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Angela Manderscheid

# The Black Tent in Its Easternmost Distribution: The Case of the Tibetan Plateau

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*Black tents serve as mobile housing for a majority of the nomadic groups in a belt that stretches from the shores of the Atlantic Ocean to the eastern Tibetan Plateau. The existence of the black tent in its easternmost distribution has rarely been discussed in detail. In most regions, the requirements of the tent are determined by hot, arid climatic conditions, whereas an arid high mountain climate predominates on the Tibetan Plateau. The eastern part receives precipitation of over 500 mm annually. This raises questions about how Tibetan nomads have adapted the black tent to their specific needs and to environmental conditions. Using examples from a region in the eastern Tibetan Plateau, these questions are examined through descriptions of tent variations, construction, interior, choice of location for pitching the tent, and the strategies of tent dwellers to improve protection from cold and rain.*

**Keywords:** Black tent; nomads; mobile housing; animal husbandry; pastoralism; Tibet.

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## Black tents and their distribution

Because their lifestyle is characterized by seasonal migrations during which they take along all their belongings, nomads need a transportable dwelling. For most nomadic groups in the belt that stretches from the shores of the Atlantic Ocean to the eastern edge of the Tibetan plateau, the black tent serves as mobile housing. All black tents have the following features in common:

- “Black tent dwellers are weavers. They weave not only the roofs, walls, and floors of their homes, but many of the furnishings as well” (Faegre 1979:10).
- The tent cover consists of woven strips, which are sewn together.
- The existence of black tents depends on animals that supply a suitable fiber. Goat hair is preferred because it has the necessary length and strength.
- Because the tent cover is very heavy, strong animals such as camels, dromedaries, or yaks are needed for transportation.
- The black color comes from the natural color of animal hair; however, the tent cover might also be dyed in a dark color.
- The tent is a tensile form of construction. The tension and the heavy weight of the cloth are concentrated on a few vertical poles. The frame and cover are interdependent.

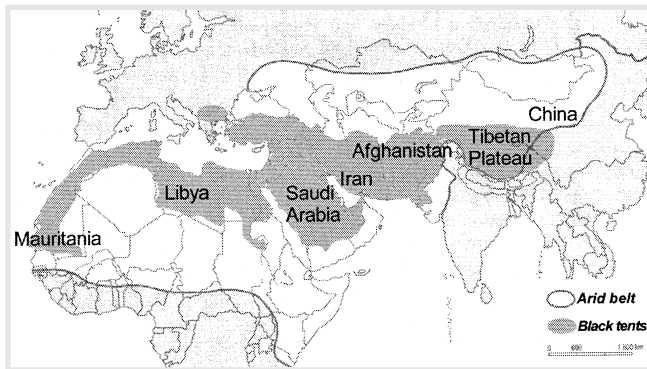
The black tent is used by nomadic groups that live in Mauritania, Morocco, Algeria, Tunisia, Egypt (Aulad ‘Ali), Arabic countries, Europe (Gypsies), Turkey (Yuruks, Kurds), Iran, Afghanistan, Pakistan (Baluch), and as far east as the Tibetan Plateau (Feilberg 1944). Feilberg’s maps depict the situation at the beginning of this century. The recent distribution area is a bit smaller. Most of the area belongs to an arid belt, characterized by a hot arid or semiarid climate (Figure 1). Accordingly, the requirements of the black tent are provision of shade and protection against wind, sand, and dust.

Faegre (1979:9, 10) assumes the black tent originated in Mesopotamia. “As it spread it was adapted to fit each particular environment it entered.” One page later, he adds, “The black tent is found only in dry country, but within this arid zone it is found in almost every temperature range and in every type of terrain.” However, when he describes the black tent in Tibet, he has doubts whether it is a suitable dwelling: “The Tibetan black tent made of yak hair is used in extremely cold country. Although the Tibetans prefer this tent, they will readily admit that the yurt is a warmer dwelling. What is amazing is that a tent that originated in a hot desert country could penetrate into such a cold land” (Faegre 1979:12). His considerations are based on Feilberg’s study *La Tente Noire* (1944), which discusses the black tent and its wide distribution. Feilberg writes that physical and geographical conditions are the primary limiting factors for distribution of the black tent. Discussing its range in detail, he comes to the conclusion that affiliation with a specific nomadic group is also a determining factor. As proof of this, he cites the black tents of Gypsies in Europe and the Tibetan black tent.

