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(South Turkana, Kenya)

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CHILDREN OF THE DANCING GROUND, CHILDREN OF THE HOUSE: COSTS AND BENEFITS OF MARRIAGE RULES (SOUTH TURKANA, KENYA)

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The arid land occupied by the South Turkana in northwestern Kenya is characterized by relatively well distributed water resources, complex vegetation communities, and low-density patches of forage which vary with low predictability in time and space. The people's coping strategies include a high dependence on livestock, use of multiple pathways of food energy transfer from plants through livestock to people, and extreme nomadism both to provide herds with necessary resources and to protect them from environmental hazards. Traditional marriage practices benefit wealthy herd owners, elder sons, and formally married women and contribute to the resilience and persistence of the South Turkana pastoral production system as a whole. However, these practices disadvantage other classes of Turkana society, particularly women unable to complete the marriage process and nonmarital children. This analysis contributes to an understanding of marriage in general, demonstrates the value of long-term multidisciplinary studies, and has broad implications for development planning.

IN THIS ARTICLE we consider marriage among the Ngisonyoka ("people of the fat-tailed sheep"), about 15,000 livestock herders who make up one of the nineteen named subpopulations (territorial sections) of the Turkana ethnic group of about 250,000 people. They migrate with their livestock over their 9,000-km² territory in southern Turkana District, on the Rift Valley floor southwest of Lake Turkana in northwestern Kenya. There, topography varies from arid plains at 700 m to mountains up to 2,600 m (R. Dyson-Hudson and McCabe 1985; Central Bureau of Statistics 1994; Gulliver 1955:57–61; see Figure 1).

We use complementary demographic and ethnographic methods to understand marriage in the South Turkana population in both social and ecological contexts, to assess the differential effects of culturally constituted marriage practices on different categories of the population, and to emphasize behavioral differences between both individuals and groups in negotiating conjugal and filial relationships. We argue that the Turkana marriage arrangements are integral to the pastoral strategy that has enabled southern Turkana to survive

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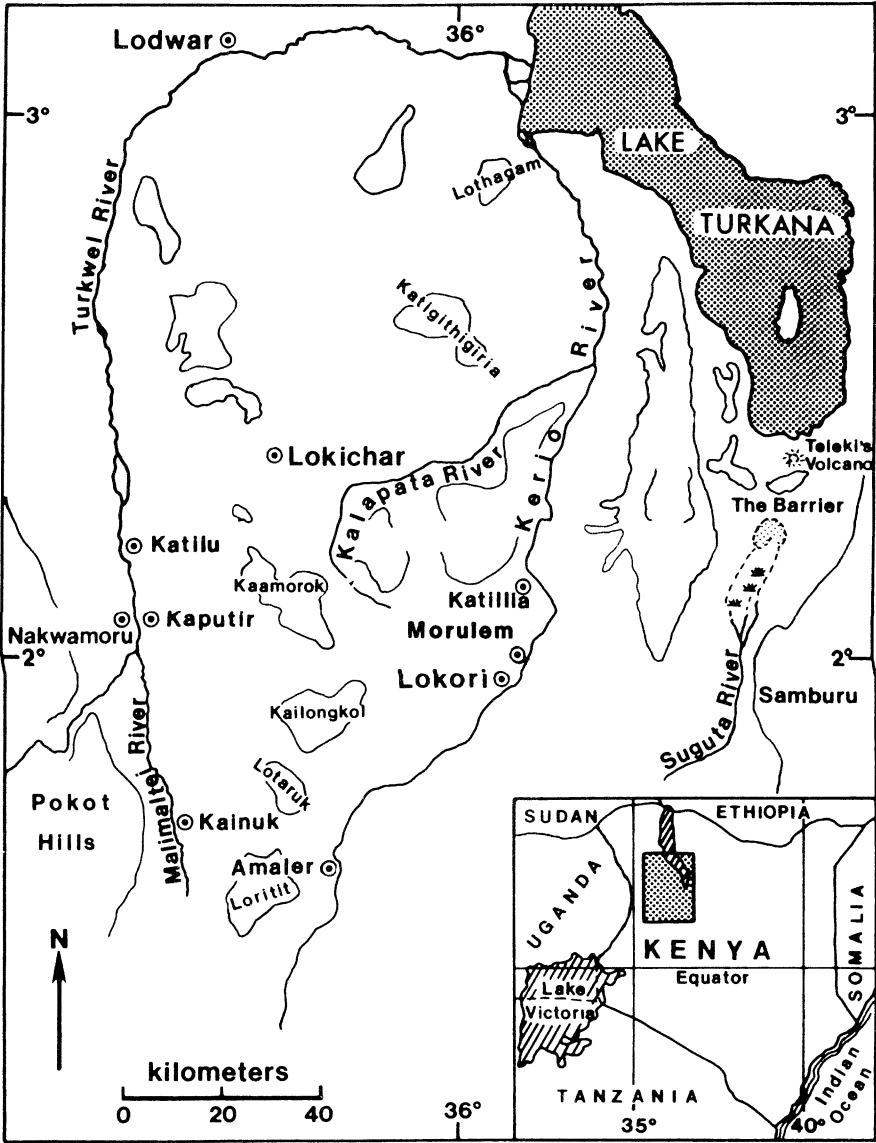


Figure 1. Kenya, Turkana District, and the Study Area

in a demanding, unforgiving environment. Like all adaptive responses, this behavior has costs as well as benefits. The primary benefit accrues to those established pastoralists who are heads of polygynous families and owners of substantial herds, that is, to those who are most successful at the pastoral strategy. The cost is born principally by women and children outside formal marriage unions and by younger sons.

This study differs from most quantitative studies of African marriage based

on census and sample survey data, which provide little or no detailed ethnographic information on institutional and cultural context and so do not allow determination of changes over time or of the diversity and negotiability of existing conjugal relations (Bledsoe and Pison 1994:1; van de Walle 1993:146). Instead, this analysis draws on both long-term ethnographic observation by N. Dyson-Hudson (NDH) between 1969 and 1996, by R. Dyson-Hudson (RDH) between 1980 and 1996, and by others as cited and on demographic and social data from a genealogical sample of more than 10,000 individuals designed and conducted by RDH (described below). Other contextual information about population and environment is derived from archival research and published studies by other participants in the South Turkana Ecosystem Project (STEP), a long-term multidisciplinary study initiated by NDH, with fieldwork beginning in 1977 (Little and Leslie n.d.). An anthropological demographer (D. Meekers) has conducted statistical analyses of the data since 1993, and Joseph E. Munyesi (JEM), a South Turkana graduate of Egerton University, has provided invaluable information during write-up.¹

Many South Turkana have emigrated from the pastoral sector, moving to trading and famine relief centers in Turkana District and to farms and towns in all regions of downcountry Kenya. This movement is at least in part due to the more than ninefold increase in the number of Turkana since the beginning of the century. Emigrants are not included in this discussion of Turkana marriage because most do not return to the pastoral production system (R. Dyson-Hudson and Meekers 1996) and most do not have traditional marriages. Of the 3,246 emigrants in the demographic sample, only 5 were reported as providing the bridewealth necessary for a traditional marriage (R. Dyson-Hudson and Meekers n.d.).

ENVIRONMENT AND LIVESTOCK

The South Turkana environment is harsh, complex, and of low predictability. Low rainfall (averaging 100 to 600 mm on the plains) is the major factor in determining water availability and in limiting plant growth, which in turn determines forage production and livestock productivity. The timing, amount, and location of rain are all of low predictability. Only by scouting can pastoralists locate the best patches of forage. Water sources, relatively abundant for an arid region, include temporary pans, two rivers on the margins of Ngisonyoka territory which flow for several months each year, freshwater wells dug in sandy channels draining the mountain chain which bisects the region, and mineral-rich springs which seep into pools on the western plains. Adding to environmental complexity, vegetation communities are often multilayered, and each layer responds differently to rainfall (Ellis and Swift 1988; Ellis, Coughenour, and Swift 1993; Little, Dyson-Hudson, and McCabe n.d.).

