Transformation Processes In Nomadic Pastoralism In Ladakh

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Today, Ladakh, a region of Jammu and Kashmir, the northernmost state of India, is home to only 1,200 nomadic pastoralists, representing less than one per cent of the Leh District population. Three distinct communities – Kharnak, Rupshu (or Samad) and Korzok – live near each other, but own their own territory. Changes have always occurred, but over recent decades, they have been particularly dramatic and fast moving. Our aim in this paper is to briefly outline the history of nomadic pastoralism in Ladakh, and then to examine in more depth the transformation processes which have taken place over the last fifty or sixty years, taking the nomadic community of Kharnak as a case-study.

Located in Northern India at the western end of the Tibetan plateau, Ladakh is inhabited mainly by a population of Tibetan culture and language: in the eastern part (i.e. Leh District), a great majority of the inhabitants are followers of Tibetan Buddhism, while in the western part (i.e. Kargil District) the inhabitants are mostly Muslims. The region covers some 60,000 square kilometres, except for Aksai Chin, which comes under Chinese administration. Its population amounts to 290,492 (according to the 2011 census). Nomadic pastoralists make up a very small minority numbering about 1,200 persons, which is less than 0.5 per cent of the total population: a figure that has dwindled from one year to the next. They are comprised of three different communities located at Kharnak, Rupshu and Korzok on the Changthang plateau bordering the Tibetan Autonomous Region on the elevated south-eastern edge of Ladakh at an average altitude of 4,500 metres above sea level (Fig. 1).

Indeed, changes have always occurred among these nomadic societies but in recent decades they have been particularly radical and fast moving. My aim in this paper is to briefly outline the history of nomadic pastoralism in Ladakh, then to examine in more depth the transformation processes over the last fifty–sixty years, taking as a case-study the nomadic community of Kharnak where I have been doing long-term fieldwork for the past 20 years.

EARLY ACCOUNTS OF NOMADIC PASTORALISM IN LADAKH

Just how, when, and where nomadic pastoralists inhabiting Ladakh today originated remains a mystery. They are generally believed to be among the earliest inhabitants, and often regarded as the archetypical Ladakhis in popular imagination and, not least, among the Ladakhis themselves. It is generally agreed that they have always been nomads and trace their origins back to ancient Tibetan nomadic tribes. There is no historical evidence whatsoever for this, but the scenario did fit in well with the now-superseded three-stage theory associated with nineteenth century social evolutionist writings that considered nomadic pastoralism to be an evolutionary stage in human history, following hunting-gathering and leading on to sedentarization and agriculture. Such a hypothesis postulates that present-day herders belong to the same stock and assumes that they have always been nomads. However, for at least one of the three nomadic communities still in existence today, this hypothesis needs to be re-examined. Thus, the Kharnakpa, “Those of the Black Fort”, were most probably agro-pastoralists practising transhumance, with a permanent homestead and base, which shifted from a form of mobile herding to a nomadic way of life. In other words, in this case at least nomadism began as an extension of the agricultural settlement,
as the herds and flocks kept by settled populations grazed farther and farther away.\textsuperscript{3}

The main source for Ladakh history is the \textit{La-dwags rgyal-rabs}, a royal chronicle probably compiled in the seventeenth century, and updated into the nineteenth century. However it is essentially devoted to relating the lofty actions of an elite minority, the conquests and exemplary deeds of kings and their ministers. Written in a sectarian tone, it provides little information on the country and its people.

Livestock farming, however, becomes apparent through the taxes in kind levied by Ladakhi kings from their subjects, and through the tributes paid by the kingdom to its powerful neighbors. We thus learn that at the beginning of the seventeenth century the great King Sengge Namgyal (Tib. Seng-ge rNam-rgyal; r. 1616-1642) filled the kingdom with yaks and sheep thanks to his successive conquests. He also presented one hundred ponies, one hundred yaks, one hundred heads of cattle, and one thousand sheep and goats to his spiritual advisor, the Tibetan Tagtsangrepa (1574-1651).\textsuperscript{4}

We also discover that, as a clause in the 1682 peace treaty signed with Kashmir, King Deleg Namgyal (Tib. bDe-legs rNam-rgyal; r.1680-1691) promised to send every third year 18 piebald horses, 18 white yak tails and 18 pods of musk to the Nawab of Kashmir in exchange for 500 bags of rice.

From the seventeenth century onwards, supplementary documentary evidence comes from accounts left by missionaries, British officers and explorers, who journeyed to Ladakh. Hence, well before any Westerners’ account, the Mughal general Mirza Haider Dughlat (1499/1500-1551) who raided Ladakh and conquered Kashmir in the 1540s pointed out:

The inhabitants of Great Tibet\textsuperscript{5} are divided into two sections. One is called Yulpa—that is to say, ‘dwellers in villages,’ and the other, the Champa, meaning ‘dwellers in the desert’. […] The inhabitants of the desert have certain strange practices, which are to be met with among no other people. Firstly they eat their meat and all other food in an absolutely raw state, having no knowledge of cooking. Again, they feed their horses on flesh instead of grain.\textsuperscript{6}

\textsuperscript{3} On this hypothesis, see Dollfus 2009.