On the Tibetan Plateau, the black tent is spread throughout an area where migratory pastoralists are active above the altitudinal limit for cultivating fields. To the north, the black tent belt adjoins a zone stretching from the Black Sea eastward to eastern Mongolia, where the yurt is the main dwelling used by nomads (Feilberg 1944). Yurts are also found on the northeastern Tibetan Plateau (Faegre 1979). In the eastern Tibetan Plateau, the black tent reaches its easternmost distribution at about 104°E, in Dzo-ge County and northwest Songpan County (Figure 2).

Up to now, the easternmost distribution of the black tent has seldom been discussed in detail. This paper accordingly focuses on how Tibetan tent dwellers adapt the black tent to their specific requirements and to environmental conditions. This is highlighted by a description of tent variations, construction, interior, choice of location for pitching the tent, and the strategies of tent dwellers for making the tents more resistant to cold and rain.

**FIGURE 1** Spatial distribution of the black tent at the beginning of the 20<sup>th</sup> century. The recent distribution is slightly less extensive and more or less congruent with the arid belt, except in the eastern part of the Tibetan Plateau. (Sources: Feilberg 1944; Scholz 1995)



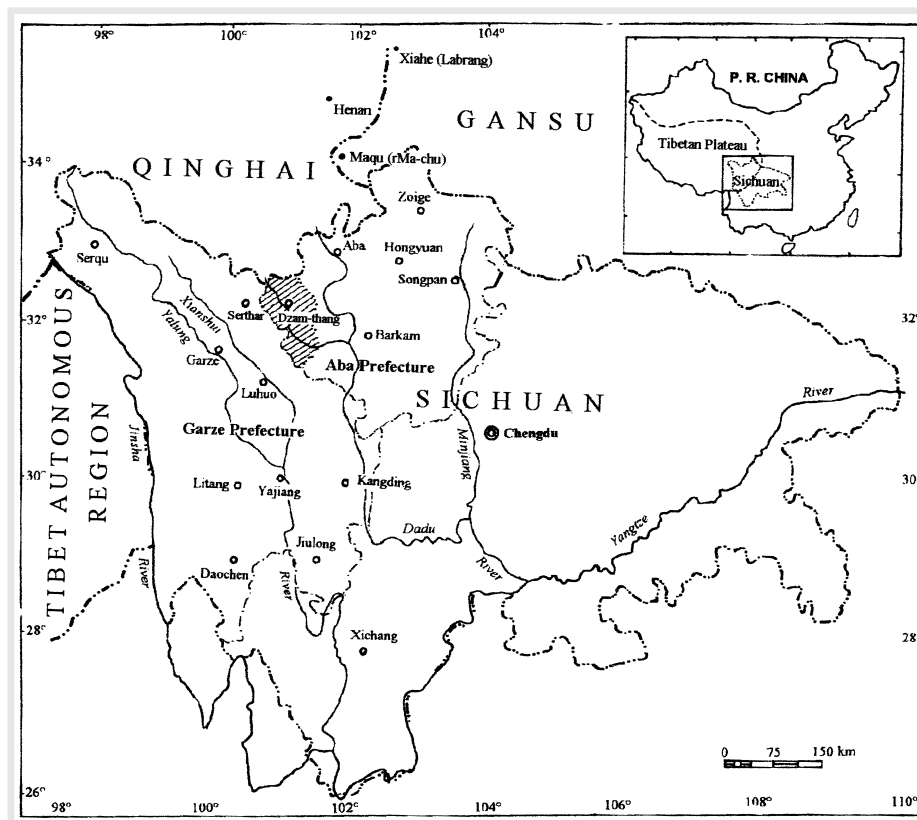
### Environment and seasonal production altitude levels on the eastern Tibetan Plateau

The Tibetan Plateau, the habitat of Tibetan nomads, extends from the mountain ranges of Kunlun Shan in the north to the Karakorum in the west and the Himalaya in the south, at altitudes between 2500 and 5000 m. The eastern part is deeply dissected and slopes away into the Chinese plains. An arid high mountain climate predominates on the Plateau. Precipitation rises from west to east. The western and central parts adjoin an arid belt (Figure 1), whereas the east

receives a mean annual precipitation of 500–800 mm from the Chinese southeast monsoon between June and September. In some regions (eg, near Kangding in western Sichuan), precipitation is as high as 1000 mm (Ren Mei'e et al 1985).

