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ECONOMIC IRRATIONALITY AMONG PASTORAL
PEOPLES IN EAST AFRICA: MYTH OR REALITY?

by

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DISCUSSION PAPER NO. 245

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January 1977

Views expressed in this paper are those of the author. They should not be interpreted as reflecting the views of the Institute for Development Studies or of the University of Nairobi.

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ABSTRACT

This paper represents an examination by an economist of the so-called "theory of pastoral conservatism" in order to establish some limits as to its validity and some ways in which this validity might be properly tested. To most officials, overstocking arises out of the irrational 'cattle complex' of the pastoralists, but this view is challenged by two alternative explanations which are presented here: the economic 'common property' explanation that overstocking is likely to arise from the divergence between private and social interests so long as cattle are individually owned and the land is owned communally, and the sociological explanation which refers to a number of social functions of cattle beyond the provision of sustenance. As an alternative to these two explanations, it is suggested that an excess cattle population may simply be associated with an excess human population. At any rate, when assessing the proper stocking level in any area both the stock-to-land ratio and the stock-to-human ratio must be taken into consideration.

A "lack of commercial-mindedness" among pastoralists is also frequently hypothesised, but this notion must be tested with more systematic information on marketing facilities, on the actual level of sales and on the stock-to-human ratio. Evidence is presented that among the Pokot of northern Kenya resistance to selling cattle in order to reduce the size of herds is very strong. A case study from Tanzania also indicates that when a substantial investment programme was carried out in a pastoral area, the number of livestock rose enormously. Some of this increase in numbers was ecologically supportable, but a great deal was not.

Finally the usefulness of the term 'cattle complex' is questioned. The focus should be rather on more testable propositions such as the holding of excess stock, the level of sales, the willingness to limit large individual holdings of cattle, the purchase (given an adequate level of realisable income) of cash goods, and the like, which may throw light on behaviour and its rationality according to some stated criteria.

Administrators, technical experts and, to a lesser extent, economists have criticised the apparent inefficiency and 'irrationality' of pastoralists - to an even greater extent than at one time peasant cultivators were criticised and alleged to exhibit 'backward-bending supply curves' of effort and output. The work of econometricians has been effective in establishing the existence of strongly positive supply responses among peasant farmers all over the world¹ and largely disposed of this particular debate. However, only social anthropologists, by and large, have so far defended the rationality of the traditional pastoral system, and here with some lack of unanimity.² This paper represents an examination by an economist of the so-called "theory of pastoral conservatism" in order to establish some limits as to its validity and some ways in which this validity might be properly tested. Official criticism of the pastoralists is that (a) their lack of interest in exchanging cattle for cash prevents their obtaining the benefits of the cash economy in the form of consumer goods, and (b) their 'cattle complex' has led them in many areas to accumulate excessive numbers of cattle, endangering their environment through overgrazing. In contrast, progress through various development schemes must be based on restriction of cattle numbers, reduction of overgrazing and improvement of pastures through controlled rotational grazing. While controlled grazing is the starting point of most schemes, motives for retaining cattle and willingness to sell cattle, and thus economic motivation in general, are fundamental to the problem of overgrazing and the prospects for its control.

The question raised here is of considerable practical importance since the pastoral areas contain substantial populations so far neglected and in danger of continuing to be left out of the development process in the independent developing countries, just as they were during the colonial period. The new emphasis in international circles on regional income distribution and on assisting backward regions within less developed countries necessarily involves giving attention to pastoral economies; and the increasing number of development schemes and proposals, involving considerable investments,

1. This literature is too voluminous to cite here.

2. Rigby finds it "singularly unfortunate that an anthropologist who has contributed so much to the understanding of indigenous African economies as Schneider has should contribute to a cultural model of 'pilotic pastoralism' which purports to 'explain' 'pastoral conservatism' among the Pokot and other eastern African peoples!" P. Rigby, 9, referring to 10.

being introduced to such regions in Kenya, for example, raises the question of the response to incentives and economic change, and the returns likely to obtain.

In the somewhat jaundiced eye of the official, overstocking arises out of the irrational 'cattle complex' of the pastoralist. Cattle are wanted for their own sake rather than for the sustenance they provide, and numbers are kept in excess of those which the environment can properly support and to a degree inconsistent with ordinary economic rationality. This explanation is challenged by two alternative views. The first argues that social objectives need to be taken into account, and that the numbers of cattle are not necessarily excessive if these other, perfectly rational, aims are considered. The second, 'economic' explanation is that overstocking actually follows from economic motivation: specifically, from the pursuit of private economic interests rather than social benefit.

It will be useful here to concentrate on situations of overstocking and overgrazing with which officials have been most concerned and where it would appear by definition irrational for a community to choose to expand cattle numbers beyond the point where cattle yield (in terms of milk and meat) is at a long-run maximum.

