Commission on Nomadic Peoples

"The Size of Herds among Pastoral Nomads"

A. M. Khazanov

Newsletter of the Commission on Nomadic Peoples, Number 7, 1980

The Size of Herds Among Pastoral Nomads

by A.M. Khazanov

It is well known that the size of flocks and herds managed by pastoral nomads depends not only on the number of available animals but is also connected with many other factors. Obviously that was the reason for introducing several more precise notions into nomadic studies. The maximal size of the herd and the minimal size of the herd are the most conspicuous of them.

According to Spooner (1973:9) and some other scientists "the ability of the herdsmen to control the animals in any given topographical situation is a factor determining the maximum size of the herd. The requirements of the family or other grouping that subsists from the herd are a factor determining the herd's minimum size". First of all I would like to point out that these notions are by no means interdependent and inseparable. They are essentially relevant to quite different spheres of pastoral nomadic economy. The maximum size of the herd pertains to the effective management of herds, whereas the minimum size of the herds refers to livelihood.

In practice the stock numbers grazing together depends on multiplicity of various and different factors. Among them one can list ecological factors connected with the environment, annual weather conditions, seasonal weather variations, the kinds of stock reared by nomads, their biological peculiarities and ratio, the sex and age composition of flocks and herds, etc. The maximal size of the herd is also affected by social and economic factors, such as the stock numbers in the ownership or at the disposal of a single family or a household, the family's (household's) labour force, peculiarities of utilization of the stock, social and political conditions of pasturing, and so on. Even herding skills and techniques, and cultural traditions of a given nomadic group or society are relevant in the case.

For example, the maximum size of the herd among the reindeer nomads of Kamchatka and Chukotsk is up to 1000-1500 heads. In fact, a herder is able to control even a larger herd but it would deteriorate the qualities of pastures. Tundra valleys become too narrow for such herds; reindeer are not able to pasture on small stretches of the hill summits where snow is more friable (Baskin, 1976:81) and frozen snow covering prevents them from the lichen.

Most of the aforementioned factors are variable within the framework of a given nomadic society and some of them are variable even within separate families or households. Hence, one may doubt that the maximal size of the herd can be regarded as one of the main characteristics of the pastoral nomadic economy, especially as its stable trait. This notion could be still less useful in cross-cultural comparisons of different nomadic societies.

The notion of the minimal size of the herd is also of restricted value Even leaving out of consideration Disraeli's dictum that statistics is just one kind of lie, every specialist knows quite well how difficult it is to estimate the living wage in modern societies, and the subsistence minimum in traditional societies in particular. Both, the living wage and the subsistence minimum are rather uncertain, vague and fluctuating notions dependent on a level of technological development, social and political systems, economic conjuncture, and even on methods of estimation.

Contrary to the old opinion still held on by some scholars, the nomadic economy is not autarchic, and the nomads cannot subsist only from their flocks and herds. Correspondingly the minimal size of the herd is partly dependent on supplementary sources of livelihood and nonpastoral activities practiced by nomads, which vary greatly in different nomadic societies and even in different households of these societies. These sources and activities in their turn can fluctuate year by year depending on a concrete historical and economic situation.

In this respect Ekvall's (1968:19) observation deserves to be mentioned. He points out that the Tibetan "nomad finds it difficult to estimate exactly the number of animals needed for him to make a living".

No wonder that under the circumstances the stock numbers due to be estimated as the minimal size of the herd vary greatly not only among nomads of different regions but also among nomads of the same region and even among nomads of the same society in different times. Obviously it should be explained not only by the imperfection of estimations and/or by the incompleteness and vagueness of the data at our disposal (statistics can be a kind of deliberate lie in traditional societies as well), but also by objective circumstances mentioned above. In order to prove this point I will list at random several examples derived from different regions of pastoral nomadism and from different nomadic societies.

Eurasian steppes. According to Pallas (1776:226) in the middle of the XVIIIth century the Kalmyk family of five was in need of no more than 8 mares, 1 stallion, 10 cows and 1 bull. His data however are evidently incomplete, as he did not mention sheep among the family herd. Zitetzky (1892:212) estimated the minimum size of the family herd among the Kalmyks at 50-100 head of stock of various kinds.

Georgi (1776:125) noted that a fairly well off Kazakh family owned 30-50 horses, 100 sheep, 15-25 head of cattle, 20-25 goats and several camels. But a century later Slovtzov (1881:23-25) stated that only 5 horses, 10 rams and 6 cows were sufficient to meet the needs of a Kasakh family of Akmolinsk district. Indeed, this number if very dubious. According to other data, a Kazakh family of five in the XIXth century should have 15 horses, 2 camels, 6 cattle, and 50 sheep in order to maintain a self-sufficient household (Narody Srednei Asii, 1963:330). In Tolybekov's (1959:131) estimation however such a family was in need of 15-20 camels with their youngsters, 4-5 horses, 100-150 small stock. This scientist asserts that with less than the minimum even a simple reproduction of the family herd was impossible.