\textsuperscript{4} Complete name in Tibetan: sTtag-tshang ras-pa ngag-dbang rgya-mtsho.

\textsuperscript{5} Like later Persian-language writers, Mirza Haidat Dughlat refers to Ladakh as Tibet-i-Kalan or Tibet-i-Buzur (Great Tibet), while Baltistan was Tibet-i-Khur (Little Tibet).

\textsuperscript{6} Although a diet rich in meat is not a horse’s regular diet in Chanthang, in very severe winters, when the snow covers the ground for weeks on end and forage supply runs out, horses and yaks can be fed...
They also use sheep exclusively, as beasts of burden.

(Transl. Elias and Ross 1973: 407)

The first Westerners' account came one century later from a Portuguese Jesuit who travelled from Tsaparang in Western Tibet to Ladakh in 1631. From Alner [Hanle], he made his way across a bare plateau and through more sheltered valleys, and soon came upon a shepherds' camp consisting of some thirty tents. Large flocks of sheep —his letters speak of 18 to 20 thousand—found the necessary pasture alongside some small rivers.7

Additional information only came in the first decades of the nineteenth century with the travel report by the British, William Moorcroft (1767-1825), a veterinarian in the service of the East India Company, and his companion George Trebeck (d. 1825), who had been sent on reconnaissance trips. They surveyed the high plateaus of Rupshu between in 1821-1822. On the whole road they were accompanied by or encountered droves of sheep and yaks, pastured during the winter in these valleys, or about to move to the productive plains of Kagjung; the cattle and their attendants, and the black blanket tents of the latter, surrounded by wild and snow-tipped mountains, presented many interesting pictures of the life of the Tatar shepherds (Moorcroft and Trebeck 1993 [1837]: 265.).

The British officer Alexander Cunningham was the next to reach Rupshu. He provided the first description of nomads' garments, but about their cattle, he only said:

They consist of herds of Yâks, or Grunting oxen, with the long bushy tails, and droves of sheep and goats. The hair of the Yâks is cut every summer, and woven into the coarse cloth of which they make tents. (...) They exchange their wool with the traders for wheat, flour, tobacco, and anything else that they may require. (1848: 225-226).

Then came Frederic Drew, a geologist and governor in Ladakh in 1871. His account is fairly lengthy and detailed:

In the whole area [...], which is about 4000 square miles in extent, there are but 500 souls. [...] These are dwellers in tents, or, as the Persian phrase has it, "wearers of tents". [...] The tents are of a black-hair cloth made from either yâks' or goats' hair. [...] The sheep and goats are very numerous. At evening time one sees the best flocks and the herds coming down the hill-side and collecting at the encampment by hundreds, and even thousands. The sheep is of a large kind; it is here made use for carrying loads; the salt from the lake is carried out of and grain is brought into the country on the backs of sheep, [...] The larger of the two kinds of goat kept here is made use of in just the same way. The more general is the shawl-wool goat, a small long-haired species. The kids of this sort are beautiful little animals. The wool that goes to make the soft fabrics of Kashmir is an undergrowth at the root of the long hair of these smaller goats. It comes in winter time, not only to the goats but to the yâks, dogs, and other animals, domestic and wild both, as a protection against the severe cold. At the beginning of the summer the wool grows out or loosens; it is then combed out from the goats and sent to Leh, where it is picked free from hairs and either worked up or sent on to Kashmir. [...] The horned cattle are all of the yâk species [...]. The yâk is a half-wild, not easily tractable, beast; his numbers are not very large in Rupshu; there may be 400 or 500 head. The yâk's duty is that of a load carrier. The Rupshu people do not carry loads on their backs like the Ladâkhîs, they depend entirely on their cattle, on their sheep and goats for merchandise that is easily divisible, on their yâks for that of larger bulk. (1876 [1875]: 287-289).

In 1896, Henry Zouch Darrah, an Indian civil servant and a well-known sportsman visited Kharnak over the summer to hunt game, such as wild ass, argali, and blue sheep. He gave us a vivid and still valid description of goat milking.

A goat was caught, and a piece of long rope having been doubled, the loop was passed round its neck and the ropes crossed. The next goat was placed with its neck close to that of the first, but its face towards the other's tail, and the ropes taken one above and the other below the neck. The third goat was tied as the first had been, and the fourth like the second, and so on, —the first, third, fifth, seventh, etc. goats facing in one direction, and the second, fourth, sixth, etc. facing in the opposite, the ropes crossing between each pair. Thus when finished, all the goats were standing unable to get away from each other, and the sterns of all were outwards. The milk-woman could then go at her leisure, and extract what milk was obtainable from each. (1898: 242).

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“dead meat” (i.e. meat from animals which have died of starvation), bone broth and roots.
In the early 1900s, Isabella L. Bishop, a famous Victorian traveller and writer, visited the camping ground of Tsala where nomads spend the four summer months.

An elevated plateau with some vegetation on it, a row of forty tents, ‘black’ but not ‘comely’, a bright river rapid, wild hills, long lines of white sheep converging towards the camp, yaks rampaging down the hillsides, men running to meet us; and women and children in the distance [...].

