy over marital bonds.

Classificatory kinship is so widespread that modern social anthropologists tend not to discuss it. Many prefer to assume that the readers of their monographs will simply understand all kinship terms in their classificatory sense. For earlier generations of anthropologists, however, the whole issue was still a novelty, and heated debates surrounded the significance of this seemingly extraordinary and cumbersome mode of conceptualizing and classifying kin. An unfortunate consequence of the recent lack of interest in this topic has been that palaeoanthropologists and biological anthropologists remain almost unaware of its existence, constructing their origins theories as if the task were to explain kinship and marriage in forms assumed self-evident in modern western society.

Here, I will review some of social anthropology's basic definitions and findings concerning classificatory kinship – findings that have never been repudiated, but have in recent years become overshadowed by other concerns. Although the sources may seem unavoidably rather dated, such a review of the classical literature may help clarify the issues that a Darwinian approach to the evolution of kinship should address.

The Equivalence of Siblings

The essence of classificatory kinship is that siblings occupy similar positions in the total social structure. Their 'social personalities', as Radcliffe-Brown (1931: 97) put it, writing in this case of Aboriginal Australia, 'are almost precisely the same'. Where terminology is concerned:

A man is always classed with his brother and a woman with her sister. If I apply a given term of relationship to a man, I apply the same term to his brother. Thus I call my father's brother by the same term that I apply to my father, and similarly, I call my mother's sister 'mother'. The consequential relationships are followed out. The children of any man I call 'father' or of any woman I call 'mother' are my 'brothers' and 'sisters'. The children of any man I call 'brother', if I am a male, call me 'father', and I call them 'son' and 'daughter' (Radcliffe-Brown 1931: 13).

By the same token, if a woman finds herself in a kinship relationship, any of her sisters may in theory join her in exercising the rights or fulfilling the obligations entailed. Since sisters are each other's equivalents, it follows that theoretically, no mother should discriminate in favour of her own biological children. All the children of a group of sisters should be addressed as 'daughter' or 'son' indiscriminately, all being considered 'sisters' and 'brothers' to each other.

In societies where siblings maintain solidarity in everyday life, the logic of all this becomes immediately apparent. Among the Hopi Pueblo (Eggan 1950: 33-35):

Sex solidarity is strong. . . . The position of the mother's sister is practically identical with that of the mother. She normally lives in the same household and aids in the training of her sister's daughter for adult life. . . . They co-operate in all the tasks of the household, grinding corn together, plastering the house, cooking and the like. . . . Their children are reared together and cared for as their own.

It is as if sisters were so close that they refused to discriminate between one another's children, each saying, in effect, 'My child is yours and your child is mine'.

Lewis Morgan's (1871) discovery and cross-cultural analysis of this seeming anomaly established social anthropology as a scientific discipline (Lévi-Strauss 1977, 1: 300). The basic principle – the formal equivalence of siblings – initially seemed incongruous and incomprehensible. As a certain Reverend Bingham wrote to Morgan (1871: 461) from Hawaii:

The terms for father, mother, brother, and sister, and for other relationships, are used so loosely we can never know, without further inquiry, whether the real father, or the father's brother is meant, the real mother or the mother's sister. . . . A man comes to me and says e mote tamau, my father is dead. Perhaps I have just seen his father alive and well, and I say, 'No, not dead?' He replies, 'I mean my father's brother'. . . .

Europeans typically concluded that the natives must evidently be confused. Sir Henry Sumner Maine (1883: 289) felt moved to ask 'whether all or part of the explanation may not lie in an imperfection of mental grasp on the part of savages?' To such Victorian savants, it was clear that genuine kinship was one thing, the imaginings of savages quite another. When Malinowski later adopted a similar approach – insisting that 'real' kinship must always be 'individual', regardless of native 'ideology' to the contrary – this style of thinking came to predominate within anthropology as a whole.

To ask whether a kinship bond is ideology or biology makes about as much sense as to ask whether a banknote can really be money when it is clearly a piece of paper. Writing of the puzzle posed by the very existence of classificatory kinship, Robin Fox (1967: 84) explained:

It is because anthropologists have consistently looked at the problem from the ego-focus that they have been baffled by it. They have placed ego at the centre of his kinship network and tried to work the system out in terms of his personal relationships.

Classificatory kinship doesn't operate on that myopic scale. Its premises are not those of western competitive individualism. Although it doesn't eliminate intimacy or individuality, classificatory kinship operates on a grander level – on which bonds of sisterhood and brotherhood create networks of interdependence, decisively overriding parochial attachments and aims. Contrary to western prejudices, for example, no Aboriginal Australian hunter-gatherer could be said to have inhabited a 'small-scale community'. As George Peter Murdock (1949: 96) long ago observed,

...a native could, at least theoretically, traverse the entire continent, stopping at each tribal boundary to compare notes on relatives, and at the end of his journey know precisely whom in the local group he should address as grandmother, father-in-law, sister, etc., whom he might associate freely with, whom he must avoid, whom he might or might not have sexual relations with, and so on.

Establishing chains of connection stretching across thousands of miles, these Aborigines' mathematically elegant section and subsection systems – logical extensions of the simple principle of sibling equivalence – were built to a scale quite beyond the conception of scholars familiar only with kinship in its truncated western forms.

A further expression of the equivalence of siblings is the levirate (or sororate) – inheritance by a person of his or her deceased sibling's spouse. Many Europeans are familiar with this primarily from the Bible (Deuteronomy 25:5):

If brethren dwell together, and one of them die, and have no child, the wife of the dead shall not marry without unto a stranger: her husband's brother shall go in unto her, and take her to him to wife, and perform the duty of an husband's brother unto her.

Both levirate and sororate seem to have been universal throughout Aboriginal Australia (Radcliffe-Brown 1931: 96). In the rest of the world, the tradition is so common that 'it is easier to count cases where the custom is positively known to be lacking than to enumerate instances of its occurrence' (Lowie 1920: 32).

In the levirate/sororate, a person steps into the marital role of a deceased sibling with little or no ceremony and as a matter of course. In a sense, the living sibling was 'married' to the deceased's spouse already, since siblings are kin equivalents and marital contracts are arrangements not between private individuals but kin groups on either side. Among the North American Navaho (Aberle 1961a: 126), to take just one example, the payment of bride-price 'made each partner the potential sexual property of the rest of the clan . . .', the ideal arrangement being for 'a group of siblings to marry another group'.