A study in 1981–1982 determined that 92 percent of the pastoralists' food came directly or indirectly from their livestock, whose productivity compares favorably with livestock production systems in similarly arid regions

(Coughenour et al. 1985:620, 624). Measurement of nutritional intake and energy expenditure, seasonal changes in body weight, and slow growth and late maturation of both boys and girls all indicate that caloric intake is low, although the pastoralists are not, on the whole, clinically malnourished (Galvin 1985:157–236; Little, Galvin, and Mugambi 1983).

To cope with the low density of forage and the discordant distribution of forage and water in the low-predictability environment, people (1) use multiple resources (milk, meat, blood) from multispecies herds (cattle, camels, goats, sheep, and donkeys) to transfer food energy from plants to people; (2) travel long distances each day to forage and to water; and (3) relocate herds frequently, seeking forage, water, safety from environmental hazards, and/or closer association with particular friends or relatives.

The Turkana livestock production system is labor intensive: both sexes contribute their labor from about five years of age (Galvin 1985:199–221). For protection from animal and human predators, livestock are guarded during the twelve hours of daylight, when they are taken to forage and to drink, and are corralled at night. Watering often requires digging out wells (up to 20 m in depth during a dry year), and wooden tubs of water are passed up from person to person standing in niches in the walls of the well. Herds are driven long distances each day to water and forage—camels averaging 15 km in the dry season and 21 km in the wet; cattle, 11 km and 20 km, respectively; and small stock, 12 km and 14 km, respectively. Compounding the labor problem, each livestock species and each production class (young/milking/nonmilking) of the same species has somewhat different forage and water needs. In times of drought, Turkana divide and disperse their animals into species-specific and production-specific subherds, each moving independently (Coppock et al. 1986; McCabe 1984:122–29).

Social organization seems to help Turkana cope with environmental diversity and stochasticity and with the diversity of livestock needs. The basic residential unit is a camp (*awi*) of temporary shelters and corrals made of sticks and branches. A camp is also a production unit based on a family (ideally, a man, his wives, and children) and its herd. A camp moves eight or more times a year, as decided by the herd owner/family head (*elope*), and when the herd divides, each subherd moves independently in a satellite camp (*abor*). In a severe drought (1980–1981), for example, one herd owner divided his herd into six independently moving camps (McCabe 1984:182–297).

To protect the livestock and to execute large-scale herd movements, a herd owner needs several skilled and responsible herder managers with detailed knowledge of livestock and of the South Turkana environment. Younger boys herd. Women and girls help to guard, water animals, milk, and build camps, and they also carry out other domestic tasks. A herd owner strives to achieve a balance between people and livestock numbers which allows his family to provide labor to manage the family herds and allows the animals, in turn, to provide the food for the family. In loosely organized Turkana society, where social control is founded on confrontation and self-help and livestock numbers fluctuate widely from year to year, networks of kin and friends, who act as

supporters in disputes and provide insurance during bad years, also are essential for the survival of the individual production unit (N. Dyson-Hudson and R. Dyson-Hudson n.d.; Johnson n.d.).

MARRIAGE

Marriage is a process, not an event (for Turkana, see Gulliver 1955:223–43; for some other societies, see Gage and Bledsoe 1994; Meekers 1992, 1993). A son's first marriage usually includes the following actions: (1) a woman is identified as a suitable wife by the man's father or by the man with his father's approval; (2) the woman's family agrees, and bridewealth is negotiated between families; (3) the bride accompanies the man to his camp; (4) bridewealth of livestock is paid to the bride's relatives; (5) "the ox killing," a ceremony, marks completion of bridewealth exchange (see also R. Dyson-Hudson and Meekers 1996:305). The marriage process marks the transfer of "ownership" of a woman (i.e., her labor, sexuality, and reproductive capacity) from her natal family to her marital family.

When the groom's family pays the bride's family the large number of bridewealth animals required by the Turkana marriage system, the networks of both families are substantially enlarged. However bridewealth payments in Turkana are exceptionally large (see Table 1), contributing to long delays in the completion of the marriage process.² Demographic data indicate that the time from the beginning of bridewealth exchange to the final ceremony varies from "a single day" to over twenty years. The length of the marriage process puts women at risk because divorce with return of bridewealth is more likely before the ritual completion of the marriage process and because a woman and her children sometimes are denied livestock from her "husband's" herd if he dies before the ox killing.

Because marriage provides an opportunity to extend a herd owner's social networks, it is disadvantageous to give bridewealth to, or to take a wife from, families who are already part of that network. Rules of exogamy, in fact, forbid marriage between partners in the same clan (*emachar*), and approval of a marriage is unlikely if old people can remember any common ancestor of the pair (kinship memories are about three generations in depth). Personal attributes further narrow the field of marriage partners: poor, noisy, greedy, or aggressive in-laws complicate a herd owner's life. Turkana call the full moon "the in-law moon," because, they say, it arrives in the evening and stays and stays—like in-laws who hang around the camp in the evening, hoping for a handout of food (NDH 1991). Marriage to partners with congenial relatives is important for both sons and daughters because obligations generated by livestock exchanges are reciprocal and are not determined by the direction of the livestock transfer.

If his daughter marries a wealthy man, a herd owner acquires large numbers of bridewealth animals. Wealthy fathers, who can afford to wait, sometimes hold out for a large bridewealth payment, delaying their daughters' marriages well

TABLE 1
Customary Bridewealth Payments in Some East African Societies

Social Group	Donkeys	Camels	Cattle	Small Stock	Other
Iteso ¹			11.2		
Nuer ²			20–30		
Samburu ³			6–8		
Murle ⁴			30 +		
Gisu ⁵					1,600–2,000 shillings
Plateau Tonga ⁶			3.3	0.3	6.1 hoes 0.9 spears 45 shillings 8.8 zebu units
Kipsigis ⁷					
Gogo ⁸			15.9	10.8	
Sebei ⁹			(a) 10		(b) livestock, 68.8 s cash, 20.1 s items, 4.7 s consumables, 6.3 s
Mursi ¹⁰			10–20 large stock		
Maasai ¹¹			4	1	
Maasai ¹²			3 heifers 1 ox	1 sheep	1 pot honey beer
Gisii before 1890 ^{13a}			20–25		
Gisii early 1900s ^{13b}			6–8		
Jie ^{14a}			50	100	
Turkana ^{14b}	3	9	43	100	
Ngisonyoka Turkana ¹⁵	2	25	33	131	

1. Nagashima (1987:192). Average bridewealth payment since 1940. Most payments between 8 and 14 cattle.
2. Evans-Pritchard (1951:83).
3. Spencer (1965:69–70).
4. Lewis (1972:114). Bridewealth payment “in recent years for a pretty girl.” However, actual accounts of bridewealth transactions are reported to be between 5 and 16 cattle.
5. La Fontaine (1962:97).
6. Colson (1958:335). Bridewealth payments in 1940–1949 in intermediate area.
7. Borgerhoff Mulder (1995:581). 1 zebu unit = 5 goats, or 0.5 mixed or purebred European stock, or cash equivalent of purchase price of adult female cow at local markets.
8. Rigby (1969:229–30). Average bridewealth payments claimed to have been transferred by wife-takers in 90 “recent” marriages.
9. Goldschmidt (1974:317). (a) refers to cattle transfers only; (b) lists all brideprice goods, with values converted to shillings.
10. Turton (1980:76).
11. Jacobs (1965:149, 1970:25).
12. Spencer (1988:37).
- 13a,b. Hakansson (1988:64–65).
- 14a,b. Gulliver (1955:231).
15. Weinpahl (1984:212–13). Average of six cases. An economic survey (R. Dyson-Hudson 1985) indicates that these men were in the middle range of herd owner wealth.

beyond the average age of female cohabitation (about twenty-two years). Greedy herd owners marry their daughters to men who are so old that they are unlikely to father children or to survive long, but who are willing to provide many animals for the comfort of a young woman to care for them in their old age. A herd owner with "a good heart" takes his daughter's choice into account, but he is unlikely to accede if the girl wants a poor man or a younger son who must await the marriage of older brothers for his own bridewealth (see R. Dyson-Hudson and Meekers 1996:313–15).³ This is not simply greed: from a father's perspective, his daughter (and any children she bears) have a better chance of being well-fed if she marries a man with a substantial herd.