This Chang-pa tribe, numbering five hundred souls, makes four moves in the year, dividing in summer, and uniting in a valley very free from snow in winter. They are exclusively pastoral people, and possess large herds of yaks and ponies and immense flocks of sheep and goats, the latter almost entirely the beautiful ‘shawl goat’, from the undergrowth at the base of the long hair of which the fine Kashmir shawls are made. (1996 [1904]: 127 and 130-131)

In addition, she described the sheep caravans she met:

Numbering among them 7,000 sheep, each animal with its wool on, and equipped with a neat pack saddle and two leather or hair-cloth bags, and loaded with from twenty-five to thirty-two pounds of salt and borax. These [...] were carrying their loads to Patseo; a mountain valley in Lahul, where they are met by traders from Northern British India. The sheep are shorn, and the wool and loads are exchanged for wheat and a few commodities with which they return. (id.: 140).

A few decades later, in 1931 came an American botanist, W. N. Koelz (1931: 102) who confirmed the presence of black spider-like tents woven of yak hair, swarms of sheep and yaks and a few horses. The same year, W. M. T. Magan, formerly a member of the 12th Frontier Force Cavalry, then employed by the Intelligence Bureau, went on a trip, which led him from Spiti to Rupshu and Ladakh. He met several shepherds complaining about the “very unlucky year for not only have they suffered a great loss in their yak sickness, but also the snow was so late leaving the hills that the grass never had a chance to grow.” While spending several days in the same camp, located within Kharnak territory, he wrote in his diary, kept today in the British Library in London:

It would be difficult to estimate the number of sheep and goats owned by this village, but if I say 5,000 it is I am sure a gross underestimation, the true number probably being double that. It was interesting to watch them coming down the valleys at sunset last night, to the village where they are kept penned in stone-walls. I counted, or tried to count, one flock, which looked quite small and discovered it to contain about 300 animals. There are also a large number of yaks, from which milk is obtained and turned into butter, made so as to keep for long periods. The yaks provided great amusement for us, for they object to being milked, and every now and again a few broke loose and tore round the village kicking up the dust and scattering everything before them; they are powerful beasts and not to be trifled with when in a sportive mood; however these people know their tricks and make short work of convening them and tying them down. The best way to anchor a yak, or several yaks is to tie them together by the horns, for then when anything excites them, rather than go forward and receive a good butt on the head, they back away from each other thus tightening the ropes with the result that they become more securely fixed where they are intended to be. (1931:145-147).

Whatever the period of time, all these accounts match with regard to the small number of nomadic pastoralists inhabiting Ladakh compared to the overwhelming majority of the population that live chiefly from agriculture and livestock8. They describe them as great carriers relying mainly on sheep and goats, but raising yaks for meat, milk and hair, yet carrying loads as well.

**NOMADIC PASTORALISTS’ LIVELIHOODS**

In Changthang, winters are very harsh with temperatures falling to -35°C associated with heavy snowfalls and bitter winds. During the brief summer, temperatures are high in the day, but fall to around 0°C at night. The landscape is mountainous and rugged, with much of the land remaining barren. Except for a few patches of grassy land restricted to the banks of streams and surrounding springs, vegetation is sparse and largely consists of woody tussocks. However, altitude rather than aridity is the determining environmental factor and the basis of a unique system of pastoralism. The distribution of sedentary and nomadic populations follows the elevation line. Sedentary farmers and nomadic pastoralists control distinct territories separated by several days’ walk over high passes. Therefore, nomads have no competitors unlike the other well-known traditional nomadic areas in South-Western Asia. They do not compete directly or indirectly for land resources and water, unlike in the arid-zone belt where the dividing line between fields and

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8. In 1904, Bishop reported 500 individuals for a total population estimated to be about 60,000 (Census of India 1901), that is about 0.83%.
pastures, between the “sown” and the “unsown”, is a shifting one.

Because there is only one growing season (from early June to mid-September), Ladakh’s nomadic pastoralists have no reason to migrate far over the year and rely on horizontal migration. Like nomads in Tibet, they shift camp to exploit various pastures in order to preserve the supply of grass, but not to take advantage of differences between ecological zones. There are minor changes in altitude between winter and summer camps. In Kharnak for example, the former are both located between 4,300 and 4,400 metres a.s.l. while among the latter, two are situated at 4,400 meters and one at 4,650 metres a.s.l. In no case do nomads “wander”. Each community adheres to a well-defined territory with its own migration routes, claiming exclusive access and defending particular grassland at a specific time of the year. However, this territory is not a static and bounded entity. It changes over time depending on natural hazards and demographic growth, but also in response to political events (see Dollfus 2012, see also Fig. 2).

