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Profits on the Move: The Economics of Collective Migration among the Raika Shepherds in India

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This article examines the question why raika migrant shepherds in Western India travel collectively during the annual movement cycles rather than as individual households. The answer hinges on economies of scale that collective mobility makes available to shepherds, but even more significantly on the ways in which collective movement allows shepherds to address security risks in an uncertain and transient environment. In exploring the economic benefits of collective migration, the article presents fresh evidence on the ways in which participation in markets is crucial to the survival of migrant pastoralism among the raikas. The substantial literature on mobility among pastoralists has enhanced our understanding of the many reasons behind mobility. This article addresses an important aspect of migratory strategies by focusing on why and under what conditions mobile populations might select a collective strategy rather than one that is individually oriented.

Key words: pastoralism, raikas, collective action, mobility; Rajasthan, western India

For poor rural households in western Rajasthan, India, survival depends upon eking out an existence from multiple sources of subsistence: agriculture, labor, and animal-keeping. The small size of landholdings and the low levels of productivity account for the low agricultural income of the average rural family. Uncertain and variable rainfall and a socio-political squeeze on common grazing lands account for the need to migrate with flocks.[1] In this semi-arid environment dwell the raika agropastoralists. Farming their small holdings between three and five months around the monsoons and migrating for the rest of the year, the raikas would be especially hard put to survive without the income yielded by animal herding. What Salzman calls "the multi-resource economy," talking about nomads in Baluchistan and North Africa (1972:66), is clearly the case for the raikas as well.[2]

Sheep-herding, the specific form of pastoralism in the case of the raikas, becomes possible, however, only in combination with mobility. This article focuses on the economics of migration, especially on collective vs. household mobility, to examine how movement over thousands of kilometers leads to financial profits for the raikas. My conclusions are based on data collected in 1990 on thirteen migrant flocks. Archival research in 1992 and 1993 supplemented the original effort in the field.

Raikas migrate collectively in groups called *dangs*. The constituent unit of a dang is an *ewar*. Each dang has anywhere between eight and eighteen ewars. An ewar is usually constituted by three to five shepherds, 300 to 600 sheep, a few camels, and a lot of energy. If the number of animals owned by a shepherd is small, shepherds can bring their flocks together to create an *ewar*.

A number of studies have analyzed the significance of migrations to pastoral economy. These studies all accept that mobility is essential to the survival of subsistence pastoralists in environments beset by marked fluctuations. A lively discussion on whether mobility results from environmental factors (Johnson 1969; Stenning 1957), from social and political exigencies (Burnham 1979; Elam 1979; Lee and de Vore 1968), or from a complex mix of variables (Ingold 1986; McCabe 1994; Sandford 1983) is available in the works of anthropologists. The debate on the causes of mobility has enhanced our understanding that even if the physical environment presents pastoralists with incentives to migrate, the actual choice of migration is highly dependent on social, economic, and especially political factors. After all, not all people living in western Rajasthan migrate, let alone migrate annually!

This article contributes to discussions on mobility by attending to a different aspect of migrations altogether — their

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collective nature. In looking at transhumant pastoralists, students of mobility have taken its individual or collective orientation for granted. Few remark on why individual or collective strategies are chosen. Consider, as examples, Brower's careful study of Sherpa pastoralists in Nepal (1987), Burnham's penetrating examination of the relation between political stratification and spatial mobility (1979), Grayzel's evocative essay on the Fulbe pastoral system in Mali (1990), Lancaster and Lancaster's work on camel pastoralism among the Rwala Bedu (1990), or Barth's seminal work on the Basseri (1961).[3] All these studies present individual or collective mobility as a naturalized fact. It is difficult even to deduce from the above accounts whether the mobility patterns being described are collective or individualized. Yet, if pastoralists migrate both as individual families and in collective camps, it means that in different groups and in different contexts specific social, political, and environmental factors must be operating to make individual vs. collective strategies more appealing.[4]

The following argument, in examining how collective migration among the raikas makes mobility profitable, shows that it is not just mobility that is necessary to address social, political and environmental variability; *collective mobility* is critical for them. If the pastoralists did not migrate together their migrations would not be viable.[5] Analyses of collective migration that defend it as a preferable strategy must, at a minimum, examine the ways in which moving collectively provides shepherds greater returns in comparison to traveling individually. Collective migration raises other important questions about the mechanisms whereby the shepherds address the dilemmas of cooperation. In much policy-related social science literature, there is a vocal advocacy of community. But such efforts on behalf of community are matched by those from believers in the virtues of markets and private property, and state and regulation. Whatever the institutional form, problems of collective action must be solved.[6] In the case of the raikas, their collective organization during annual migratory movements is a prime case of community self-organization to solve problems of collective action (Agrawal 1997).

This article concentrates on the analytically prior issue of the benefits of collective migration. If collective migration did not provide greater financial benefits in comparison to individually oriented movement, the question about how shepherds address the hazards of cooperation will not even arise. The article shows the overall greater benefits to individual raika shepherds from migrating collectively. It also shows that the shepherds must migrate collectively if they are to migrate at all. The argument implicitly confirms other accounts that point to deep-seated problems in policies attempting to sedentarize pastoralists (Ferguson 1994).