THE 'ECONOMIC' EXPLANATION OF OVERSTOCKING: A PROBLEM OF PROPERTY RIGHTS

A recent report in Kenya (6, Chapter 10) points out that a simple economic explanation may by itself be adequate. Overstocking is likely to arise out of the divergence between private and social (group) interests in the holding of cattle. So long as land is owned communally, it pays an individual to maximise his own holding of cattle. He has no interest in restricting his own stock in order to preserve grass since, if the rest of the community does not follow his example, there will be no significant effect on the total numbers of cattle being grazed on the land, and he will personally suffer a loss. This is true if all members of the community would gain in the longer run from a reduced aggregate herd and improved pasture, and indeed even if failure to restrict numbers posed a threat to the continued existence of the animal and ultimately the human population.

Some evidence of the possible validity of interpreting this as a 'common property' problem is provided by experience in South Baringo in Kenya where private holdings were created by enclosure. Von Kaufman has described the results as follows:-

.... There has been remarkable development of individual ranching operations. Individual plots of 30 to 50 hectares have been planned with good access ways left to common facilities such as water, dips and markets. When these plots were demarcated, all were composed of poor land, some absolutely bare eroded earth. Many of these plots have been improved or indigenous grasses. Cattle numbers have been reduced.... Grass poaching on neighbouring plots, and failure to practise regular dipping, have been stopped by successful prosecutions. In drought, farmers have apparently learned to sell, or at least remove their stock in time and restock after the drought. Assistance has been limited to some excellent Range Management Division re-seeding trials, a few small-scale loans for pasture development and the purchase of quality cattle, and normal extension services.

Much closer scrutiny of this particular experiment is needed, and of how general the lessons are, but it does at least indicate the possibility of improved response when the social/private interest divergence is eliminated. Before accepting this relatively straightforward explanation, however, we need to examine in detail the 'sociological' explanation and to review the various 'social' objectives which have been given as reasons for holding cattle, keeping in mind all the time this more direct economic explanation.

THE 'SOCIOLOGICAL' EXPLANATION: SOCIAL OBJECTIVES OF HOLDING CATTLE

A great many social anthropologists have referred to the uses of cattle. Although we shall refer here particularly to the observations of Widstrand regarding the Pokot (13), and of Henriksen regarding the Turkana (5), both Kenya tribes, similar references could no doubt be obtained for other pastoral peoples throughout Africa. Some of the functions referred to by sociologists are in fact economic, though it will be convenient to list them here, along with more directly social functions, among the uses indicated in the sociological literature.

1. Sociologists do, of course, start off from the most economic function of livestock, that of supplying milk and meat. We have already indicated here that if grazing is limited, whether under individual holding or for the group under communal holding, expanding numbers of cattle to the point of overgrazing will increase supply only in the short run and could seriously decrease it in the long run. Under communal grazing divergence between private and social interests could nevertheless make it rational for each individual to expand numbers in the absence of a collective agreement to the benefit of all.

2. Both Henriksen and Widstrand mention the use of cattle as legal tender within a non-monetised economy. This is an inaccurate term, as a matter of fact, since legality is not involved: what is intended is the use of cattle as money, and specifically to perform the unit-of-account function of money. The use of cattle in this way does not in itself, however, require large numbers of (poorer quality) beasts. If smaller 'denominations' are required, for instance, this is obtainable through payment in the form of steers, rather than cows, or younger steers or goats, which are in fact recognised as the 'small change' of the system. Schneider has actually gone as far as to suggest that reduction in overall livestock numbers would cause the equivalent of 'deflation' in the economy. (11) This is a false translation from the world of business, where deflation may affect the confidence of businessmen and speculators, and thus investment and employment. Here reducing livestock numbers would increase their value over time relative to other items (e.g. brides) and improve their value as investment goods.

3. Another function of money, and in this case of livestock, is as a store of value or beyond that, as just indicated, as an investment. Henriksen, following Barth, refers to the fact that through livestock "the pastoralist can increase his capital without the presence of any market institutions" and that "even today (animals) represent the best investment object for practically all ~~pastoralists~~, giving the greatest increase on a man's capital". (2, p.24) But if serious overgrazing exists, maximising returns on investment for the community as a group would require restriction of numbers, not their maximisation, and it is a weakness for sociologists to list the above, without qualification, as valid reasons for accumulating cattle. For the community, long term insurance and 'saving' in these circumstances are much better provided by conservation of the natural resource (grass), which will primarily determine how many cattle, and what yield, will be available in the long term.³ This would hold for the individual on his own holding as well as for the community, but not for the individual with unrestricted access to communal grazing.

4. Widstrand and others mention risk aversion as a good reason for holding large numbers of cattle. There is something in this to the extent that risk of theft is involved, though this is not everywhere a problem. An individual with only six high-quality animals in one place is at greater risk

3. Cattle would of course be a valid investment, even for the community as a whole, where the grazing resource was not being fully utilised.

than one with, say, sixteen poor quality beasts grazed in different locations. It is likely that the holding of substantial numbers of sheep and goats is in part a response to risk, goats in particular being hardier and more capable of surviving, thus permitting their owners to survive throughout a drought.