In Western Arnhem Land, Australia (Berndt and Berndt 1951: 47), the logic of a whole group of sisters exercising marital rights in a whole group of brothers

yielded something quite unlike monogamy, although taking advantage of such rights tended to be reserved for special occasions:

...a wife may have access to a number of tribal 'husbands', and 'brother-cousins' of her actual husband; while a husband enjoys the same privilege with his tribal 'wives', the classificatory sisters of his wife and wives and their female 'cousins'. Should the husband or wife object, or take steps to terminate such a union, this would be contrary to public opinion, and the protesting party is soon made to understand that he or she is part of an institution which legally sanctions such relationships.

When Morgan spoke of 'group marriage', it was broadly this kind of arrangement that he had in mind.

In concrete social situations – at least in the contemporary ethnographic record – the equivalence of siblings is rarely carried through to its logical conclusion, which would be to give every woman tens or even hundreds of 'sisters' and a comparable number of 'brothers', 'husbands', 'mothers-in-law' and so forth. Day-to-day foraging constraints, marital bonding, emotional compatibility, distance or closeness of relationship, seasonally varying residence patterns and other such factors make it impossible to treat siblings on all levels as identical. Darwinian anthropologists may with good reason object that hunter-gatherer mothers do tend to favour their own direct offspring, even if such nepotism is publicly played down. They may also note how people in reality certainly do discriminate between mates on biological grounds – again a 'brute' fact not highlighted in the institutional system, which proclaims all spouses to be equivalents.

Strictly speaking, however – that is, to the extent that 'classificatory' principles prevail – the logic implies that in each generation, those entering into relationships are neither individuals nor marital couples. They are self-organized coalitions of sisters/brothers. As Radcliffe-Brown (1950) put it: 'The unit of structure everywhere seems to be the group of full siblings — brothers and sisters'. In quoting this statement, Meyer Fortes (1970: 76) offered his own opinion that it constituted 'one of the few generalisations in kinship theory that . . . enshrines a discovery worthy to be placed side by side with Morgan's discovery of classificatory kinship . . .' He added that, like Morgan's initial discovery, this subsequent generalisation 'has been repeatedly validated and has opened up lines of inquiry not previously foreseen.'

Radcliffe-Brown (1952: 19-20) noted that where 'the classificatory system of kinship reaches a high degree of development', the close conjunction of brothers and sisters necessarily entails a corresponding disjunction of husbands and wives. On a formal level – that is, where terminology and publicly professed ideals are concerned – husband and wife do not merge or combine their identities. Contrary to Malinowski's (1956 [1931]) claims for the centrality and universality of the 'individual family', the two spouses do not form a corporate unit in sharing relationships, property or even offspring – which, in some formal sense, must always 'belong' on one side of the fundamental divide or the other.

To this picture of pronounced separation between spouses we may add that in many places, particularly in South America, Africa and Oceania, spouses were traditionally not allowed to eat together – ‘an arrangement’, as Robert Lowie (1960 [1919]: 122) put it, ‘almost inconceivable to us’. In Africa, it is a common Bantu custom that ‘the husband and wife do not eat together after marriage’ (Richards 1932: 191). Among the Bemba, for example, it is ‘considered shameful’ for the sexes to eat together (Richards 1969: 122),

Very often, the rationale here is that for the sexes to share meals would signify their bond of kinship, with the corollary that any sex between them would be incest. In various parts of the world, menstrual avoidances, menstrual huts, post-partum taboos, in-law taboos and ‘men’s house’ institutions help ensure that gender distinctions are not blurred, incestuous confusion is avoided – and spouses are effectively kept apart for much of the time (Knight 1991). Uncomfortably for those who argue for the universal centrality of the ‘nuclear family’, in other words, we find that it is the disjunction of spouses, not their conjunction, which is the most strongly emphasised ritual and structural norm.

The Matrilineal Clan

There are good biological reasons why in any culture, a young infant might wish to stay close to its mother. Fathers, on the other hand, can come and go. Where brother/sister unity is preserved into adulthood at the expense of the marital bond, paternity certainty will be that much less likely and the scales will be tipped correspondingly toward matrilineal descent (Aberle 1961b; Kurland 1979).

The English adventurer John Lederer (1672) seems to have been the first to describe a matrilineal clan system accurately in print. His words (quoted in Tax 1955: 445) refer to the Tutelo, an eastern Siouan tribe:

From four women, *viz.*, *Pash*, *Sopoy*, *Askarin* and *Maraskarin*, they derive the race of Mankinde; which they therefore divide into four Tribes, distinguished under those several names... now for two of the same Tribe to match, is abhorred as Incest, and punished with great severity.

Lederer’s ‘tribes’ correspond to what would later be termed ‘clans’. Note that endogamy – marriage within the clan – is prohibited irrespective of degree of relatedness.

Half a century later, Father Lafitau (1724) described in glowing terms the honoured status of women among the matrilineally organized Iroquois:

Nothing...is more real than this superiority of the women. It is essentially the women who embody the Nation, the nobility of blood, the genealogical tree, the sequence of generations and the continuity of families. It is in them that all real authority resides: the land, the fields and all their produce belongs to them: they are the soul of the councils, the arbiters of peace and war...(quoted in Tax 1955: 445).

Some decades later, the Scottish moral philosopher Adam Ferguson (1767: 126) remarked of ‘savage nations’ in general that the ‘children are considered as pertaining to the mother, with little regard to descent on the father’s side’.

Johann Jakob Bachofen published his *Mutterrecht* in 1861. Drawing on ancient Greek historical texts and myths, he advanced the following propositions: 1) humanity once lived in a state of sexual promiscuity; 2) there could be no certainty of paternity; 3) kinship was traced through females alone; 4) women’s status was correspondingly high; 5) monogamy emerged relatively late in history. According to Bachofen (1973 [1861]: 71):

...mother right is not confined to any particular people but marks a cultural stage. In view of the universal qualities of human nature, this cultural stage cannot be restricted to any particular ethnic family. And consequently what must concern us is not so much the similarities between isolated phenomena as the unity of the basic conception.