The shepherds yoke collective mobility together with another strategy of coping with environmental risks — exchange. A second major thrust of this article is to show how extensive participation in markets is critical for the continuation of what might be seen by some as a traditional pastoralist lifestyle. Earlier studies of pastoralists often depicted them as being relatively autonomous peoples (Evans-Pritchard 1940), or as living in timeless pasts, in what Tsing has called "a space of cultural purity and simplicity more 'settled' even than the space of the sedentary" (1993:150). Recent works have been at some pains to explicate the multiple connections of pastoralists with state officials, markets exchanges, and settled populations (Khazanov [1984] 1994). For the raikas, successful migrations depend crucially on market participation.

After detailing the various elements in the migrants' exchange economy, the article examines the ways in which the collective nature of the enterprise is privileged over individual level migration and locates the reasons for preferring collective mobility in economic- and security-related factors. The raika mobile camps are a prime example of the value pastoralists place on mutual cooperation in an hostile world.

The Raikas

The raika shepherds are, perhaps, the largest group of migrant pastoralists in India. Also known as *rahbari (rabbari)* and *dewasi*, most of them live in western India in the states of Gujarat and Rajasthan (Davidson 1996; Srivastava 1996). Their expertise in herding camels made them an important part of the camel corps of many of the kingdoms in Rajputana, Saurashtra, and Kutch in the 18th and the 19th centuries. With the increasing dominance of modern transportation, mechanized warfare, and settled agriculture, the political importance of the raikas is far lower today. Many still herd camels but sheep are increasingly the animals of choice. Fodder for the sheep comes primarily from commonly owned lands, post-harvest fallow, and state-owned forest areas.

The migrations of the raikas, often spanning distances of more than 1000 miles a year, take them north, east, and south across provincial borders and bring them into contact with farmers and government officials in the Indian states of Haryana, Madhya Pradesh, and Uttar Pradesh. The shepherds sleep in the open and move their camps (*dangs)* almost every day. A mobile camp is led by the *nambardar*. The mobile camp resembles nothing as much as an entire village on the move.

Exchange Relationships

As for Bates's farmers (1981:3), and indeed, as is true for most household enterprises, the real incomes of pastoralists depend on their performance in three markets. Their revenues result from sales in markets for such commodities as sheep, wool, and animal droppings. Their gross profits are a function of revenues, but also of the reigning prices in the markets for inputs — cost of feed and grazing, wool shearing rates, and veterinary medicines. Their net incomes, finally, are determined by costs they incur in a third major market — for consumption goods.

Shepherds resemble other peasant producers in that they live in rural areas, rely on land-based resources, and survive at the edge of subsistence. But unlike most peasants, who are presumed to produce a significant proportion of their subsistence needs, the raikas are far more integrally involved with the market.[7] The terms of trade between animal products and food grains forcefully determine their life chances.

Revenues

The raikas sell sheep, wool, and manure.[8] Unlike most nomadic pastoralists, few raikas eat meat.[9] Of the commodities raikas sell, sheep provide the highest proportion of their income.

The proceeds from the sale of manure are deposited into a common fund managed by the camp leader and used to defray collective migration expenses.

Animal Sales

Two types of sheep sales can be distinguished: sale of mature stock or regular sales that take place between January and April; and sale of individual animals to meet short term cash needs.[10] The sheep are sold to traders and agents who visit the moving camp at regular intervals. The informal market works effectively enough that flock leaders seldom visit urban markets.

The number of sheep a flock leader will sell depends on the rate of lambing, desired size of the flock, labor availability, and the male to female proportion of animals in the flock. The rate of lambing is itself influenced by rainfall and fodder availability, and their seasonal and annual variations. Raikas consider around 500 sheep the ideal size of an ewar during migration. To create ewars of this size, a number of shepherds can bring their flocks together for the migration, selecting one of the more experienced shepherds as the leader.

Studies from other contexts have also examined the question of appropriate size.[11] Although Spooner (1973) suggests that there is an optimum size range, other writings indicate that pastoralists are more concerned with maintaining particular ratios of herders to animals rather than with a fixed optimal size related to ecological variables. According to Koster (1977), a Peloponnesian herder can effectively manage no more than 250 goats . Swidler (1972), who studied Brahui shepherds in Baluchistan, also suggests that concerns of expediency and convenience set upper and lower limits to grazing units. In this study, the size of the grazing unit ranged between 250 and 500 sheep. More than 500 sheep could not be effectively herded by a shepherd and his dog; when the number of sheep in a flock fell below 250, the sheep did not fare as well. In the case of the raikas, economic factors also play a role in determining size. Smaller flocks suffer from diseconomies of scale and generate lower surpluses which is one important reason shepherds come together as ewars which are economically more viable.

Shepherds actively manipulate the ratio between male and female adult sheep, culling and selling rams, and sometimes gifting ewes, so as to maximize the rate of growth of the flock.

Wool Sales

Wool is usually sheared twice a year. The first shearing takes place before migration, at the village base of the raikas (usually in October); the second when the shepherds are on the migration cycle, often during the return leg of the journey. At home the shepherds shear the animals with the help of neighbors and relatives. During migration, sheep are sheared by professional migrant shearers. The sale of wool during migration must be coordinated with the shearing since carrying the wool would prove burdensome.