The personal attributes of sons' wives are important to the herd owner providing the bridewealth because these women will become members of his production unit. Fathers will reject a son's choice of wife if she is lazy, "talks back," or is from a family of "witches" (i.e., people judged to be dangerously antisocial).

Because South Turkana bridewealth is so high, the few animals a young man receives as gifts from kin and friends in early life are not sufficient for him to marry. Fathers thus control their sons' marriages through their control of the allocation of livestock from the family herd.⁴ A herd owner should provide bridewealth for his sons' first marriages and, usually later, provide them with livestock to establish their own herds. However there is no formal requirement about when the old man must do so, and most fathers delay sons' marriages until long after the young men reach sexual maturity. Sexual maturity is about age eighteen, and the average male age of first cohabitation is thirty-two years (R. Dyson-Hudson and Meekers 1996). The rule that a man may not complete his marriage until all brothers in the polygynous family who are senior to him have completed theirs reduces competition among sons, but it disadvantages younger sons, particularly in poorer herding operations.

Keeping sons as dependent herd managers delays the splitting of large herding units, which we believe enhances herd survival in times of environmental stress (Fratkin [1991] demonstrates this for the neighboring Rendille). But this strategy creates problems between fathers and sons. Although overt competition is moderated by the belief that a son who shows disrespect to his father will suffer severe, even fatal, consequences, if a father delays a son's marriage too long, the young man sometimes seeks nonmarital sexual relations which, if pregnancy results, can be costly to the family herd (see below). Or he sometimes leaves the pastoral sector, often facing extreme poverty because there are few economic opportunities for former pastoralists either in Turkana trading centers or in downcountry Kenya (R. Dyson-Hudson and Meekers n.d.).

Fathers, using sons as intermediaries, attempt to use force to control their daughters' sexuality: if a daughter has an illicit sexual liaison, both the unmarried girl and, particularly, her seducer often are severely beaten. Fights over women—defending sisters from seduction and fighting a girlfriend's brothers when caught trying to seduce her—were the second most common cause of within-group fighting reported by South Turkana men (N. Dyson-Hudson and

R. Dyson-Hudson n.d.). Girls whose fathers try to force them to marry a man they hate also sometimes leave the pastoral sector, thereby risking extreme poverty. Both the ethnographic data and quantitative analyses (see below) indicate that many young men and unmarried women defy their fathers and seek illicit liaisons, which sometimes lead to nonmarital pregnancies.

(Adultery—illicit sex with a married woman—is a much more serious offense than sex with an unmarried girl. Traditionally a seducer was killed, and today he risks having most or all of his livestock confiscated by the cuckolded husband. The wife is beaten and sometimes is sent away by her husband, who does not have to return bridewealth. Unlike premarital sex, being caught in adultery is very rare.)

The genealogical sample clearly documents the prevalence of nonmarital children among the South Turkana. Of 1,623 first-born children in the sample for which information is available, 812—50 percent—were nonmarital. The following proximate factors leading to nonmarital pregnancy were identified (NDH 1984–1996) and then ranked in order of importance (JEM 1997): (1) accidental result of sexual unions which were not approved by fathers; (2) a strategy used by couples to force fathers to agree to their marriage (see also below); (3) a girl's choice to prove her fertility and make her a more desirable marriage partner; (4) a girl's choice to pressure a man to marry her; (5) a man's choice to prove a girl's fertility; (6) a daughter is encouraged by her old mother to become pregnant to provide the old woman with help in old age (Shell-Duncan 1994:153); and (7) a young man seeking vengeance against a girl's kin for having impregnated his sister.

The Turkana marriage process delays marriages of younger brothers relative to older brothers and fathers and reproductively disadvantages women whom their fathers marry to very old men. Ethnographic data collected during the genealogical study and a small sample of Turkana in an agricultural settlement (Brainard 1991:112) also indicate that women who leave the pastoral sector produce fewer children than women who spend their reproductive years in the pastoral sector. In the following sections, we discuss how women who bear children outside of marriage and children born of illicit relationships also sometimes are disadvantaged.

Nonmarital versus Marital Children

Turkana call children born to a woman who has completed the marriage process “children of the house” (*ngide a akai*). They call children born to a woman without her partner's formal marital commitment “children of the dancing ground” (*ngide a akero*).⁵ We use the terms “marital children” and “nonmarital children,” respectively, for these jural categories. The rule determining the status of children is that each child belongs to the man who controls the mother's sexuality at the time that child was conceived. Until marriage transfers “ownership” of a woman from her father to her husband, any child that woman conceives belongs to her father. Children conceived after the transfer belong to the woman's husband. Being of the *akero* or the *akai* determines who is responsible for providing

a boy with livestock to marry and to establish his herd, who controls a girl's sexuality and therefore has the right to receive bridewealth payments when she marries, and who has exclusive rights to the labor of both boys and girls, as long as they remain with their "natal" family. Birth status usually also determines residence: nonmarital children reside with their mothers' natal family, and marital children reside with their biological father and mother. In particular families, adoption, fostering, and other exchanges of children can modify this residence rule to meet needs of labor, care, and comfort (Shell-Duncan 1994).

Rules determining affiliation are straightforward, but their application is negotiable. For example, once a stable relationship is established and bridewealth exchange is well underway, a woman's children generally are considered to be marital, even if the ox of marriage has not yet been killed. However, until the marriage process is completed, a father can reclaim his daughter and thus unilaterally change the jural status of her children.

A man who impregnates a girl before marriage must acknowledge paternity and pay her family compensation (*ekichul*)—thirty small stock for the first nonmarital child and eleven for each of the next two children. If more than three children are born of the relationship, no more payment is owed. The pregnancy payment is compensation to the woman's family for the "theft" of her sexuality: the animals are not allocated to support the woman and her children. Although these payments will seriously deplete the family herd of a poor man, they give the man no rights to the child. Formally, the animals do not count toward bridewealth payments, though sometimes they are taken into account during future bridewealth negotiations. A man can become a child's legal father (*apa*) if he marries his/her mother and makes a "marriage" payment for the child. (This is required for each nonmarital child he wishes to incorporate into his family.) In the genealogical sample, 20 percent (163 of 812) of first-born nonmarital children were taken by their biological father, and 1 percent (10 of 812) were taken by a mother's husband who was not their biological father.

A nonmarital child who is not "married" by the mother's husband nonetheless has a legitimate position in Turkana society in the natal family of its biological mother. In a small sample of Turkana children, Shell-Duncan (1994:162) observed no significant difference in health status indicators between fostered (primarily nonmarital) children and nonfostered (primarily marital) children. However nonmarital children suffer long-term disadvantages after the death of the grandparents, when responsibility for them devolves on the biological mother's brother (the child's classificatory older brother). A boy of the *akero* is too young to compete effectively with his mother's brothers for his share in the grandfather's herd, which ultimately would allow him to marry and establish himself as an independent herd owner. Furthermore, all nonmarital children must compete with their mother's brother's children for food, which often is in short supply and is allocated by the uncle's wives, who are not biologically related to the child. Those who have been in the position of depending on unrelated women for their allocation of food see themselves as deprived and disadvantaged.