The livestock survive by grazing on range forage. Because of the amount and quality of the vegetation available, goats and sheep make up more than 90 per cent of the herds, since the absence of large grassy meadows and winter fodder limits any breeding of yaks. Nomads also keep some horses but only for riding. Unlike Central Eurasian nomads, they do not milk mares and would never eat horse meat. The richest families own three to four horses, two to three hundred sheep and goats, and twenty to thirty yaks. Most families have a dozen yaks and one hundred to one hundred and fifty sheep and goats, while the poorest have only a few dozen animals. They hire their services as laborers: in the summer as shepherds, in the winter as weavers or tanners. In addition to raising livestock, some families in Kharnak and Korzok communities own small plots of land where they barely managed to grow enough barley to make beer, let alone for straw for feeding livestock. Beginning September, before harvesting, people would set out to specific valleys that had been left un-grazed throughout the growing season and here they cut grass, primarily of wild pea and knotweed, over a four-day period.

Although they are Buddhists, nomads slaughter the animals they themselves have raised. They butcher relatively few animals for their own consumption because animals are more valuable alive than dead, for sale or as a source of milk, wool and hair. Milk is never consumed fresh, but is processed into butter and dried as cheese for later use. Wool and hair are collected in summer and spun into balls of thread for making cloth, carpets, blankets, tents and other equipment such as ropes, sacks and saddlebags. Hide and stomachs are transformed into butter-churns, boots containers and straps. Dried dung is used as fuel. Besides this range of products, their livestock also provide indirectly (through trade) food grain, tea, ironware, and manufactured foods such as clothing, kitchen equipment, torches and radios.
POST-1962 CONFLICT: TERRITORIAL RESTRUCTURING AND MIGRATORY PATTERNS

The Sino-Indian Border Conflict in 1962, triggered by the construction of a road through Aksai Chin, which China regarded as a strategic link between the Chinese administered territories of Tibet and Xinjiang, had a major impact on the lives of nomadic pastoralists, as it did for many Ladakhis. It led to a major influx of Indian Army personnel into the Changthang area. The military population soon grew larger than the civilian one. Many military camps were set up and roads were built to supply them with men, munitions, fuel and food. India closed its borders across which many exchanges were once made. Ladakhi nomads were no longer authorized to go to the western Tibetan lakes where they previously collected salt and borax, taking with them hundreds of sheep and goats. They lost the benefit of this lucrative trade along with winter pastures, including large portions of Kagjung, the key winter reserve pasture for the whole of Changthang, in the Kuyul area. Their traditional grazing grounds shrunk considerably. Moreover, the Tibetan uprising in 1959 as a consequence of the Chinese occupation of Tibet saw a large number of Tibetan nomads settle in eastern Ladakh.

The influx of Tibetan refugees with their herds, followed by the loss of pastureland due to the Indo-Chinese war in 1962 has strained grass and water resources. Relations between the different groups of pastoralists having to share them have become tense, often leading to blows, and territorial redistribution. Apart from changes in the route, the pattern in which they moved has also altered slightly. Due to pressure from external events, scattering and flow have been replaced by grouping and boundaries. The nomadic pastoralists of Ladakh, who in the past followed their herds over a vast area along their own itineraries, occasionally making a chance encounter, now control exclusive and bounded territories, which leave little room for movement (Fig. 2). They usually break and make camp about six times a year, making only short moves (10 to 30 kilometres) between a set of fixed sites to which they return each year. They minimise travel so as to not weaken the animals, which do not graze on the trail. Therefore, even when they move to a camp situated only 2-3 hours away, they break camp before dawn while it is still dark, in order to avoid “the sun which hits men and animals” and more importantly, to keep the daytime free for grazing pack animals.

Incidentally, with the closing of the borders in the early 1960s, another source for supplying salt had to be found. It is in this context that the Tso Kar Lake, where up till then the salt was only thought to be fit for animals, became a much contended over and sought after salt mine. Actually, the issue was not simply the salt, but more significantly, the land and grass. As Monisha Ahmed (1999: 44-45) emphasizes:

The vicinity of Tso Kar yields some of the best grazing land, and it was this along with the salt that Rupshu nomads were trying to protect from a takeover by Kharnak. What has now become a major concern of Rupshu’s is to prevent trespassers from encroaching on Tso Kar. These may be in the form of ‘salt thieves (tshwa rkun ma), or other livestock from neighbouring

9. About the “discovery” of salt at Tso Kar, see Ahmed (1999: 36-40)
areas such as Korzok or Kharnak. To deter intruders, guards (srung ma) are posted at the lake and its precincts for a period of four to five months, from June to October of November. [...] Encroachers are fined, and stray livestock are generally apprehended and brought back to Rupshu. If no one comes to claim them then the chief sells the animals and the money goes towards Rupshu’s communal use.

Traditionally, men were carriers and traders. They travelled for weeks with large flocks of sheep and goats. They brought salt and borax previously collected from the salt lakes of western Tibet, as well as wool to Zanskar, Spiti and Lahaul, where they exchanged them for barley, wooden wares and other basic necessities (Rizvi 1999). This trans-Himalayan trade, which had in any case been operating at no more than half-throttle since the mid-twentieth century with the Chinese occupation of Tibet and the closure of frontiers for political reasons following the Sino-Indian War, was given a coup de grâce with the development of modern means of transport and communication. In the space of one generation, new networks have supplanted old established trade roads. Nomadic pastoralists no longer trade with the neighboring Himalayan populations.