Most data for the present study were gathered in the county of Dzam-thang, Aba Autonomous Tibetan Prefecture (Figure 2). Dzam-thang has a subtropical high mountain climate and 765 mm of precipitation annually, with a mean minimum temperature in January of  $-5^{\circ}\text{C}$  and a maximum in July of  $13.1^{\circ}\text{C}$  (data obtained in Dzam-thang in 1991).

The originally densely forested montane zone (2600–3600 m) is the main altitudinal level at which arable field cultivation is practiced. Meadows predominate above the tree line, and nomads use this alpine zone (3600–4200 m) for animal husbandry. Winter houses, which have been in use since the late 1970s, are located between 3600 and 3700 m in the protected river valleys. Intermediate tent camps are set up about 100 m higher in river valleys, and the slopes of hills serve as pastures. Nomads establish their encampments at about 3900 m for summer production, where they engage in herding on the vast alpine pastures up to 4500 m (Manderscheid 1998). On the Tibetan Plateau,



**FIGURE 2** Location of the Dzam-thang research area on the eastern Tibetan Plateau, northwest Sichuan. (Map by author)

**FIGURE 3** Black tent (*rTse-sbra* type) in Dzam-thang. The tent cover has 1 fold and hangs from tension ropes that are supported by poles and pegged into the ground with wooden pins about 6 m from the tent. In the foreground is a pile of yak dung. (Photo by author, 22 September 1992)



the livestock of nomadic families consists mainly of yak, sheep, and goats. Whereas small livestock dominate in central Tibet, yaks dominate in the eastern part (Manderscheid 1999). Yaks are well adapted to high altitudes and low temperatures (Bonnemarie 1986; Cai Li 1989; Pal 1992), and they are “important for subsistence and productivity throughout western Sichuan, contributing meat, milk, and clothing materials ... as well as manure and manual labor to the local economy” (Wu 1997).

### Variations of the Tibetan black tent

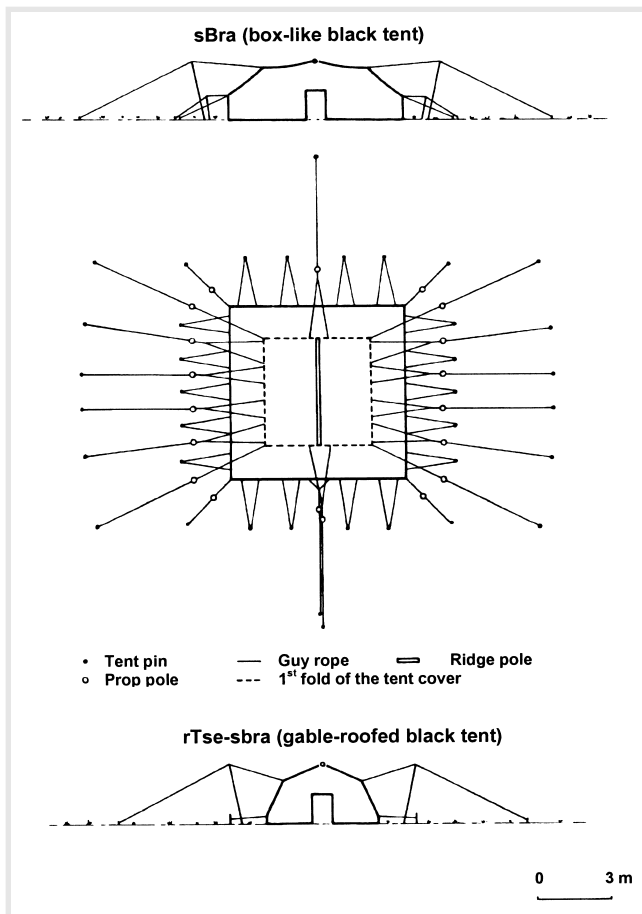
Feilberg (1944) divides black tents into 2 main groups: the western or Arab type and the eastern or Persian type. The latter includes the Tibetan black tent. Its construction is simpler. The main pull of the tension ropes is parallel to the seams, and the rope stays are fixed directly at the edges of the cover (Figure 3). In the western type, tension bands are sewn across the tent cloth, to which ropes are attached. Thus, the main pull is across the seams (Faegre 1979).