Although we observed individual cases where male nonmarital children were well provided with livestock by both their biological father and their maternal uncle and ultimately became successful herd owners, many married at a later age than their marital full siblings. Also, nonmarital children of both sexes emigrate at a significantly higher rate: during a major drought (1979–1981), they were 66 percent more likely to emigrate than were marital children (R. Dyson-Hudson and Meekers n.d.).

QUANTITATIVE ANALYSIS OF WOMEN'S MARRIAGE

Quantitative analysis of women's marriage, based on the demographic sample of 10,737 South Turkana pastoralists, provides information about covariance of female cohabitation status with biological, social, and environmental factors. It furthers our understanding of the South Turkana marriage system and its connections to the pastoral production system and provides evidence of the differential impact this marriage system has on different age and sex classes within Turkana society. (Male marriage was considered in R. Dyson-Hudson and Meekers [1996].)

The Genealogical Study

Sixty-three genealogies were used as the basis for collecting demographic data in Turkana, because kinship is an organizational feature in Turkana society that remains constant despite changes in residence through time and space. The founding elder of each genealogy was a South Turkana herd owner born between about 1860 and 1917, who was the father of a successful pastoralist who cooperated in a 1982 herd survey (R. Dyson-Hudson 1985). The sample of (as nearly as possible) all members of each genealogy (1) provided a method for selecting a sample that also included people who emigrated and who died while pastoralists, classes generally omitted in sample surveys and censuses; (2) allowed RDH to identify sample members despite their constant movements, in order to locate and interview them; (3) allowed knowledgeable informants to be interviewed about uterine families other than their own; and (4) provided retrospective longitudinal information for a period of approximately seventy years.

Genealogical reconstructions were possible because of people's interest in and knowledge of their own life history events as well as those of neighbors and friends, and because South Turkana name years for specific events which occurred in the wet season and dry season of each year. P. Leslie and R. Dyson-Hudson correlated Turkana year-names with calendar years by sequencing and identifying marker years. Most parents tell each child his/her year of birth, and the constant movement of Turkana camps helps to fix in the people's minds the dates of other demographic events. During interviews, they frequently associated a specific birth or death or marriage with the place where they were at the time it occurred and then were able to identify the year by discussing with other people the name of the year when their camp was located at that particular site.

All interviews were carried out in the Turkana language by RDH, working

with one of the two experienced Turkana assistants who have been working with her since 1980. Three or four interviews about each of up to one hundred uterine families were required to reconstruct a genealogy satisfactorily. More than nine hundred men and women who were genealogy members or long-time neighbors were interviewed, many several times. These major informants almost always were accompanied by other family members, so most interviews were with small, multiaged groups of close kin.

As nearly as possible, completed genealogies include all male and female descendants of the founding elders and the wives of all the men in each genealogy. (No other affines were systematically included in the sample.) The demographic history of each individual records: (1) sectional affiliation; (2) father; (3) mother; (4) name; (5) whether a child is nonmarital, marital, born after the mother was inherited, of an adulterous union, or adopted out of its natal family; (6) sex; (7) year of birth; (8) beginning year of marriage; (9) marital status; (10) alive or dead; (11) year of death; (12) reported cause of death; (13) pastoralist or not; (14) for out-migrants, when and where he/she left; and (15) comments.

Data were coded to allow analysis of life histories in the context of each individual's polygynous and uterine family. Individual life histories are not of equal accuracy (members of some branches of some genealogies had all died or moved away), so the quality of information about each uterine family and about dates of birth, marriage, and death of each individual was coded while entering the data. Women were coded to allow inclusion or exclusion of wives of sons according to the analyses being made. Thus the sample used in each specific analysis can be restricted to that subset of the full database that provides an appropriate sample and information at the level of accuracy required.

Genealogical methods, not currently in vogue, have a long tradition in anthropology (Rivers 1900, 1906; see Hackenberg 1975 and Barnard and Good 1984 for reviews). However only those organized on the basis of biological relatedness, as in this study, are suited for turnover studies that follow fates of specific individuals over time, recording their entry into and exit from the population as well as changes in status of those who remain (Hackenberg 1975:292). A major problem with genealogical reconstructions is that the sample size is determined when founding elders are selected, but it is not known until data collection is completed. In the Turkana study, spatial intermingling of kin groups required simultaneous collection of information about members of all sixty-three genealogies during repeated stays near major water sources distributed over the 10,000 km² of South Turkana territory. Unknown biases would have been introduced if the study had been terminated before information was collected on (as nearly as possible) all members of all the genealogies. This took twice as long as anticipated.

Statistical Methods Used in Analysis of Genealogical Data Set

For the statistical analysis of marriage of women, we extracted from the genealogical sample all females who had reached marriageable age (fifteen years), including all women who permanently or temporarily left the pastoral

sector and who died after reaching fifteen years of age. Only those women whose demographic histories were incomplete were excluded, i.e., those who had not yet reached age fifteen or who had died or left the pastoral sector before age fifteen. The resulting sample consisted of 2,557 females, of whom 1,831 are biological members of the genealogies and 726 “accompanied” men in the genealogies. For each of the females selected, we attached information about their siblings by the same mother and, where appropriate, about their first husband (defined as a cohabiting male) and first child. Information about the siblings includes sex, year of birth, whether he/she is a nonmarital or marital child, whether he/she is still alive, and whether he/she has ever married. Information about the husband is available for wives, but usually not for daughters. For each woman, the year of birth of her children was obtained, and their status as marital or nonmarital child was recorded.

The timing and prevalence of marriage, defined as cohabitation, was analyzed using standard life table methods. The correlates of the timing of first cohabitation are examined using Cox proportional hazard models. In these models, the dependent variable is a dummy variable indicating whether or not a woman ever cohabited and the duration until the onset of cohabitation. The risk of starting cohabitation is then measured by the following hazard rate function:

$$\begin{aligned} h(t) &= \frac{\text{Probability of starting cohabitation between } t \text{ and } t + 1}{\text{Probability of starting cohabitation after time } t} \\ &= \frac{b_1x_1 + \dots + b_kx_k}{h_0(t)}e \end{aligned}$$

The Cox regression model estimates the coefficients b_1, \dots, b_k (Computing Resource Center 1992). A positive coefficient indicates a higher hazard of the onset of first cohabitation, and thus a younger age at first cohabitation, while a negative coefficient indicates a lower hazard and later age at first cohabitation. These coefficients are converted to hazard ratios, which are associated with a one-unit change in the explanatory variable. Like life tables, Cox proportional hazard models allow the use of censored data, which makes them particularly useful for the analysis of the genealogical data.

Women's Marital Status

Determining “marital status” in interviews was a problem because Turkana marriage terms in general refer to jural status based on bridewealth exchange, rather than to residential status (i.e., cohabitation involving a stable, long-term sexual relationship). Furthermore, the processual nature of marriage created problems in coding/classifying women's marital status into the simple, discrete categories required for statistical analysis. A mixed set of Turkana categories was therefore used in interviews and analyses, as follows.

Aberru (woman) refers to a female for whom bridewealth payments are complete, or at the very least well on the way toward completion, and contrasts with *apese* (girl), which refers to a female for whom bridewealth payments are

not completed or perhaps not even begun. When an *apese* accompanies a man and/or has children, she becomes an *apese a ngabuos*, roughly translatable as “a girl in woman’s clothing.” (A girl changes from a small, beaded front apron to a larger skin apron as one of the sequence of marriage ceremonies.) However, women referred to as *apese a ngabuos* include (1) women for whom no bridewealth payments have been made nor (almost certainly) ever will be made, who often have several children (sometimes by different fathers), and who remain with their natal family, through (2) women who, with their children, live in an approved marital relationship with their man in his camp, with only the killing of the ox remaining to complete the marriage process. To further complicate categorization, a father sometimes refers to his daughter whose bridewealth payments are yet not completed as an *apese a ngabuos*, while her husband will firmly say she is his *aberru*.