The legal historian J. F. McLellan read Bachofen’s book in 1866, having the previous year published his *Primitive Marriage*, which independently proposed ‘kinship through females’ as the ‘more archaic system’ (McLellan 1865: 123). More effective in supporting Bachofen, however, was Lewis Morgan, who was excited to discover living matrilineal institutions among the Iroquois and other Native Americans. Morgan’s *Systems of Consanguinity and Affinity of the Human Family* (1871) described comparable systems across much of the globe and marked the birth of the modern study of kinship. In this and in his subsequent *Ancient Society* (1907 [1877]), Morgan championed the historical priority of the matrilineal clan over patriliney and over the nuclear family. His authority was such that for several decades, almost all prominent scholars accepted the essentials of the Bachofen-Morgan evolutionary scheme.

Describing an Iroquois long-house, Morgan (1881: 126-8) wrote of its immense length, its numerous compartments and fires, the ‘warm, roomy and tidily-kept habitations’, the raised bunks around the walls, the common stores and ‘the matron in each household, who made a division of the food from the kettle to each family according to their needs.’ ‘Here’, he commented, ‘was communism in living carried out in practical life...’ When women in these matrilineal, matrilocal households needed to exclude a lazy or unwanted visiting male, they could reliably depend on their frequently-returning brothers to ensure enforcement of their will. To illustrate the correspondingly high status of women, Morgan (1907 [1877]: 455n) cites personal correspondence from the Reverend Arthur Wright, for many years a missionary among the Seneca Iroquois:

Usually, the female portion ruled the house, and were doubtless clannish enough about it. The stores were held in common; but woe to the luckless husband or lover who was too shiftless to do his share of the providing. No matter how many children, or whatever goods he might have in the house, he might at any time be ordered to pack up his blanket and budge; and after such orders it would not be healthful for him to attempt to disobey. The house would be too hot for him; and, unless saved by the intercession of some aunt or grandmother, he must retreat to his own clan; or, as was

often done, go and start a new matrimonial alliance in some other. The women were the great power among the clans, as everywhere else.

As Marx and Engels read all this, they excitedly concluded that Iroquois women must traditionally have possessed what modern trade unionists could only dream of – collective ownership and control over their own productive lives.

Engels and ‘the Origin of the Family’

Engels elaborated and publicised Morgan’s findings in his *The Origin of the Family, Private Property and the State*. ‘The rediscovery of the original mother-right gens’, he wrote (‘gens’ being at that time anthropological jargon for ‘clan’),

...has the same significance for the history of primitive society as the theory of evolution has for biology, and Marx’s theory of surplus value for political economy. It enabled Morgan to outline for the first time a history of the family... Clearly, this opens a new era in the treatment of the history of primitive society.

In the same passage (Engels 1972a [1891]: 36), he went so far as to state: ‘The mother-right gens has become the pivot around which this entire science turns....’ This was no hasty judgement. From their earliest days in revolutionary struggle, Engels and Marx had been wrestling with questions about sex as well as class. In 1844, Marx (2000 [1844]: 96) declared that the ‘immediate, natural and necessary relationship of human being to human being is the relationship of man to woman’, adding that ‘from this relationship the whole cultural level of man can be judged.’ Marx took Morgan’s work on the matrilineal clan as confirmation that an early form of communism must have preceded property-based class society and that its secret had been sexual equality. In *The German Ideology*, Marx and Engels (2000 [1846]: 185) contrasted this original egalitarianism with the subsequent dominance of ‘...property, the nucleus, the first form, of which lies in the family, where wife and children are the slaves of the husband.’

According to Morgan, the rise of alienable property disempowered women by triggering a switch to patrilocal residence and patrilineal descent:

It thus reversed the position of the wife and mother in the household; she was of a different gens from her children, as well as her husband; and under monogamy was now isolated from her gentile kindred, living in the separate and exclusive house of her husband. Her new condition tended to subvert and destroy that power and influence which descent in the female line and the joint-tenement houses had created (Morgan 1881: 128).

Engels (1972b [1884]: 68) added political impact to all this:

The overthrow of mother right was *the world-historic defeat of the female sex*. The man seized the reins in the house also, the woman was degraded, enthralled, the slave of the man’s lust, a mere instrument for breeding children.

He continued:

The first class antagonism which appears in history coincides with the development of the antagonism between man and woman in monogamian marriage, and the first class oppression with that of the female sex by the male (Engels 1972b [1884]: 75).

The reaction

Around the turn of the century, virtually all those who had helped found the discipline of anthropology converged around the fundamentals of the Bachofen-Morgan theory. As Murdock (1949: 185) subsequently observed, the ‘extremely plausible’ arguments in its favour included (a) the biological inevitability of the mother-child bond (b) the intrinsic difficulty in establishing biological paternity and (c) numerous apparent survivals of matrilineal traditions in societies with patrilineal descent groups. ‘So logical, so closely reasoned, and so apparently in accord with all known facts was this hypothesis’, continues Murdock, ‘that from its pioneer formulation by Bachofen in 1861 to nearly the end of the nineteenth century it was accepted by social scientists practically without exception’.

So, what changed everyone’s mind? As we review the historical evidence, it becomes clear that political passions were never far beneath the surface and ultimately played the decisive role. With regard to the topic of ‘primitive promiscuity’, Engels (1972b [1884]: 47) commented:

It has become the fashion of late to deny the existence of this initial stage in the sexual life of mankind. The aim is to spare humanity this ‘shame’.

The reference here was to Edward Westermarck, scholarly defender of individual marriage and the family who was later to inspire the young Malinowski. Westermarck had chosen to turn public opinion against Bachofen’s theory of ‘primitive promiscuity’ by associating it with modern prostitution. To this, Engels (1972b [1884]): 51) retorted: ‘To me it rather seems that all understanding of primitive conditions remains impossible so long as we regard them through brothel spectacles’.

Once Engels had incorporated Morgan’s findings into the socialist canon, however, no one could write neutrally on such topics any more. Morgan’s *Ancient Society*, as Robert Lowie (1937: 54-5) was later to comment,

attracted the notice of Marx and Engels, who accepted and popularised its evolutionary doctrines as being in harmony with their own philosophy. As a result it was promptly translated into various European tongues, and German workingmen would sometimes reveal an uncanny familiarity with the Hawaiian and Iroquois mode of designating kin, matters not obviously connected with a proletarian revolution.