Holding large numbers of cattle is probably not the best form of insurance against drought, however: losses from drought will not be reduced proportionately by large numbers of weak beasts so much as by having strong animals, which can withstand drought for a longer period, and by a better reserve of grass.

The danger of disease which may strike any animal healthy or weak does provide a valid reason for the individual to have more cattle, particularly if he is able to disperse his holdings in different locations. Although a strong social network will provide some restitution to an unlucky individual, this communal spirit will not be so strong as to provide a hundred per cent 'cover'. For the pastoral community as a whole the 'law of large numbers' will provide a defence against disease without requiring additional livestock, except insofar as the community consists of individuals each requiring this 'cover'. As in the case of drought however, healthier animals will have some additional powers of recovery from disease which reduce the importance of this factor.

5. Turning to the more 'social' objectives of holding cattle, it has been suggested that economic benefits arising out of a wide social network may also be obtained, the latter in turn being derived from prestigious cattle ownership. Henriksen analyses these quite carefully in relation to the Turkana: (a) a stockowner will from time to time travel with his herd to distant areas and will require help of one kind or another along the way; (b) the dispersal of his herd will be facilitated, with his wives and/or sons in charge of cattle being permitted to stay in others' camps and friends also providing surveillance of cattle, bringing benefits in terms of use of pasture and insurance against drought or disease; (c) friends and relatives will speak out on a person's behalf at meetings where his economic interests may be at stake; and lastly (d) friendship may provide essential social insurance against loss, as assistance to others may be repaid later on in times of need. Thus, Gulliver reports that rich families in Turkana will try to marry rich families, "while poor families will nearly always have to marry poor families". Turkana friendship, he says, "is something nearly approaching a business agreement". (4, p. 210). In a similar vein, Barth says that "in fact the formal Turkana

friendship seems to be a purely transactional relationship in which the parties involved continually calculate the prestations (sic) that are involved".

If the motives are really economic, however, a man's friendship should rate more highly the greater the value of his herd (in terms of productivity) rather than the number of animals it contains. The explanation for the farmer's concern with numbers rather than productivity and value must then be related to the divergence between private and social interest referred to earlier. The very fact that what appears to be a part of ordinary social relations turns out to be a matter of close economic calculation suggests that this will be so. These gains in any case arise out of some individuals being better off than others, and do not hold for the community taken as a group.

6. Apart from these indirect benefits, cattle (and the acquisition of additional wives which ownership of cattle facilitates) may also provide direct utility to the owner as a form of demonstrable wealth and source of prestige.⁴ If this motive is irrational, it is not more so than the purchase of large houses and expensive cars in Western countries. Here the accumulation of wealth, even in non-demonstrable form (through a fat bank balance or paper securities), undoubtedly affords many people direct utility; and we should in general distinguish satisfaction derived from income and from wealth. In a non-monetised livestock society, livestock are the only movable asset which can be readily accumulated. Where such accumulation is at the expense of income, in this case the value of the community's herd and its yield, there might however come a point where it may be considered irrational. Clearly value rather than numbers of the herd should carry most prestige. Most important, however, is that from the community's point of view there is no utility derivable from this type of prestige, which is obtained by some individuals as a result of having more than others; while the disadvantaged may well suffer equivalent loss of utility from having less than others.

7. One of the most publicised reasons for accumulating cattle is for paying brideprice. Henriksen notes that "It surely remains the biggest expenditure of stock that any man has". Gulliver mentions the payment of almost 50 cattle and camels plus about 90 small stock in Turkana, and in

Henriksen states in relation to the Turkana, and this is no doubt true generally among pastoralists, that "social prestige is usually proportionate to the number of animals a man owns". (5, p. 17)

some parts of East Africa this may be exceeded. (4) It is not at all irrational to accumulate livestock for the sake of obtaining wives, which are useful both as consumption goods (giving direct utility) and as producer goods, providing, together with their children, a major source of labour (to tend cattle and in Pokot to produce food crops) as well as providing prestige.

What is not clear is in the first place whether this use requires numbers of cattle rather than weight of cattle: rational pastoralists, with a good eye for a beast, should be able to assess the value of a wife in terms of quality and not merely quantity of animals, though admittedly it is easier to strike a bargain when numbers are used and to advertise the price 'fetched' by the girl. Secondly, it is not obvious that net accumulation of stock by the tribal group is required on this account, because accumulation for the sake of securing brides is balanced by a receipt of stock by the relatives of the bride: a 'typical' family unit with an equal number of daughters and sons should expect credits and debits to balance out over time.⁵ Henriksen, while still including bridewealth as a reason for the community to accumulate stock, acknowledges this implicitly when he says that:-

As a man grows wealthy in animals, he will marry many wives and thereby reduce his animals, not only through the payment of bridewealth, but also his herd will be dispersed when his sons marry and he himself dies. It is, therefore, difficult for a family to remain wealthy over several generations. (5, p. 28)