In the following discussions based on life table analyses, we therefore focus on reported year of first cohabitation (*erukori ka ekile*, “she accompanies a man”) and use the terms “cohabitation” or “sexual union” rather than “marriage.” We combine these residential categories with jural categories (*aberru*, *apese*, and *apese a ngabuos*) for the statistical analysis of social and environmental correlates of female cohabitation, as follows:

1. Sexually active women who are not on the marriage track
 - (a) who do not accompany a man while still in the pastoral sector, usually remaining with their natal family (noncohabiting *apese a ngabuos*).
 - (b) who accompany their man to his camp but whose family has received either no livestock payments at all or only a pregnancy payment (cohabiting *apese a ngabuos*).
2. Women who are on the marriage track
 - (a) for whom varying amounts of bridewealth have been paid, but the marriage is incomplete because the “ox of marriage” has not yet been killed (marriage track). This category also includes women who were reported as married (*ewusitai*), but it is unknown if the final ceremony was or was not completed.
 - (b) who were reported as having completed the marriage process, including all the bridewealth exchange and the killing of the ox (completed marriage).
3. Women fifteen and older who have not yet cohabited, are not reported as having had a child, and are living in their natal camp (*apese*).

Next we consider covariance of some biological and social factors with female cohabitation status and with the prevalence of nonmarital children.

Timing of Cohabitation

Average age at first union (about twenty-two years) indicates that Turkana women begin cohabiting relatively late as compared with women elsewhere

in sub-Saharan Africa (see Kaufmann, Lesthaeghe, and Meekers 1988:227–29; Lesthaeghe, Kaufmann, and Meekers 1989:245–49, 263–71). However, many earlier studies using sample survey data overestimate the incidence of women's marriage in Africa, because such data do not include women who died unmarried or who emigrated—classes that are included in our life table analysis genealogical data. A better understanding of timing of cohabitation is provided by life table estimates of the percentage of Turkana women who have not begun cohabiting at various ages. These calculations, which follow a hypothetical cohort of unmarried women until they either marry, die, or migrate out of the pastoral sector, can handle censored data; they allow inclusion in the analysis of information about women who died unmarried or who migrated out of the pastoral sector before marriage.

Figure 2 shows the percentage of Turkana women who have not yet started cohabiting at various ages, distinguishing among living pastoralist women ($N = 1,068$), deceased pastoralist women ($N = 209$), and women who have emigrated out of the pastoral sector ($N = 551$). Data for living pastoralist women show that at age twenty-five more than half (52 percent) had not started cohabiting, and at age thirty this is still the case for 24 percent of the women. Even by age thirty-five, 13 percent of all pastoralist women had not yet started cohabiting, and very few started cohabiting after age thirty-five. Figure 2 also shows that a substantially higher proportion of deceased pastoralist women, and of women who have emigrated out of the pastoral sector, never cohabited in the pastoral sector. At each age, the group of women who were alive at the time of the fieldwork had higher cohabitation rates than the group of women who had died by the time of the survey, suggesting that women who do not cohabit are more likely to die. (It also is possible that women who are in good health or otherwise advantaged, and therefore less likely to die, are more likely than other women to start cohabiting.) The higher percentage of female emigrants who are not married is consistent with ethnographic reports that some women follow a man out of the pastoral sector or leave to find a man.

Distribution of Women across Categories of Sexual Unions, by Age

The percentage distribution of adult women across the five categories of sexual union described above is shown in Table 2, broken down by age group. Because including women who married into the genealogies might bias the sample toward women who are on the marriage track, Table 2 is restricted to (living) biological genealogy members. Overall, 36 percent of women fifteen years and older are not yet in a stable sexual union. Of the remaining 64 percent, 11 percent are classified as noncohabiting *apese a ngabuos*, 3 percent as cohabiting *apese a ngabuos*, and 28 percent as on the marriage track (mostly women for whom the ox has not been killed, but also some women who are reported as married, but there is no specific information whether the ox has been killed). Twenty-two percent are reported as having completed the marriage process.

Among women age thirty and above, most are either on the marriage track or have completed all the marriage ceremonies, including “the ox killing.”

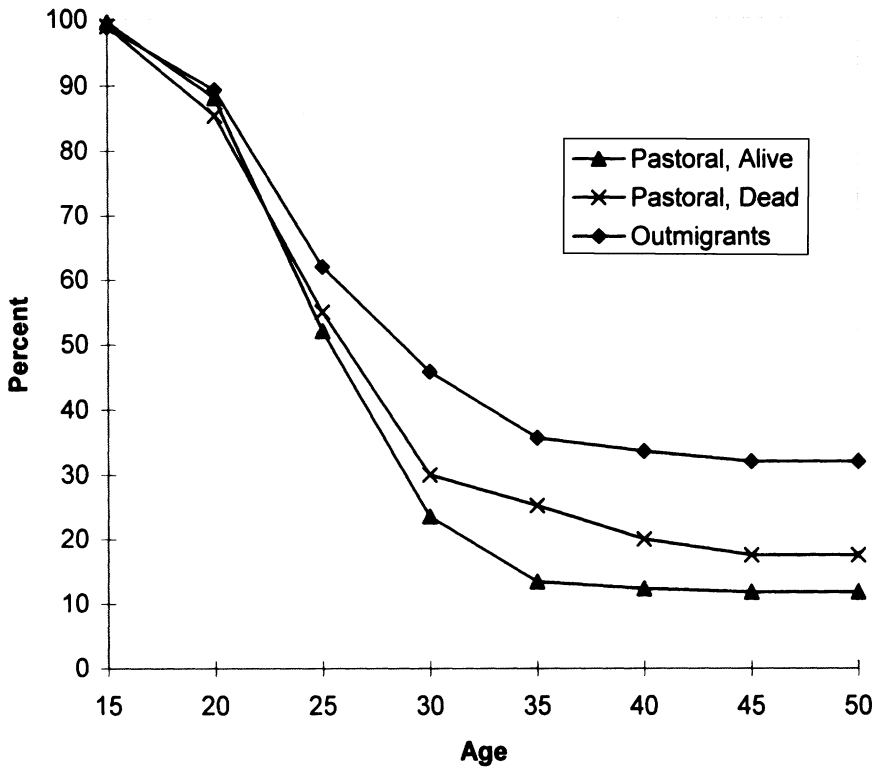


Figure 2. Life Table Estimates of Percentage of Women Who Never Cohabited, by Age and by Migration and Survival Status

Data for Figure 2

Age	Percentage of Women Who Never Cohabited			
	All Women	Surviving Women Who Remained in the Pastoral Sector	Deceased Women Who Remained in the Pastoral Sector	Women Who Migrated out of the Pastoral Sector
15	99.3	99.6	99.0	98.9
20	88.1	88.1	85.4	89.3
25	55.5	52.0	55.0	62.0
30	30.7	23.5	30.0	45.8
35	21.3	13.4	25.2	35.6
40	19.3	12.3	20.0	33.6
45	18.2	11.8	17.5	32.0
50	18.2	11.8	17.5	32.0
N	1,828	1,068	209	551

Note: Data are restricted to biological genealogy members.