The camp leader coordinates the major tasks associated with the sale of the wool by establishing contacts with shearers and wool merchants, negotiating a selling price, and selecting a site for shearing. Two types of sales contracts can be distinguished. In the first, wool is sold on the hoof, and the buyer advances some cash to the shepherds. In such contracts, the merchant also arranges the shearing. Shepherds prefer the second type of contracts where the shearing is arranged and supervised by the camp leader, and payment received after the shearing. In these cases, the shepherds usually negotiate better prices. The first type of contract, although it improves the household cash flow, also make the shearers less careful: in an effort to shear very close they can nick or cut the sheep (FAIR, 1980).

Table 1. Total Returns for Each Flock in Rs. (1989-90)

No.	Flock size	Manure	Wool Sales	Animal Sale	Total
1	95	264	1705	1520	3489
2	107	335	2100	4745	7180
3	110	227	2295	420	2942
4	148	396	3640	2800	6836
5	212	396	3920	10220	14536
6	228	335	5075	7465	12875
7	255	396	5940	6220	12556
8	330	396	7020	9580	16996
9	350	791	7200	12040	20031
10	380	791	7830	1740	10361
11	425	791	9920	21020	31731
12	430	396	9660	10900	20956
13	490	791	11880	17630	30301
Average		485	6014	8177	14676
Proportion (%)		3.3	40.9	55.7	100

Source: Flock Survey, 1990

Sheep Manure

Income from folding (penning) sheep in farmers' fields is an important but generally unrecognized proportion of the total income of the migrating camps.[12] Part of the reason is obvious — droppings are waste, not an economically valuable commodity. Part of the reason is also that this income is allocated to a common fund which the shepherds use to cover joint expenses. At the end of the migration, the positive or the negative balance in the common fund is shared equally among the different ewar leaders.

On the average, the camp leader is able to negotiate a payment for folding the sheep in farmers' fields for 20 to 30 percent of the days that the raikas are on the move. The exact amount can vary between Rs. 20 and 300 (At the time of field work, 1 US$=Rs. 25). Returns for folding sheep are greater if the number of *dangs* (mobile shepherd camps) in the area is small, the sowing season is near, the fields are irrigated, the number of sheep in the migrants' camp is large, and more farmers are competing for the manure.

Table 1 provides the figures for the total revenues of the shepherds from the sale of sheep, wool, and manure. The highest returns are from the sale of sheep — 56% of the total revenues. This is nearly half as much again as returns from wool sales. However, the fluctuations in returns from animal sales (Rs. 420 to Rs. 21,020) are much higher than in the case of wool sales (Rs. 1,705 to Rs. 11,880). Most flock leaders earned between Rs. 600 and 900 by selling the droppings of their sheep (when divided among the individual families whose animals make up

a flock, the amount may be smaller). These earnings scarcely rival the revenues from wool or animal sales, and constitute, instead, a supplementary income. Yet, families that earn less than Rs. 5,000 in an average year can by no means scoff at Rs. 600; indeed, in some cases, the amount is as much as 25% of the final profit.

Expenses on Inputs

The most important requirement for the survival of the migrating enterprise — grazing for the sheep — is available free for the most part. But shepherds incur unavoidable expenses on supplemental feed for the sheep, medicines, shearing, labor, and sometimes, grazing. In rare instances, raikas are forced to transport their sheep by trucks to areas where fodder can be found (Kavoori 1990:28-9).[13]

Feed and Grazing

Fodder is not available uniformly abundantly through the migration cycle. In the winter months, especially, the raikas must supplement natural fodder with different kinds of purchased feed. Supplementary feed is also bought for pregnant sheep. In addition, the shepherds may incur grazing expenses in two other situations. Those camps that migrate around the year pay grazing fees to the forest department during the monsoon months. Almost all private fields are planted, and the fodder available in the common grazing lands in villages is insufficient even for village animals. Grazing fees vary between states. In Rajasthan they were Re. 0.50 per sheep; in Madhya Pradesh fees were raised tenfold in 1989 to Rs. 10.00 per sheep.

Grazing expenses also arise in Haryana and Uttar Pradesh — the winter destinations for migrating shepherds. The rent for crop stubble in the fields ranges between Rs. 50 and Rs. 100 a month for one thousand sheep. The browse in double-cropped irrigated fields constitutes a new adaptive niche for the raikas. The current situation has reversed earlier exchanges between farmers and shepherds. Prior to the arrival of irrigation and the increasing shortage of fallow fields for the shepherds' flocks, it were the farmers who paid the shepherds for the manure from the sheep. The reversal of monetary flows reflects the changing reality of the asymmetrical relationships between the farmers and the shepherds, driven in part by the efforts of the Indian state to promote irrigated agriculture. With increasing use of irrigation, chemical fertilizers, and pesticides, the importance of sheep manure as an agricultural input has declined.

Medicines

The shepherds rely on both indigenous and western medicines, but resort to western treatments — vaccines, injections, antibiotics, and deworming medicines — mostly when indigenous medicine fails. Government veterinary hospitals are notoriously unreliable: needed medicines are often unavailable, and doctors inattentive to the animals of the shepherds.