In any case, among the Turkana, and this is generally the case, "the size of the bridewealth varies with the wealth of the groom or the groom's father" (5, p. 23), so that the level of the brideprice may not be the cause of the accumulation of stock so much as the effect of it. Certainly it appears that average brideprices may vary with the overall supply situation for stock: in more plentiful times in Pokot, for instance, prices were higher, as high as 60 beasts compared to a 1971 estimate of 12 to 25 cattle and 25 to 40 goats. Work carried out by Schneider also supports this view. (11) We may note an additional utilitarian element in the Pokot system of bridewealth (also existing elsewhere): in addition to payment to the bride's parents, the bridegroom must supply the bride

5. It has been pointed out to me that in some cases a number of relatives may contribute to bridewealth on behalf of the prospective groom, and a certain number of cattle is thus required to permit each to contribute. This appears to be a valid point, based on cattle as an (indivisible) medium of exchange: it would not hold if contributions in the form of money were acceptable. However it also strengthens the second point that bridewealth is only a transfer within the community and that for an individual contributions and receipts will balance out over a period of time.

with her 'allotted herd', which will, together with the grain she grows, guarantee for herself and her children a minimum subsistence. Such sustenance of the new household should, however, depend more on the yield of the cows (especially where slaughter is infrequent) rather than numbers.

8. The other major 'indirect' use of cattle among the Pokot, besides bridewealth (kandin) is, according to Widstrand, the tilia system, whereby a cow is exchanged for a steer when the latter is required for slaughter. The receiver of the cow returns the calves produced to the other person, but still incurs a social obligation to the latter, who may subsequently ask him for certain favours. One person may, by providing as many as 10 to 15 cows to others in this way, achieve considerable prestige. The recipient is simply acquiring a supply of milk, which contributes to subsistence, since he does not keep the calves. It is a useful system, since it reduces inequality and provides social security against risk by providing those who have lost cows through drought, disease or theft the opportunity to obtain a cow, not for rebuilding their herds, but for basic sustenance. Since the donor obtains more prestige the more surplus cows he can dispose of in this way (the more steers he can afford to keep or slaughter), there is some incentive for the individual to acquire more cows in order to spread his favours. This practice is, however, a function of inequality (with complete equality of animal wealth the system would disappear) and of the risk of losses: it does not therefore provide a case for the community as a whole to aim at large numbers of cattle.

9. Widstrand refers to the use of cattle for ritual purposes or for communal sharing, i.e. feasts. Yet if a beast is slaughtered and shared out among many, there will be no great advantage in using a smaller or less valuable beast: what is important is the supply of meat. Moreover, communal sharing may be primarily a form of (communal) consumption with the number of feasts being arranged depending on the availability of beasts, rather than vice versa. Any form of consumption will, in any case, keep numbers down rather than increase them. Though Henriksen gives a number of good reasons for individuals to expand their herds, it is worth noting that he also includes this rather trivial one.⁶

6. He goes to the trouble of mentioning that "the slaughtering of an ox is necessary for the couple to be properly married." (5, p. 24)

We should stress that we have found none of the above motives for holding livestock irrational. We are not in a position to say the custom of paying brideprice is irrational (though women's liberationists would say it is not a good one), any more than we can say a Western capitalist's desire to accumulate wealth is irrational (though this might well be considered a misguided activity). Our concern is whether these motives provide a valid reason for individuals or for the community to expand cattle numbers; and particularly to expand cattle numbers in a situation where the land's carrying capacity is already utilised so that aggregate yield or output cannot be increased.

Table 1 summarises the findings under each of the motives mentioned. It is significant that none of the functions require expanded numbers of cattle except to the extent of the legitimate needs of individuals in the community for reserve against losses from disease and theft. This means particularly if an 'informal' social security system provides this latter safeguard that it would pay the community to control cattle numbers through collective agreement. Two of the most important motives, the supply of milk and meat and the use of cattle as an investment, hold under communal tenure but not individual tenure, indicating the property rights problem. The remaining functions, largely social, provide some rationale for expanding numbers, but almost certainly not to anything like the extent frequently observed. The "sociologist's explanation" of expanded numbers is thus an incomplete one and further explanation must be sought elsewhere.⁷

A THIRD EXPLANATION: THE LIVESTOCK-TO-HUMAN RATIO

An alternative explanation of both overstocking and the reluctance to sell is simply poverty, a lack of available surplus. Excess cattle population may in fact be associated with excess human population. Technical

7. Although we refer to the above as the "sociologist's explanation", the other explanation based on property rights has not gone unnoticed by sociologists. Thus Henriksen says that:-

This latter factor (the number of animals that the Turkana pastures can sustain) will not prevent the individual Turkana from increasing his herds as long as a major catastrophe does not occur in the district. This is so because the stock-owning unit has no way of exercising pasture management since the pastures are held in common by the whole tribe.

He does, however, include this among diverse other reasons for maintaining cattle numbers, and does not consider how far these other motives depend upon this as a fundamental cause.

Table 1, Motives for holding cattle and a priori effect on numbers held under different circumstances in a situation of overgrazing.