Once Engels had endorsed it, Morgan’s theory was destined to become a casualty of the central conflict of the age. Social anthropologists may like to imagine that

their discipline became shaped in its modern form quite independently of Marxism. It would be more accurate to describe it as moulded specifically in reaction against the ideas of Engels and Marx. 'With Morgan's scheme incorporated into Communist doctrine', observes Marvin Harris (1969: 249), 'the struggling science of anthropology crossed the threshold of the twentieth century with a clear mandate for its own survival and well-being: expose Morgan's scheme and destroy the method on which it was based'.

Group Motherhood Versus the Ideology of the Family

A widespread consensus developed on both sides of the Atlantic that regardless of the intellectual merit of Morgan's ideas, 'group motherhood' was in any event too dangerous an idea to be allowed. A radio broadcast by Malinowski (1956 [1931]: 76) revealed his state of mind:

A whole school of anthropologists, from Bachofen on, have maintained that the maternal clan was the primitive domestic institution.... In my opinion, as you know, this is entirely incorrect. But an idea like that, once it is taken seriously and applied to modern conditions, becomes positively dangerous. I believe that the most disruptive element in the modern revolutionary tendencies is the idea that parenthood can be made collective. If once we came to the point of doing away with the individual family as the pivotal element of our society, we should be faced with a social catastrophe compared with which the political upheaval of the French revolution and the economic changes of Bolshevism are insignificant. The question, therefore, as to whether group motherhood is an institution which ever existed, whether it is an arrangement which is compatible with human nature and social order, is of considerable practical interest.

While denouncing 'ideology', Malinowski (1956: 28) nonetheless saw it as his scholarly duty to 'prove to the best of my ability that marriage and the family have been, are, and will remain the foundations of human society'. He insisted (1956: 42) that 'marriage in single pairs – monogamy in the sense in which Westermarck and I are using it – is primeval'. It's worth remembering here that the Finnish historian of marriage attributed 'marriage in single pairs' equally to chimpanzees and gorillas, believing human marriage to have been inherited from a primate precursor. Malinowski's assertion that 'monogamy' must be 'primeval' fits uneasily with declarations such as the following: 'I would rather discountenance any speculation about the 'origins' of marriage or anything else than contribute to them even indirectly....' (Malinowski 1932: xxiii-iv). Notable here is Malinowski's tactic of dissociating himself from evolutionary research while specifying his opinion as to the 'initial situation' for human kinship. Throughout much of the twentieth century, as Adam Kuper (1988) records, the strategy of smuggling in assumptions about 'origins' and 'initial situations' without having to justify them proved popular among anthropologists of virtually every school. 'We do not know', wrote Lévi-Strauss (1969a: 141), 'and never shall know, anything about the first origin of beliefs and customs the roots of which plunge into a distant past....' Following in Malinowski's footsteps, this

didn't prevent him from propounding his own 'exchange of women' account of the origins of marriage, kinship and much else besides (Lévi-Strauss 1969b).

The Case of the Kwakiutl Indians

In the United States, Franz Boas initially accepted the Bachofen-Morgan scheme according to which descent systems invariably underwent historical change from matriliney to patriliney and not the reverse. In support of this was a 'complete lack of historically attested, or even inferentially probable, cases of a direct transition from patrilineal to matrilineal descent' (Murdock 1949: 190). Boas later came to believe, however, that he might discredit Morgan if he could find a single exception.

On Vancouver Island, the Kwakiutl were organised in groups known as numaym, which Boas translated initially as 'clan' or 'gens'. He explained (Boas 1891: 609) that there was no consistent rule of descent: 'The child does not belong by birth to the gens of his father or mother, but may be made a member of any gens to which his father, mother, grandparents, or great-grandparents belonged'. Six years later, however, Boas (1897: 334-5) changed his mind, attributing to the numaym now 'a purely female law of descent', albeit one secured 'only through the medium of the husband'. However, anything short of a purely patrilineal system switching to a purely matrilineal one might still have allowed Morgan's evolutionist scheme to survive. Boas duly supplied the requisite categorical formulations. Although the Kwakiutl had today 'a purely female law of descent', he now proclaimed, the 'organization must have been at one time a purely paternal one' (Boas 1897: 334-335). For the very first time, a unilineal descent system had been found changing in the reverse direction from that stipulated by Morgan.

The loyalty of Robert Lowie to his great friend and teacher, Franz Boas, could hardly be in doubt. In 1914, however, even this ardent disciple admitted that the Vancouver Island data had been stretched to fit the case. Although 'the Kwakiutl facts are very interesting', as he put it, 'it is highly doubtful whether they have the theoretical significance ascribed to them' (Lowie 1960 [1914]: 28). Most awkward was the fact that the Kwakiutl numaym groupings central to Boas' entire argument were not unilineal descent groups at all. Neither 'matriliney' nor 'patriliney' were applicable concepts. 'For these reasons,' as Lowie put it, 'the Kwakiutl conditions do not seem to furnish a favorable test case.'

However, such scholarly reservations did nothing to stop Boas or his students from continuing to disseminate the myth. The 'extreme interest in Boas' handling of the numaym', as Marvin Harris (1969: 305) comments in his historical analysis of the whole shameful episode,

stems from the fashion in which he and his students seized upon this case to destroy the supposed universal tendency for patrilineality to follow matrilineality and at the same time to discredit the entire historical determinist position.

On the basis of this one drastically deficient case, there gradually diffused out of Schermerhorn Hall at Columbia, through lecture, word of mouth, article and text, the unquestioned dogma that Boas had proved that it was just as likely that patrilineality succeeded matrilineality as the reverse.

The Case of the Mother's Brother

Meanwhile across the Atlantic, A. R. Radcliffe-Brown (1924) intervened with his celebrated article entitled 'The mother's brother in South Africa'. It was this intervention which by general consent – at least among British structural-functionalist anthropologists – buried once and for all the evolutionist theory that the mother's brother relationship in patrilineal societies was a survival left over from an earlier matrilineal stage.