Labor

Seven of the thirteen flocks I studied employed labor during the migration cycle. The salary of the hired hand depends on age, skill, the closeness of the kin relationship with the flock leader, and the number of sheep he brings into the flock. If the shepherd does not bring any sheep, he receives between Rs. 2,000 and 3,500 as salary, daily food, and a change of clothing for the migration cycle. Food is provided also to those shepherds who bring sheep into the flock. But if the number of sheep inducted into the migrating flock is more than 100, no salary is paid.

Table 2. Input Expenses Incurred on Sheep in Rs. (1989-90)

No.	Flock	Feed/grazing	Medicines	Gwala*	Shearing	Total
1	95	1425	475	—	95	1995
2	107	1498	642	900	107	3147
3	110	1760	605	800	138	3303
4	148	1998	814	—	163	2975
5	212	2544	1081	—	233	3858
6	228	2508	958	1200	228	4894
7	255	2805	1020	—	268	3734
8	330	3465	1320	1200	396	6381
9	350	3500	1330	1500	333	6663
10	380	3724	1330	1050	437	6541
11	425	2975	1785	3500	510	8770
12	430	2580	1290	1700	559	6129
13	490	3430	1225	—	588	5243

*Hired shepherd; Source: Flock Survey, 1990

Table 2 lists all the expenses the raikas incur in input markets. It is obvious that the largest amounts are spent by flocks that are labor deficient and, therefore, hire a shepherd.

Expenses on Consumption Goods

Consumption expenses depend on the length of migration and the number of people in the flock. Some expenses are incurred by the shepherds as a collective, others are assigned to the constituent units of the camp — the ewar leaders. Collective expenses are incurred on guests, information collection, community feasts, and fines and bribes. Ewar-related expenses concern food and transport. The largest amounts are spent on food.

Collective Expenses

Sheep droppings form the source of collective revenues. General purpose transportation tasks, feasts, and guests are the sinks for collective expenditures. As a proportion of total revenues and expenses, collective sources and sinks seem minor — less than five percent. They are immensely important, however, in fashioning the migrating camp into a community. The collective activities that the common fund of the mobile camp facilitates are immensely important to the creation of the belief among the shepherds that they belong to a social entity with a common purpose.

Information on precipitation, fodder availability, and the presence of friendly farmers is the foundation on which daily movements are built. The camp leader undertakes reconnaissance missions every morning on horse or camel-back. These journeys last two to four hours and uncover precious

Table 3. Consumption Expenses Incurred by Flocks in Rs. (1989-90)

No.	Flock	Food	Collective Expenses	Transport	Total
1	95	1040	171	250	1461
2	107	1800	326	350	2476
3	110	1760	173	400	2330
4	148	1600	264	350	2214
5	212	3120	264	600	3984
6	228	3360	326	750	4436
7	255	3600	425	900	4925
8	330	7680	314	1300	9294
9	350	2240	575	600	3415
10	380	4620	711	800	6131
11	425	6480	600	1500	8580
12	430	5400	256	1200	6856
13	490	7440	629	1600	9669
Average		3857	387	815	5059

Source: Flock Survey, 1990

Table 4. Surplus/Deficit for Different Flocks in Rs. (1989-90)

No.	Flock Size	Revenue	Consumption Expenses	Factor Expenses	Surplus/Deficit Flock	Person	Sheep
1	95	3489	1461	1995	33	33	.3
2	107	7180	2476	3147	1557	778	14.5
3	110	2942	2330	3303	-2691	-2691	-24.5
4	148	6836	2214	2975	1647	824	11.1
5	212	14536	3984	3858	6694	2231	31.6
6	228	12875	4436	4894	3545	1182	15.5
7	255	12556	4925	3734	3897	1299	15.3
8	330	16996	9294	6381	1321	443	4.0
9	350	20031	3415	6663	9953	3318	28.4
10	380	10361	6131	6541	-2311	-385	-6.1
11	425	31731	8580	8770	14381	2876	33.8
12	430	20956	6856	6129	7971	199.	18.5
13	490	30301	9669	5243	15389	3847	31.4
Ave.		14676	5059	4895	4722	1462	17.3

Source: Flock Survey, 1990

details on the best grazing spots, water availability, and whether farmers are willing to let the shepherds camp in their fields. The interest in advance information about rainfall and about the state of pastures along migration routes is a common feature of other transhumant groups as well (Marx 1978).

Camp leaders also collect information through longer-term journeys, sometimes together with other camp leaders. In these trips, often lasting days, they pay closer attention to rainfall and vegetation than to conversations with farmers. Expenses are met by the collective. Expenses on periodic journeys to purchase medicines for the sheep count as collective expenses.

Food is cooked jointly for the entire migrating camp on such occasions as *Holi, Diwali, Akha Teej, Prasaadi, Raakhee, Shivaratri, and Gangaur* — Hindu religious festivals. Expenses incurred to feed and welcome guests, even when the visitor is related to a particular camp member, are a collective responsibility. Finally, all fines and bribes are jointly satisfied. Fines may have to be paid for trespassing, to irate villagers in whose fields the sheep may have wandered, or to government officials. Overall, fines are an irregular and relatively small item of expense. Bribes, on the other hand, form an annoying and pervasive cash drain on the mobile economy. They are necessary to cross state borders, graze animals in state forests, procure subsidized medicines from public veterinary hospitals, or mollify police officials. Few raikas can pay the fees fixed by the state. Instead, they secure services or avoid trouble by attempting to bribe the officials in charge.[14] The negotiation of the exact amount is left to the camp leader who may seek the advice of elders in the camp if necessary. Fines and bribes constitute the largest proportion of jointly incurred expenses.