The percentage of women not in a stable sexual union is high among younger women and lower for older women. The percentage of noncohabiting *apese a ngabuos* increases after age fifteen but does not exceed about 20 percent for

TABLE 2
Percentage Distribution of Women by Type of Union and Age

Age Group (years)	Single	Noncohabiting <i>Apese a Ngabuos</i>	Cohabiting <i>Apese a Ngabuos</i>	Marriage Track	Completed Marriage	N
15–19	91.2	0.7	0.3	7.2	0.7	305
20–24	62.2	8.1	0.7	23.7	5.4	148
25–29	34.3	13.1	5.2	38.4	9.0	268
30–34	24.4	11.7	3.0	40.0	20.9	230
35–39	10.7	19.5	6.0	31.5	32.2	149
40–44	8.9	15.0	7.1	27.4	41.6	113
45–49	11.4	16.2	2.9	27.6	41.9	105
50–54	5.4	15.1	4.3	28.0	47.3	93
55–59	6.8	20.5	0.0	29.6	43.2	44
60+	4.1	13.0	0.0	30.1	52.9	123
Totals	36.1	11.3	3.0	27.6	22.1	1,578

Note: Data are restricted to surviving biological genealogy members.

women age thirty and above. The percentage of cohabiting *apese a ngabuos* is highest for women age forty to forty-four (7 percent) but lower for older women. The considerable percentage of women who have passed the prime marriage age (thirty-five) and are noncohabiting *apese a ngabuos* suggests that these informal unions are usually not a prelude to marriage. Rather, it seems that those women who are in such an informal union at age thirty-five or above are unlikely to have a formal marriage. By comparison, the percentage of cohabiting *apese a ngabuos* is very low among women past age forty-five, suggesting that some women in this category get on the marriage track or that a higher proportion of women in these age cohorts were formally married.

The data collected during the genealogical study show that of the relatively few women who had not entered some sort of union by age forty, many had severe mental or physical disabilities, e.g., were retarded or lame (see below). A few remained unmarried because of social disabilities. For example, no man would marry either of the twin daughters of the second wife of one rich man because the first wife was jealous because she had only sons and put a curse on the other woman's daughters.

Sex Differences in Age at Cohabitation, by Wife Order

Table 3 shows the mean age at first cohabitation for South Turkana women, as well as the mean age of their partner at that time, broken down by wife order in the polygynous family. Women's age at first cohabitation is between twenty and twenty-two and does not vary much by wife order. First wives are, on average, ten years younger than their husbands. For second and third wives, the difference is twenty-one and thirty-three years, respectively. The data suggest that fourth and higher-order wives (up to eighth) are approximately forty-one years younger than their husbands (s.d. 10.5).

The fact that, regardless of wife order, men marry women about twenty to

twenty-two years old suggests that, consciously or unconsciously, they are seeking similar attributes in wives of all orders—quite probably reproductive potential or its proximate correlates. The approximately ten-year period between men's marriages to first, second, and third-order wives may best be understood in terms of the large bridewealth required and relatively slow herd growth. The relatively small number of fourth and higher-order wives in the sample almost certainly reflects the fact that few herd owners survive long enough and/or are wealthy enough to marry more than three wives. Turkana described wealthy men as "having a good heart" when they chose to marry only about four wives and then devoted their herd resources to helping their sons to become independent herd owners (RDH 1989–1991). The fact that the average age at marriage of herd owners for fourth and higher-order marriages is approximately sixty, after which time oldest sons of first marriages would be reaching marriageable age, is compatible with the idea that a herd owner's decision not to marry again may be influenced by competition with his mature sons, who need animals from the family herd to marry and to establish their own herds.

TABLE 3
Female and Male Mean Age at First Cohabitation, by Wife Order

Wife Order	Wife's Age at First Cohabitation		Husband's Age at Cohabitation		Husband-Wife Age Difference		N
	Mean	s.d.	Mean	s.d.	Mean	s.d.	
First wife	22.4	5.2	32.6	7.2	10.2	7.7	578
Second wife	22.4	5.4	43.6	10.0	21.2	10.9	223
Third wife	21.8	4.3	54.5	9.5	32.7	9.5	88
Fourth and later wife	21.4	4.1	62.2	10.6	40.8	10.5	69

Social Factors Covarying with Women's Age of Cohabitation

On the basis of ethnographic information from interviews, information available about family and individual attributes of women in the genealogical sample, personal observations, and research of other STEP members, we made the following predictions about how other social factors may influence the age of cohabitation:

1. Women with brothers will marry younger than those without; having sisters will have little or no effect.
2. Barren women will not be desirable marriage partners.
3. Having a first child outside of marriage will negatively affect the likelihood of a woman's cohabiting.

The predictions are explained below and are tested using a Cox proportional hazard model to analyze the genealogical data. The results are presented in Table 4.

TABLE 4
Cox Proportional Hazard Model Estimates of Factors
Affecting Women's Cohabitation

Factor	Model 1	Model 2	Model 3
Brothers	1.292*		1.283*
Sisters	0.901		0.907
Reported barren		0.242**	0.237**
Has child of the <i>akero</i>		0.496**	0.498**
Year of birth	0.997	0.996*	0.995*
N	1,823	1,828	1,823

Note: Data are restricted to biological genealogy members.
p* < .05 *p* < .01

Siblings. Since most of a son's start-up herd and most of the bridewealth for his first wife come from the family herd, young men might pressure their sisters to marry early to facilitate their own marriage and independence. We would therefore expect women who have brothers to have a higher likelihood of cohabitation than women who do not have brothers. Having sisters would not have this effect because sisters do not need to accumulate bridewealth or establish independent herds, and there is no cultural rule defining the sequence in which daughters should marry.

Model 1 of Table 4 shows that women who have brothers are 1.3 times as likely to begin cohabiting as women with no brothers, even after controlling for the woman's birth cohort. In other words, women with brothers do tend to start cohabiting at an earlier age than women without brothers. Having sisters has no significant effect on the likelihood of cohabiting.

Ability to Have Children and Having a Child before Formal Union. Since children play an important role in the labor-intensive Turkana livestock production system, a woman's ability to produce children should strongly affect rates of cohabitation, and a barren woman should be a less desirable marriage partner. The possible effects of having a nonmarital child are less obvious. Karimojong informants (a pastoral group historically related to the Turkana with whom NDH and RDH worked in the late 1950s) stated that having a nonmarital child enhances a woman's chances of developing a formal union with her partner because it proves her fertility (NDH 1956–1958). But interviews with and observations of Turkana (NDH 1984–1986, RDH 1989–1991) indicate that a major factor in fathers' and brothers' defense of their daughter's/sister's sexuality is their fear that the birth of a nonmarital child would reduce the girl's chances of marriage.

We estimate the effect of having nonmarital children on union formation by using a dummy variable which equals 1 for women whose first child was born before marriage and 0 for all other women (including those who did not yet have children). The results (Model 2, Table 4) show that both barrenness and having nonmarital children have strong negative effects on the cohabitation hazard. Ethnographic accounts indicate that some barren women marry be-

fore their barrenness is revealed. (This is most likely for daughters of wealthy men, who often will not allow their daughters to cohabit until the formal marriage process is completed.) Also, an old man who wants a wife to take care of him in his dotage sometimes marries a woman known to be barren, her fertility being irrelevant to his needs, and a polygynous man may retain a younger wife who has proved barren because of the wife's skills and willingness to work, the value of her family as supporters, and/or the shared affection of husband and wife.

All Variables. The third model on Table 4 shows the effect of all variables combined and confirms findings from the previous models showing that women with brothers are more likely to marry and that barrenness and having a nonmarital child reduce the likelihood that a woman will start cohabiting with a man. Lameness and retardation (conditions that would impair the working efficiency of a woman in a herding enterprise) appear to have an effect, but they could not be included in the above models because none of the women who were reported as lame ($N = 2$) or retarded ($N = 5$) were married.