Radcliffe-Brown's specific target was a comprehensive monograph on the Thonga of Mozambique (Junod 1912). The following features (summarized in Murdock 1959: 378) seemed to require explanation:

- Although inheriting clan membership from their father, Thonga children on being weaned went to live in their mother's brother's village.
- A man without patrilineal heirs could require a sister to remain in his settlement, her male offspring continuing his lineage.
- Even when a man did have patrilineal heirs, his sisters' sons could claim items from his own estate.
- The maternal uncle had a share in the bride price received for a sister's daughter.
- The maternal uncle and not the father officiated at the sacrifices in a young man's life-crisis ceremonies.

Junod himself interpreted these features as clear evidence that the Thonga were not straightforwardly patrilineal but were embroiled in a difficult and sometimes contradictory process of transition from matrilineal to patrilineal descent.

For Radcliffe-Brown, it was axiomatic that any such 'pseudo-history' had to be repudiated. The various components of a social system should instead be explained in structural-functionalist terms – that is, by invoking fixed laws on the model of physics and chemistry. He now proposed his celebrated structural functionalist explanation. The involvement of the mother's brother in the upbringing of a Thonga (or Tsonga) boy has nothing whatsoever to do with past or present matrilineal descent. It's just an expression of a fixed and invariant sociological principle – the principle of 'the equivalence of siblings'. Since a woman and her brother are equivalents, any human child's feelings toward its mother will naturally tend to include to her brother as well. Radcliffe-Brown termed this universal psychic mechanism 'the extension of sentiments',

concluding after a few further observations that everything was now satisfactorily explained.

With the benefit of hindsight, what are we to make of this short essay? Let me begin by recalling David Schneider's (1961) classic survey of matrilineal descent systems. The essence of Schneider's argument is that a woman is faced with a choice. To put her brother first in her children's lives would be to put her husband second; conversely, if she puts her husband first, her brother must come second. It really is as simple as that: you can either have brother-sister unity as the fundamental principle or else you can have husband-wife unity, but you cannot have both at the same time. A corollary of this fact is that, contrary to Radcliffe-Brown, brother-sister unity cannot possibly be 'a universal sociological principle'. In fact, it is as much a variable as is matrilineal descent. It is easy to see that only a matrilineal descent group requires its male and female members to remain united following marriage. A patrilineal descent group requires no such thing. Patriliney requires husbands to let go of married sisters and monitor the fidelity of their wives. Where the husband's rights prevail, the wife to that extent yields control over her fertility to him and his kin, weakening her bond with her brother, enhancing paternity certainty and thereby favouring patrilineal descent. Let us suppose, however, that after marriage, a woman chooses to remain primarily bonded to her brother. This can only be at the expense of her bond with her husband – reducing paternity certainty and hence favouring matrilineal descent. To sum up: Schneider's theoretical findings demonstrate that the very factor invoked by Radcliffe-Brown as an alternative to the matrilineal complex – namely, opposite-sex sibling unity – turns out to be a covariant feature of that complex itself. To invoke 'brother-sister unity' as an explanation for the mother's brother relationship is no more than to invoke an aspect of the matrilineal complex while concealing it under another name.

Murdock (1949: 121) long ago poured scorn on Radcliffe-Brown's whole approach:

In the first place, the alleged principles are mere verbalizations reified into causal forces. In the second, such concepts as 'equivalence of brothers' and 'necessity for social integration' contain no statements of the relationships between phenomena under varying conditions, and thus lie at the opposite extreme from genuine scientific laws.

Ironically, Murdock's (1959: 378) subsequent historical research on the Thonga confirmed that they were indeed in the throes of transition from matriliney to patriliney just as Junod had originally claimed.

In conformity with Morgan's scheme, the rise of alienable property may be the crucial factor cementing marital bonds at the expense of brother-sister solidarity throughout much of sub-Saharan Africa. As one cross-cultural researcher put it (Aberle 1961: 680): 'the cow is the enemy of matriliney'. Following in the footsteps of Murdock's cross-cultural comparative work, Mace and Holden's (1999) phylogenetically controlled analysis has confirmed a negative correlation between African matriliney and cattle-owning. In their most recent analysis of matriliney as daughter-biased investment, Holden, Sear and Mace (2003: 110) comment: 'the two factors Morgan identified, heritable wealth and paternity uncertainty, remain central

to our understanding of variation in matriliney and patriliney in human social organisation’.

The Effect on Palaeoanthropology

Writing in 1965 about the evolution of religion, E. E. Evans-Pritchard (1965: 100) felt confident enough to declare Morgan-style origins research ‘as dead as mutton’. Except in the Soviet Union (where it became incorporated into state dogma), Morgan’s scheme was effectively suppressed — so thoroughly that by the mid-1930s it had become institutionally impossible to re-open any of the once highly charged debates.

Where did this leave palaeoanthropology and evolutionary theory? Morgan’s work on the matrilineal clan had led such influential thinkers as Engels, Freud and Durkheim to argue for fundamental discontinuity between primate and human social organisation. Classificatory kinship, exogamy, totemic avoidances — in any but the most narrow and blinkered account of human origins, such things simply cried out for explanation. But Morgan’s suppression marginalised evolutionary questions and therefore sidelined social anthropology’s distinctive scholarly contribution to evolutionary science. From this point on, the two branches of anthropology were hardly on speaking terms. As a result, Darwinians became cut off from specialist knowledge about cross-cultural variability in human kinship arrangements and from processes driving historical change. Forced to draw narrowly on their own cultural assumptions, would-be Darwinian scientists recurrently mistook monogamy, paternal inheritance and other contemporary instantiations of Judeo-Christian morality for core features of human nature.

By default, as a gradualist theory, Darwinism tends to assume continuity between primate and human life. Drawing on the primatology of his day, Darwin (1871, 2: 362) himself had pictured primaeval man as a sexual tyrant jealously guarding his hard-won harem of females to the exclusion of his rivals. After the Second World War, many professed followers of Darwin felt licensed to weave popular narratives free of all ethnographic or anthropological constraint. ‘Naked Ape’ theory (Morris 1967) connected extant primates directly to the pair-bonding preoccupations of contemporary Western culture. Eurocentrism was the inevitable result, as middle class English family values — or alternatively U.S. college campus lifestyles — became scientifically naturalised and projected back into the evolutionary past. This trend continues today in much popular literature produced by evolutionary psychology (e.g. Buss 1994, Miller 2000).