Food and Transport

Most raika households consume the same food — bread made from coarse grains (such as millet), onions, red or green chilies, occasional lentil soups and vegetables, sheep milk, tea, butter, buttermilk, yogurt, and fresh camel milk. But adult male members of the richer households consume greater quantities of opium and tobacco than their poorer kinfolk. The consumption of these two items can cost up to Rs. 100.00 per month. Opium is especially important in the daily lives of the raikas as it is ritually consumed on most days, and is used to welcome visitors. The main transportation expenses are incurred in maintaining regular contact between the camp and the home-base from where the migration started. Shepherds travel home as often as every two months. Expenses on food are unavoidable but those on opium or travel can be reduced in periods of low cash flow or for those with limited means.

Table 3 lists all consumption expenses incurred by the raika.

Flock Economics

Table 4 provides a surplus/deficit statement for the shepherds' migrations by comparing the performance of flock-owners in three major markets: for commodities, inputs, and consumption goods. The figures range from a deficit of Rs. 2,311 to a resounding surplus of more than Rs. 15,000. The average surplus for the surveyed flocks is almost Rs. 5,000. The two flocks that did not earn an excess of income over expenses are flocks 3 and 10. Recall from Table 2 that these are also the two flocks that did not manage to sell sheep at normal prices.

For most flocks stock sales are essential if they are to stay out of the red. Indeed, for four of the larger flocks, (5, 9, 11 and 13), income from animal sales alone was sufficient for a surplus (see Table 2). The raikas seem in a better position than the Chinese peasants Tawney describes as "standing permanently up to the neck in water,"[15] able to survive only when ripples do not disturb the surface. But if the raika economy seems to be alive and well, it owes its life to two critical factors: markets and collective mobility. Movement alone (both in the sense of movement by itself, and in the sense of movement that is individual household oriented) would not be enough.

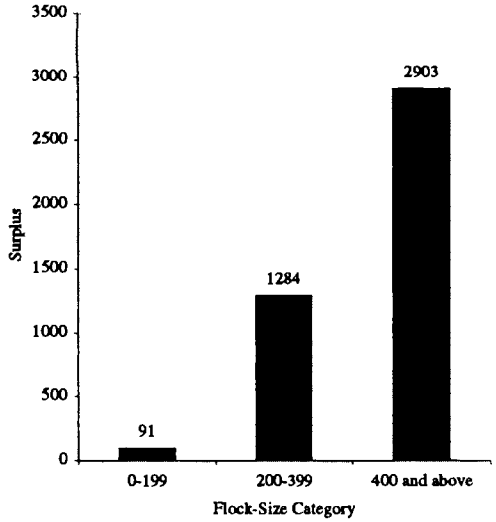

Figure 1a. Flock Size and Economic Performance (per person)

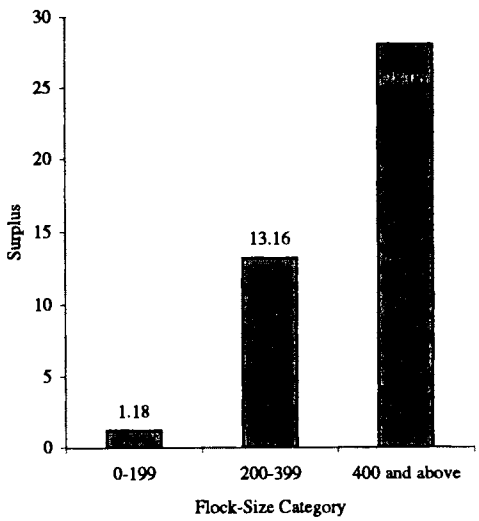

Figure 1b. Flock Size and Economic Performance (per sheep)

Advantages of Collective Migration

Whether individual or collective mobility is superior is more interesting as an empirical and theoretical question than a simple comparison of the revenues, expenses, and incomes of the different flocks. It resonates with a range of issues in the social sciences that have been opened by Olson's seminal work on the logic of collective action (1965). Why should the shepherds migrate as a group if they can also secure the benefit of mobility — access to irregularly distributed grazing — by migrating singly. Group migration leads to coordination costs. It requires institutional investments to resolve possible internal disputes. These problems can be avoided were each shepherd to migrate on his own (see Agrawal 1994).

Collective migration produces economies without which mobility could not be possible.

There are two sources: those secured through larger flock size, and those reaped by migrating in a group. For shepherds owning between 50 and 100 sheep, cooperating with other small flock owners, or migrating with a larger flock owner reduces costs significantly. The smallest flock-owners joined hands with other small flock-owners to raise the combined size of the migrating ewar. Almost every aspect of market participation — revenues from the sale of different products to expenditures on consumption and input items — would be affected adversely were the shepherds to migrate singly. In addition to eroding economic returns, individual migration would entail substantial political and security risks. Collective migration eliminates some kinds of security risks. It renders others manageable.