Motive or function	Given communal property rights, does the individual benefit from increasing <u>livestock numbers</u> ?	Given individual property rights, does the individual benefit from increasing <u>livestock numbers</u> ?	Does the community benefit from increasing <u>livestock numbers</u> ?
1. Supply of meat	Yes	No, except in the short-run	No, except in the short-run.
2. Legal tender	No	No	No
3. Store of value, investment	Yes	No	No
4. Risk	Partly in respect of disease, and theft, in respect of drought.		No, except as a group of individuals.
5. Benefits of social network	To a very partial extent, at the most.		No
6. Prestige	To a limited extent		No
7. Bride-price	Yes, but not the extent supposed.		No
8. <u>Tilia</u>	To a very limited extent		No
9. Rituals, feasts	No	No	No

experts and officials talk about excess stock always in relation to the carrying-capacity of the land,⁸ that is the stock: land ratio. However, attention should also be paid, where livestock is the basic means of human sustenance, to the stock: human ratio. While decreases in the latter ratio may be good for the land, it may mean a deterioration, at least in the short term, in the standard of living of the community. Exhortations to restrict cattle numbers for the sake of long term benefit may thus be soundly based, but difficult to follow given the high rate of time preference likely to prevail at extreme levels of poverty. Where this holds, reduction in cattle numbers might be easier to achieve if there were simultaneously a reduction in numbers of human population, through out-migration. But this outlet does not offer itself to a significant degree for the socially-cohesive pastoralists.

'Overpopulation', where it exists, appears to have occurred not through an increase in population numbers, but through a decrease in the amount and quality of the land made available to them. Rigby points out that "owing to the low population densities and high mobility of family and homestead groups in the pastoral areas ... the early settlers and administrators were able to 'rationalize' their claims to the most desirable areas occupied by pastoralists, particularly in Maasai, Nandi, and Kipsigis country, but in others as well." (9,p. 13) Widstrand makes similar charges to the effect that deprivation of traditional land rights and geographical restriction of the Pokot, continued since independence, is in part responsible for apparent overstocking. To the extent that this is true, officials' arguments for control of livestock numbers are not very likely to meet with much favour.

If the population/stock ratio is the problem, rather than livestock numbers per se, it should be possible to verify this by direct examination of this ratio. Unfortunately, data on this point, least of all accurate data, are hard to come by, although some data for East Africa are reviewed by Rigby. He quotes Allan (1, p. 311) to the effect that for instance "in the case of the Somali and Turkana the ratio of livestock to humans may approximate to the minimum." According to Jacobs even the Maasai with about 13 head of cattle per person (in 1961), plus small stock, might not always obtain an adequate diet: "While two or three milch cows can keep an adult adequately supplied in the wet season, 10-15 may be required in the dry season, and 20 or more in periods of drought." (7) By chance some relatively rare data exist for the

8. Substantial areas with very low density of human population may appear to be underpopulated, whereas in reality human numbers are excessive in relation to carrying capacity.

Kongelai group ranch area of West Pokot where a comparatively accurate population/livestock census was undertaken in 1971. This is an area where the government is anxious to secure substantial destocking as a basis for the introduction of sounder livestock management practices, so we can appropriately test for the significance of this factor in this particular location.

The census revealed 412 potential scheme participants, including 334 resident family units or stock owners, amounting to a human population of some 2,000 people. There were 78 non-resident owners. The livestock owned amounted to 5,200 Kenya stock units⁹ of cattle and 1,600 stock units of sheep and goats (assuming 10 'shoats' equal one K su). With an estimated land carrying capacity of one stock unit to over 10 acres, the total of 6,800 stock units was estimated officially to exceed the carrying capacity of 5,000 by some 1,800 to 2,000 stock units in 1971, and this provides the destocking target.

Assuming the residents own a proportionate amount of the livestock counted (7,373 cattle and 15,964 sheep and goats), they would have 5,978 cattle and 12,941 sheep and goats. The resident families average six persons, of whom three may be taken as adults and three as children. Counting the latter as halves, this gives a family of four-and-a-half adult-equivalents and a resident population of 1,500 adult-equivalents. This suggests ownership of about four cattle (not cows) and eight sheep and goats (mainly goats) per adult, with each family having four-and-a-half times this amount. In the harsh conditions of West Pokot, the consumption yield obtaining from this would be quite low and resistance to a reduction in stock numbers not at all surprising. The livestock/human ratio must ~~therefore~~ be considered crucial. And it is significant that here in West Pokot, where the success of government policy depends on destocking and where a major data collection effort was carried out by the ~~officials~~ concerned, the importance of this ratio was not realised and the ratio itself not calculated. The situation in the Kongelai group ranch area can be considered as not atypical for the district as a whole.

It is equally important that denials by some social anthropologists that excess stock or overgrazing is a problem at all should be examined in terms of these two crucial ratios. It remains true that in one important

9. One Kenya stock unit comprises the equivalent of 600 lbs. of live weight bovine.

sense excess stock is defined in relation to the carrying capacity of the land in a purely technical way, and it is evidenced in this sense by physical deterioration of the grass cover over time. Excess stock in relation to people's own subsistence requirements is a separate issue.