Leslie White and his students (Steward 1955, Service 1963, Fried 1967) had attempted to salvage much of Morgan’s evolutionist programme, with the major difference that the ‘patrilocal band’ model of early hunter-gatherer organisation was now taken for granted. Against this background, Sherwood Washburn and his associates launched the new discipline of palaeoanthropology, their activities culminating in the 1966 interdisciplinary ‘Man the Hunter’ conference (Washburn

and DeVore 1961, Washburn and Lancaster 1968). Among those present was Claude Lévi-Strauss, whose theory about the transition from nature to culture required acceptance of the doctrine that patrilocal residence was a permanent and universal feature of all married life (Lévi-Strauss 1969b: 116-17). The number of matrilineal systems, as he explained, ‘is very limited’:

Consequently, the only alternatives are, on the one hand patrilineal and patrilocal systems, and on the other, matrilineal and patrilocal systems. The exceptional cases of matrilineal and matrilineal systems, which are in conflict with the asymmetrical relationship between the sexes, may be assimilated to the latter.

‘Assimilating’ matrilineal residence to its patrilocal antithesis means, of course, prioritizing ‘exchange of women’ doctrine at the expense inconvenient facts. Hunter-gatherer ethnographers effectively demolished the patrilocal band model during the 1970s (Woodburn 1972; Lee and DeVore 1972; Peterson 1976), but this has done little to prevent popular science writers from perpetuating it to this day.

Morgan Revisited

Most currently favoured scenarios for human evolution invoke paternity certainty as key to the process leading from Plio-Pleistocene hominin to modern *Homo sapiens*. In typical versions of the story (e.g. Alexander and Noonan 1979, Lovejoy 1981, Kaplan et al. 2000), paternal investment is linked directly to the sexual division of labour, food sharing, lengthy juvenile dependency, ovulation concealment and continuous female sexual receptivity. The idea is that since the human female produces such unusually helpless and dependent offspring, her mate is necessary to provide long-term pair-bonding commitment and support. The catch is that no male should enter such a contract unless confident that his partner will be faithful to him in return. ‘In evolutionary terms’, as Terrence Deacon (1997: 388) puts it, ‘a male who tends to invest significant time and energy in caring for and providing food for an infant must have a high probability of being its father; otherwise his expenditure of time and energy will benefit the genes of another male’.

Dating from the 1960s and 1970s, this scenario has become in effect the Standard Model of Human Evolution (Beckerman and Valentine 2002). Robert Boyd and Joan Silk (1997: 435) impute monogamy to *Homo erectus*:

Females may have had difficulty providing food for themselves and their dependent young. If *H. erectus* hunted regularly, males might have been able to provide high-quality food for their mates and offspring. Monogamy would have increased the males’ confidence of paternity and favored paternal investment.

Evolutionary psychologist Steven Pinker (1997: 488-90) uses the same idea to explain why the sexual double standard is natural and inevitable:

Sexual jealousy is found in all cultures.... In most societies, some women readily share a husband, but in no society do men readily share a wife. A woman having sex with another man is always a threat to the man’s genetic interests, because it might fool him into working for a competitor’s genes.

Partible paternity

In response to such dogmatic statements, Stephen Beckerman and Paul Valentine have assembled counter-evidence from a substantial number of lowland South American societies. In their book, *Cultures of Multiple Fathers* (Beckerman and Valentine 2002), they demonstrate how – in direct refutation of Pinker – the paternity of a woman’s baby becomes partitioned among multiple males. They quote this passage from a classical account of the Xoc Leng (previously Kaingang):

‘Klendó’s daughter, Pathó, is my child’, said Vomblé. ‘How do you know,’ said I, ‘since Klendó also lay with her mother?’ ‘Well, when two men lie with a woman they just call her child their child.’ But not only do men feel that their mistress’s children are their children, but people whose mothers have had intercourse with the same man, whether as lover or husband, regard one another as siblings (Henry 1941: 45).

If such ‘partible paternity’ (as the authors term it) were found in only a tribe or two, it could perhaps be dismissed as an aberration. However, the institution is widely distributed across Lowland South America and found among peoples whose traditions diverged millennia ago – as evidenced by the fact that they live thousands of kilometres apart, speak unrelated languages, and show no indication of having been in contact for centuries. The authors (Beckerman and Valentine 2002: 6) continue:

It is difficult to come to any conclusion except that partible paternity is an ancient folk belief capable of supporting effective families, families that provide satisfactory paternal care of children and manage the successful rearing of children to adulthood. The distributional evidence argues that it is possible to build a biologically and socially competent society – a society whose members do a perfectly adequate job of reproducing themselves and their social relations – with a culture that incorporates a belief in partible paternity.

Not only is the belief compatible with successful reproduction. It may even help babies to survive. Among the hunting and gathering Aché, children with one extra father are significantly more likely to reach maturity (Hill and Hurtado 1996: 444), a correlation confirmed by a longitudinal statistical study among the Barí (Beckerman et al. 1998).

Can a woman really help her baby by taking lovers during pregnancy? The answer seems to be yes. The explanation is probably that additional fathers contribute additional provisions and more protection against infanticide. It is not in a woman’s interests to encourage the men in her life engage in contests over biological paternity. From a woman’s standpoint, the truth is that her current husband may become injured, die or abandon her. In any event, she may have good reason to switch to a new man. If her new mate cares about not being the father, her existing offspring might suffer infanticide or abuse. Loss of a wanted child is enormously costly to any human mother, making it best not to divulge but precisely to confuse accurate paternity information, taking lovers to distribute illusions among multiple males. Whether these males contest or collude depends on the balance of costs and benefits

involved. Where males strive to contest paternity, females may have an interest in driving up the costs.

Beckerman and Valentine (2002: 11) view the range of variation as reflecting ‘a competition between men and women over whose reproductive strategies will dominate social life’. In small-scale egalitarian societies, they continue,

women’s reproductive interests are best served if mate choice is a non-binding, female decision; if there is a network of multiple females to aid or substitute for a woman in mothering responsibilities; if male support for a woman and her children comes from multiple men; and if a woman is shielded from the effects of male sexual jealousy. Male reproductive interests, contrariwise, are best served by male control over female sexual behavior, promoting paternity certainty and elevated reproductive success for the more powerful males. This profile implies that men choose their own or their sons’ wives, and their daughters’ husbands; that marriage is a lifetime commitment and extra-marital affairs by women are severely sanctioned; and that this state of affairs is maintained by disallowing women reliable female support networks, or male support other than that of the husband and his primary male consanguines.