Flock-Level Economies

Substantial variations in surplus are present across different-sized flocks. The trend, however, is clear. If we divide the 13 surveyed flocks that ranged in size from 95 to 490 sheep into three categories, performance improves dramatically as flock size increases. The larger flocks produce a surplus of almost Rs. 30 per sheep and Rs. 3,000 per person in contrast to the smaller flocks which earn less than Rs. 2 per sheep and Rs. 100 per person. The visual representation of the variation across the different flock-size categories is striking (see figures 1a and 1b).[16]

It also seems that once flock size begins to approach five to six hundred sheep, shepherds either divide their flock into two, or sell enough sheep to reduce flock size. More than 600 sheep in a flock increase diseconomies of scale (those related to the sheep a given number of shepherds can manage during grazing) to the point where existing flock size becomes unattractive. Among the more than 30 flocks I encountered, not one contained more than 650 sheep, and only three had more than 600 sheep. The choice between dividing the flock or selling the sheep depends on the availability of household labor, and the need for liquidity since hiring a shepherd can increase available labor but is costly.

Larger flock-owners perform better economically.[17] The most important reason lies in the savings on consumption costs. Larger flocks have more sheep per shepherd on the average. When smaller flock owners come together to form a migrating ewar, at least one shepherd is present for each of the constituent flocks. If a migrating ewar comprises four smaller flocks of 100 sheep each, there may be four shepherds managing the grazing. But for a larger flock owner, there would seldom be more than two shepherds for a flock of 500 sheep. Another reason is that larger flock owners can sell more of the male lambs added to the flock in the course of the year since no more than a few rams are needed for reproductive purposes and this number does not change much across different-size flocks.

Camp-Level Economies

Economic and political advantages also accrue to flocks as a result of migrating collectively. Of these, economic gains are the easiest to demonstrate. Shepherds ensure themselves at least three different sets of economies by collective migration: income

from folding (penning) sheep in farmers' fields, benefits that stem from purchasing medicines and feed and preparing food jointly, and lower payments of bribes and fines.

The manure of a flock of a few hundred sheep would provide a farmer little motivation to seek out shepherds so that the sheep could be penned in his field.[18] But if farmers can get a camp of four thousand sheep for the night, the increased fertility of the fields becomes worth the search, information, and negotiation costs necessary to get manure. Were flock owners to migrate individually, they would forego approximately Rs. 500 each in lost manure sales (see Table 1).

Shepherds also indicated that because they purchase medicines and feed in bulk for the entire camp's sheep, they are able to gain up to 10% discounts. Each flock owner spends approximately Rs. 1,000 on medicines and perhaps Rs. 500 on the average on supplemental feed. Individually-oriented migration would, thus, lead to a loss of Rs. 150 in foregone discounts. Similarly, if shepherds had to cook for their guests and feasts individually, they would spend far more time on these activities than when such tasks are divided sequentially among the ten to twelve constituent ewar leaders in the camp.

The losses from migrating individually are difficult to quantify in relation to savings on fines and bribes. At present shepherds spend less than Rs. 200 per flock. These are amounts that the camp leader pays as bribes to government officials, and fines that result from conflicts with farmers. Additionally, sometimes sheep are stolen from the camp during migration, and they are recovered only because shepherds traveling together can help each other or can make a show of force against thieves. Outcomes may alter drastically and tragically were individuals to migrate by themselves. But the economic effects are difficult to establish quantitatively.

Individual migration may actually turn out to be more attractive where bribes are concerned — not because individual shepherds have any bargaining power, but because they are likely to be seen as completely destitute. A single flock may be beneath the notice of government officials because knowing that the resources of an ordinary shepherd are limited few officials would attempt to extract bribes.

Security-Related Benefits

If the economic advantages of migrating collectively are significant, the security-related benefits collective migration confers are invaluable. Without the increased ability to protect each other mobility would be impossible. During the night, the shepherds place their most valuable possessions — the sheep — in the center of their camp and maintain guard in turns all through the night. If shepherds did not travel together, such care in protecting sheep would be impossible. But night-time security is not the only kind afforded by collective migration.

Other security-related advantages of collective mobility were graphically in evidence during a conflict I witnessed. A raika, whose sheep had congregated around a village pond to drink water, became involved in an altercation with a villager who arrived on the scene after the sheep had started drinking water. The villager remonstrated that the water in the pond was not meant for the sheep. As the sheep continued to drink, and the discussion became more heated, the villager became increasingly upset. Other villagers gathered. They demanded a fine.

By the time we happened on the scene, the quarrel had taken a physical turn. The shepherd, Hadkaramji, and the farmer had come to blows when the villagers tried to stop the sheep from leaving before the fine was paid. The villagers tied up Hadkaramji and were insisting on calling the police. While their insistence might well have been a bluff, the shepherds were in no position to call the bluff. The camp leader with me sent off shepherds to get help from other camps in the vicinity, and we settled down to a lengthy process of discussion and negotiation. Within three hours, nearly forty shepherds arrived on the scene outnumbering the villagers. Information about the fight had spread swiftly and mobilized shepherds to aid their comrade.