THE GOAT’S REVENGE

In 1991, the Leh-Manali highway built by the Indian Army during the first Indo-Pakistani war was opened to civilian traffic to “double” the Srinagar-Leh highway linking Ladakh to the rest of India, which has become a victim of the Kashmir conflict and of Pakistani threats. This road, crossing the Rupshu-Kharnak area, which is used from June to October by a large number of vehicles (military convoys, trucks, private and public buses, and jeeps), has enabled this out-of-the-way population to integrate the urban sphere, has changed its vision of the world, its ambitions and its dreams. Before, the journey to the district capital was a real undertaking. It lasted several days, whether on foot or on horseback. Now, it takes only a few hours by bus or truck to...
reach Leh in summer. There are frequent comings and goings between the town and the encampments. Now merchants from Leh, mostly Muslims, come in late summer by truck or jeep to the camps to buy culled animals for meat, and for pashmina wool locally called lena—the soft down or undercoat of a variety of domestic goat—used in the weaving of the famous cashmere shawls (Fig. 3). Though isolated during the long and harsh winter when the passes are blocked due to heavy snow, nomadic pastoralists are not cut off from the changing world. Opportunities for the desired improvement of living conditions and basic social facilities are now available.

Sheep, highly valued in the golden age of caravans and bartering, when wool and flocks were traded at a good price for grain, have seen their number decrease over the years to the benefit of goats, which are considered far more interesting. Indeed, with the cessation of caravans, the availability of cotton and preference given to synthetic fabrics rather than wool, sheep have lost their precedence. With the complete closure of the border between Ladakh and Western Tibet, the Kashmiri shawl industry had to get its raw material elsewhere. Quite naturally they turned to Ladakhi nomads. Pashmina is now the most valuable trade item and demand has overtaken that of wool. To meet the demand for pashmina, pastoral production consequently underwent some modifications. Over the last two decades the number of Changra goats compared to sheep has increased dramatically as a result of this lucrative international market for cashmere. In Kharnak for example, whereas there were one or two sheep for every goat in the late 1960s, in 2006, the ratio was one to ten or twelve. This trend is consistent with the one in other pastoral areas of Ladakh (Namgail et al. 2006), as well as in Western Tibet and Mongolia. The Leh Sheep Husbandry Department data shows that the number of goats has gone up from 184,824 in 2005-2006 to 208,878 in 2007-08, whereas the number of sheep has gone down from 76,443 in 2005-06 to 60,721 in 2007-08. Whereas the price of wool is falling, the price of pashmina is on the rise, in particular since the ban on shahtoosh, the world’s finest wool derived from the hair of an endangered Tibetan antelope (Pantholops hodgsoni).

In Ladakh, between 1993 and 2000, the price of raw — or un-haired — pashmina wool increased fivefold, from 300-475 rupees per kilo depending on the quality of the fibre to 1,500-1,700 rupees. Its good price has made the economic value of goats superior to that of sheep. While a sheep gives five times more wool than a goat provides in stuffing—1.5 kg to 2.5 kg compared to 300 to 500 g—the price obtained for this fine down is twenty times higher. The calculation is easy: at 80 rupees per kilo of wool and 1,500 rupees for the same weight of lena, a goat brings in four to five times more than a sheep.

Though scorned in the past, goats are no longer regarded as inferior livestock. Due to the surge in their economic value, they have become an object of great care and attention. Previously excluded from the list of domestic animals worthy of being held in high religious regard, now they are also offered up to the gods and spirits, and included in the gifts of livestock that make up the fabric of social relationships. Having outdone sheep whose wool is no longer sought after, the goat is now competing with the yak. Over the ages the heavily built yak provided not only shelter thanks to its hair, but was also the only animal that could carry the nomad’s heavy black tent, woven from its hair and made in two sections, with each half of the tent making a full yak load. The dried dung was also an important source of fuel on these treeless uplands. Each year, a yak produces three to four times its own weight in dung, a load that is used for heating and cooking. Nowadays, with the gradual replacement of traditional black-hair tents by white-canvas designs, or permanent stone houses, as well as the creation of roads facilitating the transport of goods by truck and, in particular, of gas cylinders for cooking, the yak is no longer such a valuable asset.

The government has been facilitating pashmina production by providing pastoralists with incentives in the form of goat kidding shed facilities, supplementary feed during severe winters and subsidised food provisions brought from India’s breadbasket, the Punjab. As C. Blaikie remarks, “the introduction of government-subsidised rations has hastened the ascendancy of the cash economy and contributed to the disappearance of relations of reciprocity and barter, which a few decades ago were central components of the village-level economy and strongly linked the Chang-pa pastoralists with neighbouring agricultural communities” (Blaikie, forthcoming).

The food arriving by the ton in trucks is cheaper than food grown locally. For nomadic pastoralists, as for many Ladakhis, it is no longer worthwhile to continue farming. They get granulated fodder to replace stubble from the forage supply and cheap wheat flour through the Public Distribution System (a network of retail outlets, popularly known as ration stores through which the government sells subsidized rice, wheat and kerosene at fixed prices lower than those of the market). Until recently, haymaking was perceived as an extension of breeding, a means of supplementing fodder necessary for the survival of livestock during winter. Nowadays people prefer to harvest pashmina rather than to grow barley on stony ground and to harvest small grain and poor straw yields.