In humans as in other sexually reproducing species, neither sex is likely to succeed in imposing its strategies to the exclusion of resistance from the opposite sex (Gowaty 1997). Yet there are situations that may give the edge to one side or the other. When male strategies dominate in the human case, patrilineality and virilocality are the order of the day, with female autonomy correspondingly curtailed. However, as Beckerman and Valentine explain, the reverse outcome must be recognized if we are to grasp the parameters:

Where women clearly have the upper hand, uxori-local residence predominates; women’s husbands are often chosen for them by their mothers, or they choose their own husbands; when a woman’s husband dies, his children tend to be brought up by their mother, her brothers, and her new husband; women have broad sexual freedom both before and after marriage; the idea of partible paternity is prominent, with women having wide latitude in choosing the secondary fathers of their children; women usually make no secret of the identity of these secondary fathers; and the ideology of partible paternity defuses to some extent potential conflicts between male rivals – antagonisms that are seldom helpful to a woman’s reproductive interests in the long run. (2002: 11)

Engels Revisited?

Beckerman and Valentine are Darwinian anthropologists who can hardly be accused of having Marxist sympathies. But I cannot help thinking that if Engels were alive, he might have been encouraged by their results. Here, for the record, is Engels (1972 [1884]: 49-50) on the subject of male sexual jealousy in evolutionary perspective:

.... animal societies have, to be sure, a certain value in drawing conclusions regarding human societies – but only in a negative sense. As far as we have ascertained, the higher vertebrates know only two forms of the family: polygamy or the single pair. In both cases only one adult male, only one husband is permissible. The jealousy of the male, representing both tie and limits of the family, brings the animal family into conflict with the horde. The horde, the higher social form, is rendered impossible here, loosened there,

or dissolved altogether during the mating season; at best, its continued development is hindered by the jealousy of the male. This alone suffices to prove that the animal family and primitive human society are incompatible things; that primitive man, working his way up out of the animal stage, either knew no family whatsoever, or at the most knew a family that is nonexistent among animals.

Engels accepts that a male gorilla might strive to hold on to any females it has succeeded in acquiring. But applied to the human case, mothers would then be denied access to any but the most isolated and intolerant males. The point stressed by Engels is that only a decisive social breakthrough could have solved this problem:

For evolution out of the animal stage, for the accomplishment of the greatest advance known to nature, an additional element was needed: the replacement of the individual's inadequate power of defence by the united strength and joint effort of the horde.... Mutual toleration among the adult males, freedom from jealousy, was.... the first condition for the building of those large and enduring groups in the midst of which alone the transition from animal to man could be achieved. And indeed, what do we find as the oldest, most primitive form of the family, of which undeniable evidence can be found in history, and which even today can be studied here and there? Group marriage, the form in which whole groups of men and whole groups of women belong to one another, and which leaves but little scope for jealousy.

As I have argued elsewhere (Knight 1991, 1997; Knight and Power 2005), not all of Engels' revolutionary speculations look out of place today.

Kinship theory in crisis

'I believe', said Sir Edmund Leach (1961: 26) forty years ago, 'that we social anthropologists are like the mediaeval Ptolemaic astronomers; we spend our time trying to fit the facts of the objective world into the framework of a set of concepts which have been developed a priori instead of from observation'. Anthropologists since Malinowski, he wrote, have imagined 'the family' in the English-language sense of this word to be the logical, necessary and inevitable pivot around which kinship must revolve. But the fact is that human kinship becomes unintelligible when viewed from that perspective. Owing to its false initial assumptions, Leach concluded, the mental constructs of modern kinship theory appear as bewildering and futile as the cycles and epicycles of those Ptolemaic astronomers who insisted that the sun circled a motionless earth.

Some years later, in an evaluation of the contemporary state of kinship theory, Needham (1974: 39) expressed a similar verdict. 'The current theoretical position', he observed, 'is obscure and confused, and there is little clear indication of what future developments we can expect or should encourage.' He concluded, in tones indicating a mood close to despair:

In view of the constant professional attention extending over roughly a century, and a general improvement in ethnographic accounts, this is a remarkably unsatisfactory situation in what is supposed to be a basic discipline. Obviously, after so long a time, and so much field research, it is not just facts that we need. Something more fundamental seems to have gone wrong. What we have to look for, perhaps, is some radical flaw in analysis, some initial defect in the way we approach the phenomena.

During the final decades of the twentieth century, most social anthropologists responded to their disciplinary predicament by abandoning the study of kinship altogether (Bloch and Sperber 2002). Intellectual bankruptcy on this scale is the price paid, I think, when autonomous science is prevented from shaping and informing politics, uninformed politics instead shaping and constraining the revolutionary potential of science.

Some Concluding Notes

Early kinship may have been simple; alternatively, we may imagine something more complex. Let's take simplicity as our starting point. For a woman, her kin come first. Once a brother, always a brother – unlike sexual partners, who may come and go. As a woman gives birth to children, she can turn to male kin for long-term commitment and support. The reason she must resist sex with such brothers is that she needs them precisely for support in the event of conflict with a sexual partner. She must, therefore, keep the two opposed male roles categorically apart. Since out-group males are a valuable source of mating-effort, she can encourage their provisioning activities but without giving them permanent control.

The logic outlined so far does nothing to prohibit father-daughter incest. However, mothers seeking to maximise male mating-effort will have good reason to bar existing spouses from additional access to their daughters. Now apply the principle of sibling equivalence. To the extent that they are acting in solidarity, mothers will be shielding *their own and one another's daughters* from the sexual advances of fathers. The parties on either side, however, will be of various different ages. At what precise point does a female become too young to count as 'sister' or 'wife' and a male become too old to count as brother or husband? The logic of siblinghood will prompt mothers to draw a categorical boundary between females in any one generation and their 'fathers' taken as a whole. In the sense that fathers and their offspring will now be defined as vertically related kin, the result might be conceptualised as a patrilineal dual system crosscutting an already-established division into matrilineal moieties. But however it is conceived, we now have the simplest possible version of what Nick Allen (this volume) terms a 'tetradic' system. From this point of departure, every known kinship structure in the world can be derived.