LACK OF COMMERCIALISATION AS IRRATIONAL BEHAVIOUR

Related to the charge of irrationality associated with excessive accumulation of livestock numbers and overstocking is the criticism of the lack of "commercial-mindedness" of the pastoralists, resulting in an unwillingness to sell their cattle. This charge has a long history among officials and technical experts particularly. Among sociologists this has perhaps received rather less attention, although it should be stated that the variety of functions performed by livestock is not sufficient to explain why cattle are not used for the function of securing, via the market, other wants such as clothing or household goods, including many items which could undoubtedly soften some of the harshness of pastoral life. Obviously absence of household items must simply reflect poverty to a substantial degree. But whether poverty is sufficient to explain the near-total lack of trade-off between stock and other goods is difficult to say.

Rigby denies that a reluctance to sell exists, quoting data collected by Jacobs (7) for Tanganyika Maasailand for the years 1936 to 1959, reproduced here as Table 2. "So much," says Rigby "for the myth of pastoralist 'conservatism' in the matter of livestock sales, a myth created during the latter part of the colonial period, particularly in Kenya." (9, p. 40)

Table 2. Tanganyika Maasai District cattle sales, selected years, 1936-1959.

<u>Year</u>	<u>No. sold</u>	<u>Sales (£'s)</u>	<u>Average price</u> (Shs/head)
1936	9,862	14,500	29/60
1938	12,744	22,100	34/60
1940	27,306	(sold especially in response to war-effort appeal)	
1953	28,899	182,500	126/40
1956	26,554	218,050	164/30
1959	32,170	247,299	154/-

Source: Jacobs, 7, p. 40.

Jacobs had come to the same conclusion, stating that:-

One of the many myths commonly attributed to the Maasai is a reluctance to sell their cattle. Not only is this untrue, but disguises the fact that, until recently, Maasai have been restricted from selling on the open market and, like keen businessmen everywhere, the only reason which has prevented them from selling more cattle than indeed they do has been the lack of what they consider fair prices. Maasai have been selling cattle to individual African buyers (admittedly illegally) for over fifty years now and have a shrewd knowledge of what the market will bear.

Table 2 provides stronger evidence of an upward trend over time in Maasai sales rather than a specific 'elasticity of supply' with respect to price; but clearly caution must be exercised in asserting reluctance to sell. However, Rigby's evidence is far from conclusive for Maasailand, let alone other areas. Referring to the 1949-59 Kenya scheme south-east of Nairobi, he says that, after the improvement in pasture resulting from the introduction of rotational grazing, the Kenya scheme eventually collapsed:-

Insufficient attention had been given to the disposal of excess stock from rapidly increasing herds, marketing facilities had not been provided, and a very high capital investment had made the scheme totally unrealistic to begin with. A further complicating factor was that the elders had selected the settlers from amongst the relatively poorer families of Kaputiei section, and this provided them with an excellent chance to become as wealthy as possible as quickly as possible, with little incentives to sell excess stock. (9,p.37)

This episode suggests most obviously the advantages of controlled grazing and eliminating the effects described of the pursuit of individual over collective benefit. It also shows the failure to profit from the resultant build-up of stock by controlled selling; for while marketing facilities might have been better, it is not possible to say that these were absent in Kenya so close to major consuming areas. And in 1960-61 in Tanganyika a meat-packing plant at Arusha had to be closed down because supplies of cattle for slaughter were not forthcoming in sufficient quantity from the Maasailand area.

Thus the hypothesis of "lack of commercial-mindedness" still needs further testing, with more systematic information on sales in relation to marketing facilities. Since lack of sales could simply reflect poverty and a lack of surplus, the livestock/human ratio would need to be calculated for different areas. While in the West Pokot case this is clearly a

fundamental factor, the same does not seem to hold in all areas of East Africa with equal force.

Moreover, it is necessary to take account of inequality of stock holdings, which can be very great. Even in the relatively poor area of Kongelai described, holdings are said to vary from 10 cattle or less per household unit to 100 or more. In other areas, such as Central/Southern Tanzania, individual holdings are said to reach more than 1,000. Thus even if average holdings are quite low, we should still expect commercial sales from the wealthier stock owners. The test for rationality which needs to be made is of the sales of cattle by the relatively wealthy pastoralists.

Direct investigation of the purchase of consumer goods, particularly by the latter, would be useful. Here it must be realised that the consumption of many (but not all) consumer goods is incompatible with a pastoral life, and these need first of all to be excluded. It is also necessary to take account of the problem of jealousy in a close and cohesive society, and the fact, as Duesenberry has pointed out⁽³⁾, that even in Western societies wants are in part collectively or socially determined and related to an accepted way of life.

A CASE STUDY: SOME EVIDENCE OF MOTIVATION AMONG THE POKOT

The foregoing analysis has been made almost entirely on the basis of a priori reasoning in respect of the factors involved. Some direct evidence regarding motivation among the Pokot was collected by the writer, however, through the medium of a lengthy baraza (open-air meeting) at Kongelai, well attended by about 100 male Pokot involved in a proposed group ranching development which was to be based, as usual, on the introduction of rotational grazing. The aim was to probe the apparent barrier of 'pastoral conservatism' in order to detect any sign of change in the degree of commercial-mindedness, and specifically to explore whether under any circumstances de-stocking might be acceptable.