FACING PASTURE DEGRADATION

This increasing goat population is putting stress on rangelands. In Changthang the altitude only allows a single, short growing season. For nine months of the year the livestock graze on dried vegetation left standing at the end of the summer. Yet according to Martin Williams who is an authority on desertification at the University of Adelaide, grazing habits of goats contribute to pasture degradation.

10: On pashmina production and trade, see Rizvi (with Ahmed) 2009.
Their stiletto heels break up the delicate plants that hold the dust in place. Moreover, they “graaze down to lower levels and pull up stuff [...]. The goats nibble at the bark around seedlings which transports nutrients to the plant, so once that bark has been damaged, the plant will die”, Williams reports. More positively, others, such as Chandi Prasad Bhatt, a well-known Indian environmentalist, opine that, unlike cattle and sheep which graze close to the ground, thus loosening the soil and rendering it more susceptible to erosion, these hardy animals spend as much as 90 per cent of their time browsing. Moreover goats help to fertilise the soil and disperse seeds widely, besides being a valuable source of income.\footnote{11. Quoted by Tashi Morup, \textit{Down To Earth} (15-10-2008).}

The army, which dumps waste and sets up buildings near lakes and other fragile spots, and the thriving tourist industry (including motorcycle rally teams), are also placed in the dock. Indeed, since it opened in the 1990s, the region has become an important tourist destination. The Kharnak-Rupshu trek, “a journey in the highlands of Changthang with nomads and lakes”, which is described in guidebooks and travel agencies as one of the most exciting high-altitude treks, is very popular. In summer, during the short growing season, hundreds of tourists travelling with pack animals walk and camp over the pastures, destroying the fragile top soil and leaving rubbish behind them. Moreover, unchecked motorized traffic all over the vast pastoral plain impedes the growth of grass in addition to disturbing wildlife.

As a result, in many areas pastures have reached a state of exhaustion. The vegetation left behind is not sufficient to sustain livestock until the next year’s growth begins. Some valuable leguminous plants are facing extinction. Locust attacks over three consecutive years have only made the situation worse. Some animals do not survive on eating poor fodder during the harsh winter. Others, weakened by a lack of food, give birth to dead lambs and kids in the winter. At least 15,000 to 20,000 newly-born goats are estimated to have perished in December-January 2008 due to heavy snowfalls and to the damage caused by locusts to pastures. Since it was the period when pregnant she-goats-usually give birth—most of whose kids died—this is likely to have a devastating and long-term impact on the production of pashmina in India. This phenomenon has left the population of pashmina goats with a skewed sex ratio with more males than females, which is a major preoccupation for the trade. According to the Jammu and Kashmir government, while Leh district produces the largest volume of pashmina wool in India,\footnote{12. Anjani Khanna, \textit{Down To Earth} (14-06-1992).} the annual Pashmina shawl trade in Jammu and Kashmir state is worth 500 crore Indian rupees ($91 million), and more than 50,000 people make their living from it.\footnote{13. China has become the largest producer of raw pashmina and their clip is estimated at 10,000 metrics tons per year (hair in). Mongolia produces somewhat more that 3000 tons, while Afghanistan, Iran, Turkey, and other Central Asian Republic produce significant but lesser amounts. Leh district produced 41,700 kg of raw pashmina in 2011. The world clip is estimated to be between 13,000 and 18,000 tons; “pure pashmina”, resulting from removing animal grease, dirt, and coarse hair from the fleece, is estimated at about 6,000 tons.}

In addition, the dramatic increase in goats that are now preferred by nomads in response to the growing demand for cashmere wool poses a threat to the survival of large mammals whose status has been rather precarious since the Indo-China war. During the 1962 conflict many reports revealed how soldiers with few supplies sometimes wiped out an entire herd of Tibetan gazelles in one go to stock up on winter rations; and how refugees from Tibet who did not have any means of sustenance had to resort to hunting big game. Today hunting and trapping Tibetan gazelles (\textit{Procapra picticaudata}), Tibetan argali (\textit{Ovis ammon hodgson}), Ladakh urial (\textit{Ovis vignei vignei}), or kiangs (\textit{Equus kiang kiang}) a species of wild ass are officially prohibited, but the Forest Department finds it very difficult to monitor isolated hunters in high and remote places.

Nomads don’t feel guilty and say that they have always co-existed with the wildlife peacefully. However the elders warn against the negative effect of mono-rearing. They point out that diversified livestock offer a better resistance to pests, diseases, droughts, and other environmental risk factors. Taking as example the catastrophic winter of 2007-08 when thousands of goats died due to unexpectedly heavy snowfall, they remark that yaks would have survived. Indeed, yaks can survive when temperatures plunge to as low as minus 40 degrees Celsius. When the ground is covered with ice and snow, yaks break through the cover to the wilted grass beneath, using their hooves and horns.