The section and subsection systems of Aboriginal Australia rest on just such a mathematically elegant foundation (Lawrence 1937; Maddock 1974; Testart 1978). As is well known, extant hunter-gatherers are usually more flexible about the rules, local decisions about residence and affiliation representing pragmatic compromises

between various conflicting demands. Whatever the precise outcome, however, it is impossible to explain the details – whether we are dealing with Australia, Africa or the Americas – without taking both sexes and their distinctive strategies into account. No sense can be made of the range of variability by one-sidedly assuming patrilocality, paternity certainty or male sexual control.

Embarrassingly for proponents of the patrilocal band model, genetic data on sub-Saharan African hunter-gatherers indicates a matrilocality residential bias. Studies of mitochondrial versus Y-chromosomal dispersal patterns show that hunter-gatherer women across this region have tended to reside close to their mothers following marriage, migration rates for women being lower than those for men (Destro-Bisol et al 2004). A census among the Hadza showed 68 per cent of monogamously married women whose mothers were still alive residing with them in the same camp (Woodburn 1972). ‘Across all societies’, concludes Marlowe (2004) on the basis of a careful cross-cultural study, ‘the greater the dependence on gathering, hunting, and fishing, the less likely that residence is virilocal’. Hunting has the strongest effect and, contrary to proponents of the patrilocal band model, results in less virilocality, not more (Marlowe 2004: 80). Alvarez (2004) has reviewed the evidence behind the standard doctrine that patrilocality is characteristic of known hunter-gatherers. Most of the widely used classifications turn out to have been based on totally inadequate data and ignore insightful discussions that took place in early anthropology. The few ethnographies in which camp data are available support the view that individuals use a variety of kin and other links to decide where to live, the only discernible statistical bias being in favour of *mother-daughter links*.

One advantage of Marlowe’s study of hunter-gatherer residence patterns is that it acknowledges variability through life history. A husband who has already helped provision a child might then be trusted sufficiently for his wife to agree to move with him to his natal camp. But this shouldn’t obscure the fact that residence among hunter-gatherers tends to be initially matrilocality. Whether in Australia, Africa or the Americas, a young bridegroom must not only visit his bride in her camp but also work strenuously for her, surrendering to his in-laws whatever game he catches. This, after all, is the essence of ‘bride-service’ – the fundamental economic institution in any hunter-gatherer society. To maximise incoming provisions, the young hunter’s in-laws will strive to keep him under close supervision and control. It is therefore comes as little surprise to find that cross culturally, males ‘contribute less where residence is virilocal and more where it is uxorilocal’ (Marlowe 2004: 281).

Females, then, obtain the best deal when they remain following marriage with close kin. On what grounds can it be claimed that this residence pattern was likely to have characterized early human kinship? According to the ‘grandmother’ hypothesis (O’Connell et al 1999; Volland et al. 2005; Opie and Power, this volume), the selective advantage of distinctively human postmenopausal lifespans is that it enabled older women to assist their adult children in caring for and provisioning grandchildren. In genetic terms, a woman can never be as certain of her son’s

offspring as she can of her daughter's. For grandmothers to invest preferentially in their descendants through sons, therefore, would not be an evolutionarily stable strategy. It comes as little surprise, therefore, that a recent analysis of 213 Hadza camp compositions found that a woman over 45 with grown children is more likely to be in camp with her daughter than with her son, more likely to be with her daughter if that daughter has children under age 7 years and more likely to be with her daughter if that daughter is suckling a baby (Blurton Jones et al. 2005). Of course, advocates of the patrilocal band model might counter that grandmothers could somehow find ways to encourage or enforce fidelity in their sons' wives. But unless they can explain how certainty of paternity could have equalled or exceeded certainty of maternity during the evolution of postmenopausal lifespans, we must conclude that the grandmothering hypothesis tips the scales decisively in favour of matrilocal residence and matrilineal descent (Knight and Power 2005).

Turning to the emergence of modern *Homo sapiens*, it is now widely accepted that our species evolved recently in Africa. From about half a million years ago, brain size began increasing exponentially (Ruff et al. 1997; De Miguel and Henneberg 2001). An infant with an outsized brain imposes heavy burdens on pregnant and nursing mothers (Foley and Lee 1991). If *Homo sapiens* mothers proved able to afford to raise such extraordinarily slow maturing, ultra-dependent offspring, this fact alone testifies to the success of their alliance-building and reproductive strategies. The question arises: what new source of energy were they exploiting?

The spare provisioning capacities of the evolving human male might in principle have been available for exploitation by females, but it is important to recognize the difficulties. It is unknown for non-human primate males to systematically provision pregnant or nursing females. In the case of chimpanzees, adult males are interested mainly in females who are displaying an oestrus swelling. Where a female is nursing an infant, there is some danger that males who are unlikely to have fathered that infant may attempt to kill and eat it (Hamai et al. 1992; Hirawai-Hsegawa and Hasegawa 1994). The effects of primate male infanticide on female fitness and on population size and viability are for obvious reasons not positive (Butynski 1982; Janson and Van Schaik 2000). Where male reproductive differentials and corresponding levels of intra-male conflict are high, nursing mothers must divert scarce energy and resources away from direct offspring care into fighting off harassment and guarding against infanticide. A primate or hominin population whose females had to cope with such behaviour might head toward extinction, even as a minority of its males achieved short-term reproductive success.

But the converse equally applies. According to current models, the ancestors of extant humans comprised a small population dwelling somewhere in sub-Saharan Africa. Although disagreements abound, some genetic studies indicate that their population size at one point may have resembled that of a modern endangered species, possibly no more numerous than today's mountain gorillas. What happened

next was extraordinary. The population exploded, *Homo sapiens* soon colonising the globe (Jorde et al. 1998; Reich and Goldstein 1998; Forster 2004). Population expansion on such a scale is inconsistent with female tolerance of infanticide, harassment or the heavy costs to mothers of male philandering and double standards. If unusually large numbers of unusually large-brained offspring were being successfully raised to maturity, the quality of childcare must have been exceptional. We know what the optimal solution would have been. There can be no doubt that mothers would have done best by cooperatively resisting male sexual control, relying for protection on supportive male kin, motivating multiple suitors to work hard for them – and taking advantage of every available childcare resource.

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