Participants in the baraza made strongly emphasised statements, certainly consistent with the notion of a 'cattle complex', to the effect that, for example, "they were here to accumulate wealth" (equating wealth with animals owned) and "animals are life". Suggestions that a smaller number of good animals might be more useful than a larger number of poor

beasts were strenuously rejected.¹⁰

On the side of commercial-mindedness, it was stated that "they had no need for money, unless their children were starving". Cattle were sold only because of 'calamity', i.e. drought, when there was a fear that they might die in any case. They agreed that many cows sold were old ones, those due for culling. These statements tended to confirm a recent statement made by government officials that "at present animals that come from auction sales are nearly always the old and sickly type". (District Animal Husbandry Officers' Conference, Nakuru, September 1974)

Some further questions were designed in part to test whether the main problem was that of the divergence between private and social interests, and whether establishing an organisation to secure the latter would be difficult. Some progress certainly had been made in implementing a limited degree of rotational grazing, and a grazing committee existed, with powers of fine, to implement grazing rules. However, it was strongly asserted that their only problems were disease and lack of rain: the poor condition of the animals was due to tsetse, not lack of grass. Similarly, when asked to state the benefits which they expected to receive from the operation of the ranch, none mentioned improved organisation of grazing and collective control of excess stock (the main benefit in the eyes of government): in their eyes the benefits were seen as finance for water development and dipping facilities which the government was to provide.

In relation to the possible divergence between private and social interests, the considerable inequality in ownership of cattle suggests that the best method of effecting a reduction in stock numbers would be to impose a ceiling on numbers to be owned by individual family units. This would permit a given reduction to be effected with minimum hardship; and it might be possible to enlist the support of the poorer members of the group in putting pressure on members who were, after all, using up a disproportionate share of the communal grass. Officials did not appear so far to have mentioned openly any approach to de-stocking, and evident hostility towards the very idea made it impossible on this occasion to even ask the question as to how the members themselves would wish to have any necessary de-stocking carried

10. I asked if they would not prefer two or three beautiful wives to a larger number of unattractive ones. The response was: "Yes, but this applies only to wives, not animals."

out. There was no interest, however, in the imposition of ceilings on holdings, and no apparent jealousy over numbers owned. Any such inequality was considered "God's will".¹¹ The suggestion that since the grass belonged to all it might not be equitable for some members to use up a disproportionate share was rejected: members of the group made the analogy between sending one's children to school and sending one's cattle to graze, the implication being that each cattle owner should be entitled to use the common land for whatever cattle he possessed. The main practical significance of inequality was therefore only that the poorer members would resist de-stocking much more vehemently.

Finally, given the vast numbers of small stock also maintained, the possibility of de-stocking via a reduction in the number of goats was explored: if a genuine 'cattle complex' existed there might be less opposition to this. An attempt was made, therefore, to elucidate 'preference functions' as between cattle and goats by asking members whether they would prefer a reduction of, say, ten goats or one cow. No answers were forthcoming to this question and the hostility engendered by it, causing the meeting to be terminated soon afterwards, provides further evidence of the obstacles to de-stocking. We may conclude that there is in Pokot at the present time a fairly solid wall of opposition to de-stocking.

Information derived from a three-hour baraza, even if attended by about 100 members, can hardly be described as systematic. That the information was not inaccurate, however, was suggested by the enthusiasm with which the most 'conservative' remarks were applauded, by the obviously democratic way in which the meeting was conducted, and by the fact that committee members, clearly aware of their constituents' feelings, were equally 'conservative' in their opinions. Thus direct questioning does not immediately produce reference to the varied functions that livestock fulfill beyond that of wealth, and does not reveal a willingness to restrict numbers on a collective basis, or to restrict large individual holdings, as would be indicated by an explanation in terms of divergence between private and social interests. Nor is any willingness revealed to sacrifice numbers for the sake of benefits anticipated from rotational grazing, even where economic efficiency points to the need for pasture management of this type. A basic determinant of attitudes in the Pokot case may well be general poverty and

11. This is to some extent true according to, for example, Henriksen and Gulliver who point out that large holdings may be constantly broken up by the effects of drought and disease. Considerable inequalities do, however, tend to persist.

the high rate of time preference associated with it. It would appear, however, that all these factors operate simultaneously (the 'sociological' one to a partial extent) but that even after allowing for these some element of 'conservatism' may remain, perhaps taking the form not so much of a preoccupation with animals as short-sightedness regarding the effects of current economic activity on future yields. But this needs more systematic testing in a variety of situations than has been attempted so far.