Nonetheless, for ecologists, there is an urgent need to assess the impact of such an escalation in the livestock population on the region’s wildlife (see Dawa S. and Humbert-Droz, 2004, Humbert-Droz 2009). In order to preserve endangered species, the Ladakh Autonomous Hill Development Council in Leh has declared most of the Changthang region a high-altitude wildlife sanctuary. This decision has threatened pastoral communities who argue that protected zones would deny them free access to the region’s resources.\footnote{14. Source: http://www.rediff.com///money/2008/mar/27pash.htm} In 2008, David Goeury reported, a property developer who wanted to build a luxury hotel on the shores of Lake Pangong [in the northern part of Changthang] succeeded in setting the local population against the wildlife department by spreading false information in the form of rumours that the incumbent administration wanted to prohibit pastoral farming and was ready to expropriate certain
In 2009, the warden managed to defuse the potentially explosive situation by proposing a project of major interest to all the inhabitants, the home-stay program or the development of accommodation facilities in local homes or campsites.

WHAT FUTURE FOR NOMADIC PASTORALISM IN LADAKH?

Throughout Ladakh, migrants are being drawn toward the district capital where the benefits of “development”, including the building of transport, health care and educational facilities have been focused. The growth of paid-labour, associated with this development process, is at the root of the increased level of out-migration. Between 1981 and 2001, the population of Leh more than tripled in size.\textsuperscript{16}

Nomads have not been immune to this trend. In spite of the great demand for livestock and livestock products (pashmina, meat), there are significant numbers of people leaving the highlands every year and joining the unskilled, casual labour force in the Indus valley. In places like Kharnak, dozens of nomads have already been lured away by the prospect of city life; having access to proper schools and medical facilities, electricity, warm houses, stores, and entertainment. They have moved from Changthang, reducing the mobile community by more than 80 per cent.\textsuperscript{17}

Indeed, non-economic factors can constrain or stimulate migration. Factors such as schooling are taking on new importance and priority. For previous generations, a formal education was of no use. Children were shepherds and gradually learnt traditional skills. Now, the general opinion is that new generations must be able to compete and benefit from the changing world. Since government facilities available within the community are extremely lacking, children are sent to school outside. Most of them migrate to study in Leh, the Ladakh district headquarters. There they may receive a good standard of education but they forget their traditional skills, and with the shortage of employment in Leh they may not get a job. Other children register at the Nomadic Residential School recently built in Puga. The opening of this government boarding school was a welcome step but it resulted in forcing all mobile schools to close. In 2010, about 90 students aged four to sixteen were studying there. Most of them belong to Korzok community whose camps and pasturelands are located a short distance away. None of them were from Kharnak. Indeed, for a student from Kharnak, reaching Puga is far more complicated than going to Leh.

The education of children outside their own community leads to a shortage of shepherds. In the past, this task was mostly undertaken by children aged between 8 and 16. In addition, the gradual demise of the institution of polyandry is now almost complete, with the vast majority of marriages conforming to the monogamous pattern enshrined in law and now a common practice elsewhere in Ladakh. This also has a major negative impact on labor availability. Households reduced to a single couple simply do not have the human capital to continue to pursue a pastoral lifestyle and they have to migrate. In summer 2011, there were only 16 households left on the highlands of Kharnak: 14 were occupied by a married couple plus one or two persons, and two households were made up of women living alone. Ironically, while nearly all Kharnakpas have left the highlands and settled down in the valley, there have never been so many houses and facilities in the camps. Over the last decade, government and NGOs have developed better roads and camps in villages with houses, medical centres, community halls, toilets, fodder shelters, goats and sheep barns—in vain.

Recent policies designed to reverse the population flow and keep shepherds on the highlands to look after pashmina goats have so far proved unsuccessful, since it is no doubt too late. Kharnak, for example, has already shrunk below the minimum size required for the community to carry out traditional pastoral activities, and above all to contribute to the costs—in time, men and money associated with religious ceremonies, including rites of passage. There is no more amchi (local doctor) living there year-round to provide health care, nor native monk, nor married priest to worship the deities and perform the appropriate rituals when required. Last year, even the nuns left their hermitage and spent the winter outside, some in Nepal, others down in the valley.

Today every family, whether settled or still nomadic, owns a plot of building land in the valley, or a one- or two-storey house erected in the middle of a high-walled courtyard down in the urban areas on the outskirts of Leh. Most of the migrants, having sold their livestock, have settled in Choglamsar, which has sheltered Tibetan refugee camps since the 70s. There they have established a permanent urban settlement named Kharnakling, “The Island of Kharnak”, because in the early 1980s the first families to settle down were natives of Kharnak. Today, this settlement is divided into three administrative sectors, and shelters a mixed population. People come from the other nomadic communities and remote villages, though the majority is still from Kharnak. Since the out-migration involves a relocation of the household as a unit, the settled population shows a balanced age-sex profile.

\textsuperscript{16} According to the 2001 Census, Leh is home to 28,639 inhabitants for a Ladakh total population of 236,539 inhabitants. However, this figure is undoubtedly underestimated. A sizeable “floating” population exists, comprised of circular migrants, tourists and defence-related persons.