The black tent is the traditional mobile dwelling of Tibetan nomads and has prevailed on the Plateau up to now. Tibetans call their tents *sBra-nag* (literally, tent black). There are numerous local variations of the tent. Two types that are dominant in Dzam-thang are illustrated in Figure 4. The *sBra* type has a flat roof and a square layout, which is between  $5 \times 5$  m and  $10 \times 10$  m. The *rTse-sbra* (*rTse* = peak) with a gable roof has a rectangular layout similar in length to the *sBra* but about one-third narrower. In both types, the tent cover consists of 2 trapezoidal parts. The tent cover of the *sBra* type usually has 2 folds between the ridge pole and the ground, while the *rTse-sbra* type has only 1. The height from the ground to the ridge pole in both types is 2–2.5 m. These types of tents also exist in other regions of the Tibetan Plateau (see for example the plates in Filchner 1930, opposite p. 304).

Most nomadic families own several tents for different purposes. A *sBra* might serve as a dwelling in summer. In autumn, when animal husbandry tasks have diminished and some family members have already moved to the winter house, a smaller *rTse-sbra*-type tent



**FIGURE 4** *sBra* (box-like type) and *rTse-sbra* (gable-roofed type) in Dzamtang. In both types, the tent cover is supported by 1 ridge pole and internal poles as well as ropes supported by about 2-m-high outer poles. (Source: author's investigations 1989–1992; design by I. Leger)



with thickly woven walls is pitched. A gable-roofed tent made of white canvas (*gur*; this term derives from the Mongolian *ger* [= yurt] and hints at the yurt's white color) or a small tent of yak wool is often pitched close to the family tent. This offers additional sleeping quarters for guests, young couples, or a person guarding the herd. Another type of tent, with a roof woven of yak hair and canvas walls, is lighter and quicker to set up. This has advantages for use in a satellite camp, at a supplementary pasture ground, or at a festival site.

Yurts are also found on the Tibetan Plateau. The author observed single yurts that served as mobile shops in Xiahe County and yurt encampments near Henan in the southeastern part of Qinghai Province (Figures 2, 5). This brief encounter suggested that yurt dwellers have a Mongolian background. A yurt offers good protection against the cold. In winter, the wall might consist of as many as eight layers of felt piled on top of each other, with a proper door situated in a doorframe. The framework is self-supporting; no poles are needed outside, which is an advantage when the ground is frozen (Faegre 1979). The procurement of sheep wool, which is needed for felt production since

yak wool is not curly enough, is not a problem on the Tibetan Plateau, and the cover and the heavy frame can be loaded on yaks for transport; this is also done in Mongolia. However, when queried, Tibetan nomads are unable to imagine replacing their black tent with a yurt. The black tent is a traditional dwelling, as it was for their ancestors.

### Tent cover and its suspension

Nomads can produce all components of the tent themselves. In most regions of the arid belt, goat hair is used to weave the cover of the black tent. In Tibet, it is made from yak hair. The coat of a yak consists of rough hair on the surface and fine wool (cashmere or *kulu*) below. The outer hair is as resistant as goat hair, while yaks have hair of sufficient length beneath the belly to produce a hard-wearing weave. To obtain the optimal length, nomads comb or pluck the hair. Thereafter, it is spun into yarn. The loom, used by nomadic women, determines the width (23–30 cm) of the tent squares, and their maximum length of 10–12 m determines the length of the tent. The loom is well adapted to nomadic mobility. When packed together, the unfinished weaving is not removed but easily rolled up with the loom (Ronge 1982). The woven tent squares are sewn together tightly. Sewing (not only of tents) is generally men's work.