Maisky (1959:140-141) mentioned that in the beginning of the XXth century a Mongol family required 14 horses, 3 camels, 13 cattle and 90 small stock for subsisting.

But according to Rudenko's (1969:18) estimation among the nomads of the Eurasian steppes the minimal size of the herd of a five-member family should correspond to 25 horses, proceeding from the following proportions: 1 head of a horse = 6/5 head of cattle = 6 head of small stock. Besides, supplementary stock was needed as beasts of burden, as well as riding animals according to the number of adult members of the family.

The Middle East. According to Pastner (1971:177) "it is generally agreed that a proper Makrani nomadic lifestyle requires a family of five to own at least 30 head of sheep and goats plus a camel or donkey". Up to 25% of the yearly increment and other pastoral production is used to obtain the agricultural and bazaar goods. Swidler (1973:40,n.3) notes that the Brahui derive much of their cash income from the sale of livestock; it is therefore not uncommon to see elementary families with less

than 30 adult sheep/goats. "Among the Basseri to maintain a satisfactory style of life a man with normal family commitments requires about 100 sheep and goats. It is impossible to subsist in less than 60 (Barth, 1964: 16-17; cf. Barth, 1964a:72). Digard (1973:37) states that among the Bakhtiari a subsistence minimum requires about 50 sheep and goats.

Africa. Silberman (1959:569) states that among the Somali a woman with three children can subsist on 50 sheep and goats and 1 milch-camel, a flock of 100 head provides prosperity. Two animals more are needed as beasts of burden. Similar numbers are adduced by Lewis (1961:58).

Asad (1970:52) mentions that among the Kababish 20-25 camels or 40-45 sheep are sufficient to provide an independent subsistence for a nuclear family. Among the Karimojong a moderately prosperous man owns 100-150 cattle, 100 sheep and several donkeys (Dyson-Hudson, R. and N., 1970:107). Gulliver (1955:39) writes that among the Turkana a fairly well off family owns 25-30 cattle and 100-150 sheep and goats.

Bringing this data into comparison with the estimation made by Dahl and Hjort (1976:266) who consider the minimum herd size for the "reference family" as a cattle herd of 50-64 head, or 28 camels, or more than 100 head of goats and sheep, it is easy to perceive if not the vagueness of the data provided by students and their informants, then at any rate their very scanty representative capabilities beyond the limits of a given nomadic group or society at the moment of observation. Simultaneous operation of variable and different factors ranging from instability of market prices of stock, agricultural products and goods, to incomes from non-pastoral activities, makes the notion of minimal herding unit unstable and not very useful for generalizations and comparisons.

Several scholars have already pointed out the insufficiency and vagueness of the aforementioned notions. That is why one more notion was suggested, namely "the optimal size of the herd" oscillating between the maxima and minima (e.g., Leeds, 1965:90). This concept is not completely alien to nomads with their many-century experience in herding. Certainly, they take into consideration biological and etiological peculiarities of gregarious animals that they herd. For example, a deliberate and constant keeping of the stock in large herds is of great importance because it provides the possibilities of using the behavioural mechanisms which operate only in dense masses of animals. Those mechanisms form a basis of a rigid management of the herds (Baskin, 1976:271). The famous gregarious instinct of sheep - one can remember "les moutons de Panurge" - may be partly considered as adaptation to the man-made artificial conditions. In contrast with the herds of wild animals, the herds of domestic animals of the same species are usually much younger. A lack of old and experienced animals and, hence potential leaders in domestic herds results in necessity for direct interference in their pasturing.

However the exact data on the optimal size of herds are again very insufficient at present. Besides, it appears that the optimal size of the herd is different in different regions of pastoral nomadism. Thus Dahl and Hjort (1976:270) state that "camels are more docile in large herds, but it may be very hard to supervise more than 150. A single shepherd without a dog can manage 3-400 sheep or goats; if he has a dog, he can handle up to 500". But among the Rwala a camel herd consists of no more than 70-80 head (Musil, 1928:336). A single shepherd in South-West Asia is able to control a herd of 300-400 sheep even in quite difficult terrain (Barth, 1962:345; Trubetzkoy, 1966:104). The Brahui estimate the optimal size of the herd up to 500 head; if a sheep herd falls below 250 head it becomes more difficult to manage the animals (Swidler, 1973:28; cf. Barth,

1964:22). Nevertheless among the Bakhtiari herds of small stock usually do not exceed 200 head (Digard, 1973:45).