Initially, the villagers had demanded a fine of Rs. 1,000 and the cost of treating the wounded villager. The matter, ultimately, was settled at Rs. 150 and the cost of the medicines. Hadkaramji was untied. Slowly the gathered raikas and the villagers dispersed. Without the presence of a large group of shepherds to render help, it is doubtful that the costs to Hadkaramji and his camp mates would have been so low. The raikas themselves are manifestly alive to the value of migrating collectively in the face of such incidents as I described, and therefore, seldom travel alone. But contrast the incident above with this description of interactions between farmers and a camp of migrant shepherds in Gujarat. These shepherds were foraging with their sheep close to their home villages in Bhuj, Gujarat:

> One day we had just made camp when a local caste of herders came and began shouting and threatening us. The women placated them...(but) the rest of us packed and walked an extra six miles. Every day the farmers told us to move on, threatening both graziers and women with sticks or knives...The mukki (camp leader) of a local Rabari *dang* (camp) came to visit and there was a heated exchange...Phagu (the leader of Davidson's camp) decided that the *dang* must break up into three groups. Smaller flocks would be less threatening to the locals" (Davidson 1996:179-80).

In Davidson's case, larger camp size and a larger group of shepherds appear a threat to villagers. The camp leader decides to divide the larger group into three. The existence of these different strategies of mobility among the raikas, and the depiction of individual household-level mobility by other writers (Brower 1987; McCabe 1985; Mearns 1993) point to some general statements we can make about the choice between individual and group-oriented mobility.

Two main factors can be advanced as prompting collective mobility among the raikas: one, collective movement permits pastoralists to reduce costs and secure the benefits of economies of scale; and two, group migration is essential to confront security risks, especially those related to theft and conflict that a constantly changing social environment presents the shepherds. But different pastoralist groups face variable security problems. Security from theft or attack may pose only a limited concern where shepherds graze their animals within a short distance of their home villages (as was the case with Davidson's shepherds), or if they can appeal to some local group for help, or when their migrations are to specific destinations, and are over quickly. Where pastoralists migrate through very sparsely populated regions, or where they move along highly defined routes and can spend the nights with households whom they have cultivated over time, security problems may again loom small. Where government officials respond quickly and without

systematic bias to appeals for help, the need for larger groups of relatively autonomous herders organized for self-protection may not be significant.

In the case of the raikas, however, most of these conditions are absent. The raikas migrate over long distances, have few local supporters, move constantly, travel through highly populated regions with scarce land and grazing, and cannot rely on the police for help. They must help themselves as they migrate. Economically, they help themselves by actively participating in markets. While their collective migration is beneficial for economic reasons as well, the more pressing factor that prompts collective migration is security.

Discussion

Migrant shepherds all over the world have faced government policies that have seen the salvation of pastoralists to lie in sedentarization. More generally, as Scott (1998) points out, "Nomads and pastoralists (such as Berbers and Bedouins), hunter-gatherers, Gypsies, vagrants, homeless peoples, itinerants, runaway slaves, and serfs have always been a thorn in the side of states. Efforts to permanently settle (sic) these mobile peoples (sedentarization) seemed to be a perennial state project — perennial, in part, because it so seldom succeeded" (1998:1). In the case of the raikas also, the Indian government has attempted sedentarization programs with support from the World Bank. One recent attempt, recently implemented through the Drought Prone Areas Program, sought to settle the shepherds in 100 hectare plots in Rajasthan. The failure of this project only underscores the vacuity of attempts to streamline and simplify the lives of shepherds who dwell in complex and constantly shifting environments.[19] This article confirms a large literature that views pastoralists as able to secure a livelihood through mobility. It builds on much of this literature by examining why the raika shepherds migrate collectively rather than as individual households, and schematically suggests why some of these reasons might hold more widely. Where policy interventions seek to help the raikas, they must recognize the importance of collective migration in their lives, and facilitate joint migratory strategies.

The article accomplishes two additional tasks. In examining the exchanges of the raikas in the market, and in detailing the strategies through which they gain a surplus, it confirms the arguments made by an increasing number of scholars: livelihoods of pastoralists far from conforming to some earlier stage of evolution of production and exchange relations are integrally connected with markets and exchange. Indeed, market participation is, in part, what makes mobility possible for the raika shepherds.

Two, the article focuses on a critical aspect of mobility among the shepherds: its collective orientation. Pastoralists around the world migrate. But analyses of migration devote rather limited attention to explicating the reasons why migration should occur as a cooperative venture. Nonetheless, the existence of solitary and joint migratory strategies, often among the same groups, signifies that neither can be taken as a naturalized fact. Both must be explained.

Where collective mobility is primarily prompted by the economic gains it produces, it is possible that the benefits of collective migration would be neutralized for the group as a whole because of the incompetence or the self-seeking behavior of decision-makers. To minimize abuses of decision-making authority, and to prevent dissipation of economic gains attributable to collective migration, it would be necessary to devise institutional mechanisms through which shepherds could monitor, detect, and sanction behavior detrimental to the existence of the group. The analysis of such institutional mechanisms for the raikas is available in Agrawal (1997).

This article focuses on an analytically prior question — why should collective migration take place at all? It argues that while collective migration among the shepherds leads to significant economic gains, the even more important reason for migration lies in security-related concerns. Where collective strategies during migration are prompted because survival is at stake, as for the raika shepherds, economic benefits of migration may be attractive, but less significant as a cause. The article points to some of the social and political characteristics of the migrants' context which make security concerns highly prominent. When these conditions are present, migration must assume a collective form, or not take place at all.