Nonmarital Children as Offsprings' Manipulation of Parents

An examination of twelve cases of late female cohabitation (thirty-five years or older), where there is sufficient ethnographic and genealogical information about both the woman and the man, indicates that in at least three cases, having nonmarital children was a strategy used by the young people to pressure recalcitrant fathers to allow them to cohabit. One case clearly involved female choice. The girl refused the man whom her father, the most important ritual specialist in South Turkana, chose for her. She then had three nonmarital children by one man; after he died, she had a child by another man whom she later accompanied. In another case, the prospective husband was reported as "poor," but after fathering two nonmarital children, he had "enough animals to marry." It was not specified whether this was because his herds increased or because the bridewealth demands were reduced. In the third case, the second son of the first wife of one of the wealthiest South Turkana herd owners, who was notoriously fierce, domineering, and greedy, had three *apese a ngabuos* and fathered six nonmarital children. Then his father finally allowed the son to marry the first *apese*, although the nonmarital children remained with their grandmother. This young man's older brother also enraged his father by fathering four nonmarital children, at which point the father chose a wife for the son.

Marital versus Nonmarital Children by Birth Order and Through Time

Figure 3 shows the percentage of nonmarital children for each birth order born to women in the genealogical sample before 1975, between 1975 and 1984, and after 1984. For children born before 1975, the results show that nearly half of all first-born children (45 percent) were nonmarital children; for the period 1975 to 1984, 55 percent were nonmarital; and for those born after 1984, 57 percent were nonmarital children. For second-order births, the prevalence of nonmarital children drops to 23 percent, 33 percent, and 38 percent,

respectively. The rest of Figure 3 indicates that the higher-order births exhibit a similar drop in the prevalence of nonmarital children and rise in the percentage of marital children through time.

The trend toward a decreased percentage of nonmarital children with higher birth order of children in part reflects the fact that women on the marriage track are more likely to remain in the pastoral sector (and therefore in the sample) than unmarried women and also the increased likelihood that with increased age, a woman has married, so all her higher birth order children are/will be marital. Another probable reason for the increase in frequency of nonmarital children through time is that there has been little or no reduction in bridewealth demanded by fathers, while human population increase in a relatively unchanging environment has led to reduced human-to-livestock ratios, thus delaying age of marriage and/or preventing some marriages from taking place. The increase in the percentage of nonmarital children in all birth cohorts born after

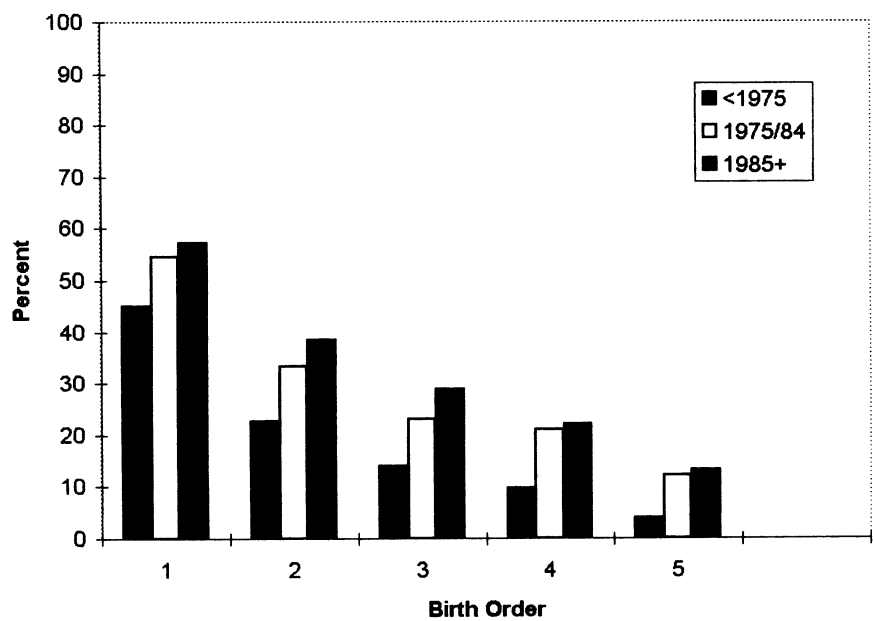


Figure 3. Percentage of Nonmarital Children, by Birth Order and Birth Cohort

Data for Figure 3

Birth Order	< 1975		1975–1984		1985+	
	%	N	%	N	%	N
1	45.1	918	54.6	405	57.3	281
2	22.7	776	33.3	351	38.4	279
3	13.9	639	23.0	283	28.9	256
4	9.6	522	21.0	219	22.0	218
5–12	3.9	1,130	12.1	481	13.1	459

1975 probably is a result of the drop in livestock/human ratios due to increased raiding, which escalated after 1975, and herd losses of 30 to 50 percent during the 1979–1981 drought, the worst in living memory (Little et al. n.d.; McCabe 1987:376–84).

Evaluating Reasons for the Prevalence of Nonmarital Births

The data do not allow testing the relative importance of the reasons cited by informants for the prevalence of nonmarital births, but the fact that having a nonmarital child markedly reduces a woman's likelihood of entering a stable cohabiting union is consistent with reports that nonmarital children most often are the accidental result of nonmarital sexual unions. This does not eliminate the possibility that other factors are involved. A woman may choose to become pregnant to make herself a more desirable marriage partner, either because she considers this an appropriate strategy given her relationships both with the man and with her father or because she chooses a bad strategy. A mother may encourage her youngest daughter to have a nonmarital child to provide the old woman with help in old age, though, over the long term, her daughter and grandchild may be disadvantaged.

Environmental Fluctuations and Age of Cohabitation

Low predictability fluctuations in rainfall—short-term (seasonal), medium-term (periods of droughts and of abundant rainfall), and long-term (climatic change through time)—have profound effects on Turkana human biology and social organization (Little and Leslie n.d.). For example, strong seasonality of births has been documented by intensive interviewing of a relatively small sample of Turkana pastoralists (Leslie and Fry 1989).

Because a woman's marriage depends to a large extent on the future husband's ability to obtain bridewealth animals, it seems likely that the prevalence of marriage would be vulnerable to fluctuations in livestock numbers. We predicted a reduced rate of cohabitation during the 1979–1981 drought when numbers of livestock plummeted; and since herds recover slowly (unlike agricultural crops, whose yields can fully recover a few months after a drought ends), that reduced marriage rate would continue after the end of the drought.

The genealogical data, which allow analysis of variations in cohabitation frequencies with medium-term fluctuations in rainfall, show the hazard of cohabitation at various ages for selected birth cohorts who reached marriageable age before the drought, during the drought, and after the drought (Table 5). An examination of the hazard rates for all birth cohorts combined (the first column) shows that hazard rates of starting cohabitation gradually increase until age twenty-five to twenty-nine, after which they start declining. However, women who were in their prime marriage years during the period 1979 to 1983 deviate from this pattern. For example, women born between 1965 and 1969 reached age fifteen between 1980 and 1984. For these women, the hazard of starting cohabitation between ages fifteen and nineteen is only 0.0165 compared to 0.0239 for all women combined. Likewise, for the 1960–1964

TABLE 5
Cohabitation Hazards by Age for Selected Birth Cohorts
(Life Table Estimates)

Age	Birth Cohort			
	All Cohorts	1955–1959	1960–1964	1965–1969
10–14	0.0013	0.0000	0.0007	0.0000
15–19	0.0239	0.0212	0.0187	0.0165
20–24	0.0909	0.1104	0.0633	0.0954
25–29	0.1149	0.0863	0.1873	
30–34	0.0730	0.1333		
35–39	0.0196			
N	1,828	216	301	148

birth cohort, who reached age twenty during the drought period, the hazard of cohabiting between ages twenty and twenty-four is only 0.0633 compared to 0.0909 for all women combined. Thus women in the three age cohorts which passed through marriageable age during the drought and early recovery period exhibited delayed marriage as compared with women in the same age cohorts who reached marriageable age either before or after the drought.