Among the Kalmyks in the XIXth century two shepherds were able to manage a flock of sheep up to 1000-1500 head, or a herd of 300 horses (Zitetzky, 1892:95-96). In recent times among the Turkmen a single adult shepherd with the help of a herdsboy could supervise a herd of 400-800 head (Orazov, 1970:202). A flock of sheep up to 800 was considered as "normal"; more than 1000 head as "hard", difficult to be controlled (Babadzanov, 1975:229, n.16).

In Inner Mongolia one shepherd was able to control up to 150-200 sheep when on foot, or even 500 sheep when on horseback; two horsemen could guard 2000 sheep". But you seldom see a flock of more than 1000 sheep, because sheep have a habit to eat up all the grass without leaving anything and so those in the rear can hardly find any grass to eat" (Goto, 1970:95).

It seems to me that defining the optimal size of the herd, nomads not infrequently are impelled to be guided not by ideal but by practical considerations dependent on various economic, social and sometimes ecological needs and requirements. A good example is provided by Cunnison (1966:63, 67, n. 7) in his book on the Humr Baggara. Although they recognize the optimal size for a grazing herd, in practice the size of their herds often depends merely on the number of herders at households' disposal.

Besides, the optimal size of the herd per se depends also on techniques of husbandry and similar non-biological factors. Thus, in the U.S.A. a single horseman controls 1000 head of cattle. In Australia before the middle of the XIXth century one man could manage no more than 1500 sheep, later - up to 2500. In Argentina the average is 2.5/.3 men per 1000 head of cattle, 1.5 men per 1000 head of small stock (Strickon, 1965:245). At the same time, according to my own field-materials, in 1972 in the sovkhoz (state farm) "The Western" - one of the most efficient in Kalmykia, no less than four shepherds were needed to care for a flock of 850 sheep, although it was pastured all year on the open steppe and water tanks were regularly brought to arid pastures.

In conclusion I would like to stress again that such notions as "the maximal size of the herd" and "the optimal size of the herd" are rather ideal concepts and their practical efficiency should not be overestimated even within the framework of a given nomadic society or group. "The minimal size of the herd" depends to a considerable degree on dimensions of non-pastoral activities and incomes, and therefore is of a variable character too. The significance of all these notions is still more limited in any comparisons or diachronic studies.

References

Asad, Talal
1970 THE KABABISH ARABS: POWER, AUTHORITY AND CONSENT IN A NOMADIC TRIBE. New York, Praeger.

Babadzanov, P.
1975 K voprosu o skotovodcheskom hozjaistve turkmen Tedzenskogo oazisa v kontze XIX - nachale XX v. In HOZJAISTVENNO-KULTURNYE TRADIZII NARODOV SREDNEI ASII I KASAKHSTANA. Moskva, Nauka: 200-229.

Barth, Frederik
1962 Nomadism in the Mountain and Plateau Areas of South-West Asia. In THE PROBLEMS OF THE ARID ZONE. Paris, UNESCO: 341-355.

Barth, Frederik
1964 NOMADS OF THE SOUTH PERSIA: THE BASSERI TRIBE OF THE KAMSEH CONFEDERACY. Oslo, Universitets-forlaget.

Barth, Frederik
1964a Capital, Investment and the Social Structure of a Pastoral Nomad Group in South Persia. In CAPITAL, SAVINGS AND CREDIT IN PEASANT SOCIETIES. Ed. by Raymond Firth and B.S. Yamey. Chicago, Aldine Publishing Company: 69-91.

Baskin, L.M.
1976 POVEDENIE KOPYTNYH ZIVOTNYH. Moskva, Nauka.

Cunnison, Ian
1966 BAGGARA ARABS: POWER AND LINEAGE IN A SUDANESE NOMAD TRIBE. Oxford, Clarendon Press.

Dahl, Gudrun and Hjort, Anders
1976 HAVING HERDS: PASTORAL HERD GROWTH AND HOUSEHOLD ECONOMY. Stockholm, Liber Tryck.

Digard, Jean-Pierre
1973 Contraintes techniques de l'elevage sur l'organization des societes de pasteurs nomads. Documents et Perspectives de travail. LES CAHIERS DE CENTRE D'ETUDES ET DE RECHERCHES MARXISTES, N 109. Paris: 33-50.

Dyson-Hudson, N. and R.
1970 The Food Production System of a Semi-Nomadic Society, the Karimojong, Uganda. In P. Mc.Loughlin (ed.). AFRICAN FOOD PRODUCTION SYSTEMS: CASES AND THEORY. Baltimore, London: 91-123.