INVESTMENT IN PASTORAL ECONOMIES: AN EXAMPLE

How the workings of the pastoral economy and the responses of pastoral peoples are viewed by officials and outsiders is of extreme importance to the development policy likely to be adopted for pastoral areas. The practical relevance of the foregoing analysis may be seen from a brief examination of one case study in Tanzanian Maasailand.

A crucial question is what investments should be made, if any, in an attempt to develop the pastoral areas and to improve welfare in these areas. In principle, investment in water supplies, if these are well distributed to increase the supply of grazing,¹² may yield important benefits. However it is widely argued (6) that such investments, unless preceded by a willingness to de-stock, to sell cattle commercially and to introduce improved resource management with rotational grazing, will merely permit pastoralists to keep more cattle alive, expand numbers and hasten the destruction of the grass cover, reducing the long-run viability of the economy.

The USAID-financed Maasai Range Project in Tanzania, launched in 1970, did make substantial investments in Maasailand, including a substantial number of new dams, boreholes, dips, markets and Livestock Development (veterinary) Centres. Organisation was through ranching associations, of which eight had been formed by the end of 1971. The local demand for veterinary services and the returns therefrom can be seen from the fact that at one association, Talamai, calf mortality is said to have fallen over four years from 80 to 90 per cent to under 10 per cent, and the overall cattle

12. Pasture which is out of reach of water supplies cannot be used: judicious investment in boreholes or earth dams can make it available.

death rate from 60 per cent to 10 per cent. This, together no doubt with the additional water provided, permitted livestock numbers at Talamai Ranching Association to increase from 15,000 stock units at registration in 1969 to 41,000 in 1973. Similarly at Komolonik Ranching Association the number of stock units increased from 19,000 in 1966 to 30,500 in 1973.

What is interesting is that on this basis the scheme has generally been rated a failure. Thus one researcher, Ole Parkipuny, himself a Maasai, concludes that "the 'run-away' increase in livestock population has neutralised the investment and wound the clock back. The people are back to desperation on how to keep the stock." (8) The implicit criticism is, first, that the cattle have been accumulated rather than sold, and second, that the numbers may have been expanded beyond the carrying capacity of the land. To properly assess the situation we need to know the carrying capacity of the land (feasible livestock-to-land ratio) and the livestock-to-population ratio. According to information supplied by Parkipuny, Talamai Ranching Association comprised 400 families who at the start of the period would have an average of less than 40 stock units each, or about 8 stock units per adult-equivalent: still quite low in relation to subsistence needs. This implies that accumulation rather than increased sale of cattle was only to be expected and that the investments could have produced substantial benefits in terms of improved standards of living, even if not in terms of increased cash incomes or tax revenue. Elsewhere Parkipuny gives a figure of approximately 25,000 stock units for carrying capacity. If this is accurate, we should conclude that while some 40 per cent of the increase in cattle numbers could be justified in terms of both subsistence food requirements and capacity of the land,¹³ the rest of the increase was in excess of the latter and represents 'short-sightedness' on the part of the group and a failure to organise control of numbers associated largely, no doubt, with the common property problem described above. This example indicates, first, the possibility of significant returns to investment in pastoral areas, even where commercial sales are not obtained, and second, the possibility of useful investigation of the situation in terms of the analytical 'tools' discussed earlier.

THE CONCEPT OF A 'CATTLE COMPLEX' AND ITS USEFULNESS

Before concluding, we may offer some observations regarding the usefulness or otherwise of the term 'cattle complex'. While Widstrand denies that this complex exists, Henriksen states that:-

13. Carrying capacity is, of course, also a function of the level of resource management, and is not fixed absolutely.

Animals are the main form of wealth, and animals enter into nearly all social relations and ritual events. There can be no doubt that the Turkana have a 'cattle complex' in the sense that their herds have a special social and ritual value. Today, many of their social relations are still registered and expressed through the medium of animals. (5, p. 13)

Clearly much depends on the precise meaning attached to the term 'cattle complex'. For it would appear inevitable in a society and economy based almost entirely on livestock that cattle in particular would tend to acquire a special significance, for example in legend and story telling, and that discussion would frequently revolve around them. Where financial institutions are absent, together with other means of storing wealth, stock must also serve as assets and, in a non-monetised economy, as the most convenient medium of exchange.

In a subsistence livestock-based economy, in fact, it seems difficult to draw significant conclusions from the fact that livestock perform a wider range of economic or social functions than elsewhere, or that they are more dominant in people's conversation, all of which seems inevitable. The term 'cattle complex' does not therefore appear at all useful, and is more likely to confuse the issue. The focus should be rather on more testable propositions such as the holding of excess stock, the level of sales, the willingness to limit large individual holdings of cattle, the purchase (given an adequate level of realisable income) of cash goods, and the like, which may throw light on behaviour and its rationality according to some stated criteria.

A particularly telling point made by Widstrand in arguing against the existence of a 'cattle complex' as an irrational element in Pokot society at least, is that the Pokot are actually a 'stock' people and not a cattle people, owning according to a 1971 census more than twice as many sheep and goats as cattle. As just mentioned, however, goats did not appear less sacrosanct to the Pokot as far as de-stocking is concerned.

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