NOTES

[1]For an examination of the socio-political factors behind the need of the raikas to migrate, see Agrawal (1994) and Robbins (1998).

[2]Rural populations around the world resort to an enormous range of adaptive strategies as they seek subsistence. One of the major elements of their repertoire is diversification into multiple sources which are governed by differing levels of output and variability. For a theoretical discussion of various strategies see Halstead and O'Shea (1989). See also (Hayami and Ruttan 1971), and Wade (1988) for empirical discussions on how social and environmental risks influence the creation of institutions to mitigate losses. See Bovin and Manger (1990), Campbell (1984), Clay (1988), Fratkin (1994), Hahn (1982), and Massey (1987) as some empirical discussions about the dependence of pastoral and other mobile populations on multiple resources.

[3]See, also, the review of central and southwest Asian pastoral nomadism by Bacon (1954), Fratkin's discussion of cooperative herding groups within settlements (rather than during mobility) (1991), Gooch's study of transhumant Gujars (1992), Kelly's examination of different types of mobility (1992), Kuznar's study of goat pastoralism in the Andes (1991), Mearns (1993), Prasad's comprehensive investigation of pastoral nomadism in arid zones of India (1994), and Swallow's discussion of mobility as a risk management strategy (1994). Seldom do these studies problematize collective vs individual mobility.

[4]See Williams (1996) for a discussion of privatization of land among Mongolian pastoralists. This study, however, is less oriented to examining the relevance of collective action to mobility than to use of pastures.

[5]This account of collective migration uses a species of functionalist explanation, usually considered inappropriate in the social sciences. But where the question is one of survival rather than just efficiency, the choice of a functional explanation can be well defended (Lal 1988). Indeed, evolutionary mechanisms are all a species of functional explanations.

[6]Vocal advocates defend virtues of communities, private markets and property, and state initiatives in creating conditions that would facilitate sustainable use of resources. In each instance collective action problems must be solved. For useful insights about the nature of community organization that might help solve problems of collective action related to resource use, see Ascher (1995), Berkes (1989), Bromley (1992), Ostrom (1990) Peters (1994), and Wade (1988). See

Lichbach (1996) for a comparative assessment of different institutional attempts to solve collective action dilemmas.

[7]Recent research, especially by historical ecologists and revisionist cultural anthropologists, has begun to undermine the presumption that rural dwellers are primarily subsistence oriented. Fox (1969), Morris (1977) and Parker (1909) presented early evidence on contact and exchange between local groups and outsiders. Wilmsen (1989) presents similar arguments recently.

[8]Milk from the sheep is processed into yogurt, butter, *ghee*, and buttermilk but seldom sold. Camel milk is almost never sold, and many raikas do not even milk their camels, preferring to leave the entire milk for the calf.

[9](cf. Davidson 1996). Even if some of them do sometimes eat meat, they deny it. Their public posture can be seen as a part of ongoing attempts to gain a higher status in the caste hierarchy.

[10]For the smallest flocks there may be no discernible cycle since the few sheep they sell during the"annual cycle"may be no more than the number sold by larger flocks to meet short term cash needs. Medium sized flocks may sell mature stock every two to three years. It is in flocks that comprise more than 350 sheep that an annual cycle is most clearly discernible. Shepherds usually attempt to sell unfit animals to meet short term needs.

[11]According to Orlove, who studied cameloids in southern Peru, animal behavior can significantly influence the effective size of a herd. Llamas and alpacas have a strong flocking tendency and dominance hierarchy. A trained herder in this context can manage up to 1000 animals (1977).

[12].Folding sheep in farmers' fields during migration is a form of manure sale. Manure can also be collected in baskets for sale, as happens when the shepherds are in their home-base villages.

[13]See Chatty (1980) for a study that details how nomadic pastoralists use mechanized transport in another context (Syria-Lebanon border in West Asia) to transport pastoral products.

[14]I treat bribes as a collective rather than an input expense because some of the reasons why bribes are necessary have little to do with inputs. More importantly, bribes and fines, because shared, are significant elements in constituting the camp as a community. A vast literature explores the relationship between scarcities and corruption. See Becker and Stigler's seminal theoretical treatment (1974). More recent general reviews are available in Alam (1989) and Scleifer and Vishny (1995).

[15]Tawney cited by Scott (1976:1).

[16] Part of the reason why the difference across categories is so striking is that flocks 3 and 10 were unable to sell sheep during the cycle of migration. Had they sold even a few sheep at the regular prices, the difference in surplus per sheep, or per person in the different categories would be far smaller, especially between the first two categories.

[17] But see Kavoori (1990) who did not find a notable difference between the performance of small and large flocks in his study of migrant shepherds in Rajasthan. Part of the reason may be that in his sample most of the flocks were smaller than 200 sheep and none that were larger than 400 sheep. A second reason may be that the leaders of only half the flocks managed to sell animals at regular rates. Far more sheep were sold at the lower"distress sale"rates.

[18] The shepherds estimated that a large basket of manure—which is what a flock of 300-400 sheep would produce during a night—would fetch possibly Rs. 5.00. For a camp of 5,000 sheep—the average for my sample—the value of the manure would be approximately Rs. 80.00.

[19]For a discussion and analysis of the attempt to settle the raikas see Agrawal (forthcoming).

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