Ekvall, Robert
1968 FIELDS ON THE HOOF: NEXUS OF TIBETAN NOMADIC PASTORALISM. New York, Holt, Rinehart and Winston.

Georgi, I.G.
1776 OPISANIE VSEH V ROSSIISKOM GOSUDARSTVE OBITAJUSZCHIH NARODOV. Ch. I. Sanktpeterburg, Schnor.

Goto, Tomio
1969 On the Nomadic Unit-Groups of the East Mongols in the Recent Times. PROCEEDINGS VIII ICAES. Vol. II. Tokyo, Science Council of Japan: 95-96.

Gulliver, P.H.
1955 THE FAMILY HERDS: A STUDY OF TWO PASTORAL TRIBES IN EAST AFRICA, THE JIE AND TURKANA. London, Routledge and Kegan Paul.

Leeds, Anthony
1965 Reindeer Herding and Chukchi Social Institutions. In MAN, CULTURE AND ANIMALS. Ed. by A. Leeds and A.P. Vayda. Washington, D.C.: 87-128.

Lewis, I.M.
1961 A PASTORAL DEMOCRACY. London, Oxford University Press.

Maisky, I.M.
1959 MONGOLIA NAKANUNE REVOLJUZII. Moskva, Izdatelstvo vostochnoi literatury.

Musil, Alois
1928 THE MANNERS AND CUSTOMS OF THE RWALA BEDOUINS. American Geographical Society. Oriental Explorations and Studies. N 6. New York.

Narody Srednei Asii i Kazakhstana
1963 T II. S.P. Tolstoy, T.A. Zdanko, S.M. Abramzon, N.A. Kisljakov (eds). Moskva, Izdatelstvo Akademii Nauk SSSR.

Orazov, A.
1970 Hozjaistvo i osnovnye cherty obszchestvennoi organizazii u skotovodov Zapadnoi Turkmenii v konze XIX - nachale XX veka. In TRUDY VII MEZDUNARODNOGO CONGRESSA ANTHROPOLOGICESKIH I ETNOGRAFICHESKIH NAUK. T. 10. Moskva, Nauka: 200-206.

Pallas, P.S.
1776 SOBRANIE ISTORICHESKIH SVEDENII O MONGOLSKIH NARODAH. Sanktpeterburg.

Pastner, Stephen
1971 Ideological Aspects of Nomad-Sedentary Contact: A Case from Southern Baluchistan. ANTHROPOLOGICAL QUARTERLY 44: 173-184.

Rudenko, S.I.
1969 Studien uber das Nomadentum. In VIEHWIRTSCHAFT UND HIRTENKULTUR: ETHNOGRAPHISCHE STUDIEN. Herausgegeben von Laszlo Foldes. Budapest, Akademiai Kiado: 19-32.

Silberman, Leo
1959 Somali Nomads. INTERNATIONAL SOCIAL SCIENCE JOURNAL. Vol. XI, N 4, 559-571.

Slovtzov, I.
1881 PUTEVYE ZAPISKI, VVEDENNYE VO VREMJA POEZDKI V KOKCHETAVSKII UEZD AKMOLINSKOI OBLASTI v 1878 g. Omsk.

Spooner, Brian
1973 THE CULTURAL ECOLOGY OF PASTORAL NOMADISM. An Addison-Wesley Module in Anthropology. N 45.

Strickon, A.
1965 A Euro-American Ranching Complex. In MAN, CULTURE AND ANIMALS. Ed. by A. Leeds and A.P. Vayda. Washington, D.C.

Swidler, W.W.
1973 Adaptive Processes Regulating Nomad-Sedentary Interaction in the Middle East. In THE DESERT AND THE SOWN: NOMADS IN THE WIDER SOCIETY. Ed. by C. Nelson. Institute of International Studies, University of California, Berkeley: 13-41.

Tolybekov, S.E.
1959 OBSZCHESTVENNO-EKONOMICHESKII STROI KAZAKHOV V XVII-XIX VEKAH. Alma-Ata, Kazakhskoe gosudarstvennoe izdatelstvo.

Trubetzkoy, B.B.
1966 BAKHTIARI (OSEDLO-KOCHEVYE PLEMENA IRANA). Moskva, Nauka.

Zitetzky, I.A.
1892 ASTRSKHANSKIE KALMYKI (NABLJUDENIJA I ZAMETKI). Astrakhan.

A.M. Khazanov,
Studencheskaja Str. 32-145,
Moscow G-165,
121165 U.S.S.R.