\textsuperscript{17} The process of sedentarization, or rather urbanization, is not examined in depth in this paper since we decided to focus on nomadic pastoralism. For more information, see Ahmed 2004; Blaikie 2001 and forthcoming; Chaudhuri 1999; Dollfus 2004 and 2012 b; Goodall 2004a and b; Goodall 2007.
DOWN IN THE VALLEY, AT KHARNAKLING

For the migrants referred to as “those who have come down”\(^{18}\), Kharnakling can not be defined as a yul\(^{19}\); there is no local territorial god ruling over this place and protecting its inhabitants. It is only a “colony”, that is a settlement abroad established where a group of people from the same place or with the same occupation live together forming a distinct community within a larger city. The land is dry and rocky. Water is scarce; farming or growing vegetable impossible. Deprived of any animals, except for a few horses kept for tourists, the migrants try to earn a living.\(^{20}\) However, they have limited job opportunities, especially women. Most of them work as daily laborers on building and road development sites, or in military camps nearby. When there are no employment opportunities, they comb goats skins bought from Leh butchers (Fig. 4) or they weave nomadic textiles—saddle-bags, bags, rugs—and sell them in summer to antique dealers with some broken local objects and jewellery, dirty enough to look authentic. Some young men work as horsemen during the summer for travel agencies and do business as middlemen. They aspire to be drivers and hope that they will be able to earn enough to buy their own truck or taxi. Other men set up small businesses or work in the Pashmina de-hairing plant set up in Leh and inaugurated by Sonia Gandhi in October 2004. And on occasion, they play the role of the “true nomad” for cultural exhibits, advertising campaigns, Bollywood movies, and even documentaries, dressed in costumes that they have never worn before. Thus they recently worked as extras in The Valley of Flowers, a saga about passion, death and reincarnation directed by the Indian film maker Pan Nalin, and partly shot in Ladakh with 30,000 goats and sheep, 5,000 yaks, 350 horses and 50 Bactrian camels.

For the elderly whose children have all moved away to Leh and have no choice but to join them, life is hard in town. They haven’t made this place their own. They stay at home all day long because there is no place to meet outside and they are afraid of thieves. They reminisce about the open spaces, green meadows, and clear streams. They can’t stand the heat in summer and complain about the number of mosquitoes and flies. They live there as if in a waiting-room and dream of going back home. How to survive without livestock? How to survive without children to lead the flocks, find the yak or the horse lost in the mountains, or to dig up the roots of Tibetan gorse on the hill slopes, which people use as fuel?

\(^{18}\) Tib. ‘hab mkhan.
\(^{19}\) Similar to the French word “pays”, yul can mean a village, a country or a province; a land, a region, or a realm. As Aggarwal (2004: 61-62) points out, “for its inhabitants, yul is both an imagined country and a social reality, an abstract theory and a contextual reference for various locales.”

\(^{20}\) To find their way in Leh society, the migrants play on two registers. On the one hand, they try to rid themselves of any trait that would make them stand out from common Leh people in terms of dress, food, habits, lodging and so forth. On the other hand, they play the role of the “true nomad.” See Dollfus 2013.

Stockbreeding is a path one has to walk together.

On the other hand for the youngest, who have grown up here and know about life in Changthang mainly through tales recounted to them, Kharnakling is more a reference framework. They have woven a particular intimate relationship with it. Like the great majority of Ladakhi children, they attend one of the many public schools, which have sprung up over the last decade in the Leh area. They live there in hostels, mixing with kids from all over Ladakh and sponsored by local or non-local NGOs. They are not sentimental about the old lifestyle Changthang symbolizes, and perceived it as “backward” and “primitive.” Unlike their parents, they are reluctant to define themselves as Rupshupas, Korzokpas, Kharnakpas, or more largely Changthangpas. They identify themselves as belonging to Leh or to Ladakh. Their territory does not stop at the limits of the settlement where they live, but stretches to other places in Ladakh, where they go sometimes to watch a sports event, entertain themselves, go shopping, or pursue their studies and work: Main Bazaar and Old Bus Stand in Leh; picnic spots at Shy on the banks of the Indus and the lush green meadow of the Peace garden at Choglamsar, where the birth anniversary celebrations of the 14th Dalai Lama are held.

Like their classmates, these students hope to be able to do a degree in English or Hindi in Delhi, Chandigarh or Jammu and aspire to get any government job. They play cricket, dance to disco music and dream of places seen only through television. Girls dream of becoming teachers, nurses or doctors. Boys wish to become engineers, drivers, tourist guides or serve in the army. None of them wants to walk in the footsteps of their parents and grandparents.

At the same time, on the high altitude plateaus of Changthang, flocks of goats are waiting for herders …

Good news or bad news? On March 9, the first pashmina goat to be cloned using handmade techniques involving only a microscope and a steady hand was born in a sheep breeding centre at Sher-e-Kashmir University Agricultural Sciences and Technology, some 20 kilometres away from Srinagar. The birth of female kid Noori, which means “light” in Arabic, could spark breeding programmes across the region and mass production of the high-priced pashmina wool, and bolster the Himalayan cashmere industry, said lead project scientist Dr. Riaz Ahmed Shah, a veterinarian.

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