Table 5 also shows that a catch-up effect occurred after about four to five years of herd recovery, when small stock herds, which can grow at an annual rate of 26 percent or more (Dahl and Hjort 1976:96–111), were again large. This catch-up effect is documented by the exceptionally high hazard rates of first cohabitation for ages thirty to thirty-four for the 1955–1959 birth cohort (0.1333) and ages twenty-five to twenty-nine for the 1960–1964 birth cohort (0.1873). Because of this catch-up effect, drought might have a large effect on the timing of cohabitation but a much smaller effect on the percentage of women who ever cohabit. However if childbearing also was delayed, population growth would have been slowed as a result of the drought.

BENEFITS AND COSTS OF TURKANA MARRIAGE PRACTICES

A synthesis of these ethnographic/demographic analyses of South Turkana marriage with other studies by the authors and STEP participants allows us to consider the benefits and costs of traditional Turkana marriage practices to different categories in Turkana society and to relate these to the pastoral production system as a whole.

Benefits to Herd Owners, Elder Sons, and Formally Married Women

To recapitulate, South Turkana marriage practices (polygyny, high bridewealth, herd owner control of dependents' marriages, the rule that sons marry in order of seniority in the polygynous family) benefit wealthy herd owners, older sons, women who have completed the formal marriage process, and children of these unions. Benefits that accrue to a herd owner include

wives and children necessary for development and survival of his herding operation, and as the family herd grows, polygyny allows a herd owner to acquire more wives, directly and indirectly providing more herding labor. His right to determine whom each dependent marries allows a herd owner to select congenial and strategic in-laws to incorporate into the network of people on whom he can call in times of need. High bridewealth and control of livestock allocations for sons' marriages allow a herd owner to maintain a large herd and keep experienced sons as dependent herd managers well into their adulthood, thus increasing the likelihood of survival of his herd during times of environmental stress. The rules that sons marry in order of seniority in the polygynous family and that sons must obey and respect their fathers reduce within-family competition and increase the likelihood of the cooperation necessary for the survival of the family herd, particularly when livestock resources are scarce. High bridewealth payments for daughters benefit both paternal and maternal relatives of the bride, but particularly her father and oldest full brother.

Older sons in the polygynous family benefit from having priority in livestock allocations from the family herd. Wives who have completed the marriage process and their children benefit by having jural rights to animals in their husbands'/fathers' herds—although rights must sometimes be defended by brothers or grown sons.

Costs to “Unmarried” Women, Nonmarital Children, and Younger Sons

Ethnographic and demographic evidence suggests that these same cultural practices have a negative impact on some categories in Turkana society, which can be envisaged as “costs” of the culturally endorsed marriage process. They contribute to the late marriage of men and women and to the inability of many young women and young men (particularly younger sons and sons of poor men) to complete formal marriages and/or to marry the partners of their choice. Men who cannot formally marry also cannot set up viable livestock operations, and demographic analyses show that substantial numbers of South Turkana pastoralist men die or emigrate never married (R. Dyson-Hudson and Meekers 1996). Late marriage and the ineligibility of many men to marry in turn contribute to the high frequency of illicit sexual unions and to the prevalence in South Turkana of nonmarital children. The substantial numbers of South Turkana women who have not completed formal marriage do not have any jural rights in their man's livestock herd should he die, and nonmarital children do not have strong advocates to protect their interests when their biological grandparents die. Therefore, both categories are economically and socially disadvantaged in this highly competitive society.

A high emigration rate is an indicator that a group is disadvantaged in the pastoral sector, because economic opportunities for Turkana pastoralists who emigrate are in general very poor. Most emigrants have either failed as pastoralists or see no future for themselves in the pastoral sector. Women who are not on the marriage track leave the pastoral sector at higher rates

than women on the marriage track, and nonmarital children emigrate at significantly higher rates than marital children.

Benefits to the Pastoral Production System

It can be argued that the constellation of marriage practices outlined above contributes to the resilience and persistence of the South Turkana pastoral strategy. By delaying sons' marriages, high bridewealth and herd owner control prevent the society from fragmenting into tiny, independently operating human/livestock units, which would lack adequate resources to provide the diversity of labor and management skills to cope with a harsh, severely fluctuating environment. Inability to marry is one factor motivating nonmarital children, younger sons, and men in families with few livestock to leave the pastoral sector, thus reducing the pressure on their family's herds. Some young women also leave the pastoral sector, thereby reducing the rate of growth of the pastoral population.

DISCUSSION

It has been a working assumption in anthropology since the time of Malinowski that one route to understanding human behavior is to put it in context. Whatever arguments may currently swirl in anthropology about the relative epistemological status of "explanation" and "interpretation," and whatever epistemological and practical difficulties may attend the notion of a complete contextualization, it seems a commonsense assumption that the various behaviors of a human population are interrelated, rather than separate and random, and that some degree of understanding may be reached by seeking linkages between behaviors.

Reproductive processes are central for any population and thus touch on too many issues of biology, behavior, and belief to be dealt with in one article. Such issues include exchange, work, food, emotion, identity, gender, power, socialization, symbolism, and divorce, to name a few. We have confined ourselves to examining female mating/marriage and reproduction only as it bears on the jural status of a woman's children.

But we have combined qualitative and quantitative data, utilized ethnographic and demographic perspectives, and focused on behavioral differences in order to emphasize the negotiability of conjugal and filial relationships and to interpret marriage practices as individual strategies which are directly relatable to the pastoral production strategies by which people cope with the stress of a harsh, fluctuating environment. We also emphasize that adaptive response behaviors have costs as well as benefits, these costs being differentially distributed across the population. Methodologically, we have made a case for the reciprocally supportive use of qualitative and quantitative data as not only answering, but also generating, questions each for the other; for the complementary role of ethnographic and demographic procedures; for the necessity of long-term study, particularly where populations must cope with severe en-

vironmental perturbations; and for the utility of multidisciplinary work to establish the human ecology claim that human behavior exists not in freestanding structures of society or culture, but in complexly integrated biobehavioral systems of adaptive response within which, nevertheless, individual intentions and behaviors can be demonstrated.

This approach also has practical implications. In identifying the differential impact of traditional Turkana marriage practices on various categories of people within Turkana society, it becomes clear that "unmarried" women and their children are particularly vulnerable to impoverishment and should be targeted for projects which aim to benefit "the poorest of the poor." Furthermore, since population is increasing but herds cannot be divided into smaller and smaller units without jeopardizing the integrated social and pastoral production system, it is important to develop alternative economic opportunities for the ever-increasing numbers of men, particularly younger sons, pastoralists who fail, and men who choose not to remain pastoralists.

NOTES

1. Unpublished information from the field notes of N. Dyson-Hudson and R. Dyson-Hudson are attributed in the text as NDH and RDH, respectively; information checked by Joseph E. Munyesi, a South Turkana student now studying at Cornell University, is cited as JEM 1997.

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2. On Table 1, only the Jie of Uganda, current representatives of the ancestral group from which the Turkana split some three hundred years ago, were reported as having similarly high bridewealth payments.

3. In the discussion of marriage, "girl" is used as a translation of the Turkana term *apese*.

4. The father's control over livestock extends even to the right to reallocate the animals he has already distributed to his various wives and which his sons view as forming the foundation of their independent herds. He can, for example, give them to a friend who has been raided by the neighboring Pokot or use them for his own bridewealth to marry a new wife. Even animals acquired by a young man through raiding must be turned over to his father for the family herd.

5. The symbolism of these names is that the house (*akai*), a married woman's sleeping hut built within the settlement, is where legitimate sexual activity takes place, while the dancing ground (*akero*) is that flat, open space within walking distance of a cluster of Turkana homesteads which is used by young people for nighttime dances.

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