The tent cover consists of 2 symmetric halves. Each part is equivalent to 1 yak load. The halves are held together with loops and toggles made of yak bone or wood over a ridge pole. The seams run parallel to the ridge pole in the *sBra* type. In the *rTse-sbra* type, they run across the ridge pole, which rarely appears in the *sBra* type. The weaving of the tent cover is so loose that it allows daylight to enter and smoke from the fireplace to escape. The cloth is "reasonably waterproof when new and becomes increasingly waterproofed with the oily cow-dung smoke soot" (Ekvall 1968:63). In addition, the natural lanolin content of the wool repels water (Faegre 1979). When the tent cover gets wet, the weave swells up, narrowing the meshes. However, if the rain lasts, the weave allows it to enter the tent. After the rain ceases, humidity evaporates quickly as a result of high insolation on the Tibetan Plateau. One advantage of the loosely woven tent cloth is that it offers little susceptible surface to the heavy winds that frequently blow on the Tibetan Plateau.

To maintain the tent cover, new tent squares are fixed on both sides of the smoke vent each year, and the strip nearest the ground is cut away. Though the wall does not touch the ground, it rots because of the earth's humidity (Ekvall 1968). In some tents of the *sBra* type, the vertical wall is fixed with toggles at the first fold to the upper part. The nomads untoggle the walls in sum-

**FIGURE 5** Yurt on the Tibetan Plateau, near Henan in the southeast of Qinghai Province. (Photo by author, 4 July 1992)



merit, which preserves them, allowing air to enter and also affording a view. The lower part may be held up by wooden sticks instead of being removed.

The dark color of the tent cover provides good shade, which is needed in the heat of the deserts of Arabia. Tent squares woven of light wool might even be dyed dark. In Tibet, however, the provision of shade is certainly not a desired effect. The dark coloring is due to the majority of yaks being dark colored; only 1.14% have light hair (Zhong 1981).

Two wooden prop poles, and sometimes 3, support the wooden ridge pole (*sBra-shing*). The prop poles are topped with the fork of a tree branch, the socket of a calf's joint, or the sacrum of a yak, which hold them to the ridge pole (Hermanns 1949). To support the tent cover from inside, poles are situated under the first tent fold in the 4 corners. Zigzag ropes are simultaneously fixed under the roof. If there are no internal poles, a zigzag rope is indispensable. Both these ropes and the tension ropes are woven from yak wool from under the animal's belly; they rarely consist of other materials (eg, synthetic materials).

The tent cover hangs from tension ropes (*sBra-thag*) fixed at the first fold of the cover and supported by 2-m-high outer poles. They are pegged to the ground with wooden pins about 6 m away from the tent. There are 3–7 poles on each side and 1 or more at the back and the front (Figure 4). In addition, the tent is fixed downward from the second fold. If the second fold is higher than 1 m above ground, these tension ropes run above the poles as well. Otherwise, the ropes are pegged directly into the ground. The tent must be fixed firmly to the ground. During stormy weather, a family member often checks the pegging. The use of wood in tent construction is reduced to a minimum, and the prop poles are of great value. The tensile construction of the black tent is suitable for nomadic habitats above the tree line.

### Inside a Tibetan black tent

The interior of both black tent types in question is similar. Seen from the entrance, a fireplace divides the tent

into 2 halves. The left side is mainly used by women and children (*mo*) and the right side by men and guests (*pho*). The fireplace consists of 3 stones and an iron tripod or a stove made of clay or iron. In Dzam-thang, the clay stove is usually spread out, and yak dung is commonly burnt. A great deal of brushwood, which is not available at the altitude of the summer encampment, is needed to start and keep the dung burning. The nomads cut and transport it from lower altitudes and store it as additional walls inside or outside the tent to keep it dry and protect the interior from wind. This also prevents animals from entering the tent in case the lower part of the tent cover is removed. Spread on the ground in the sitting and sleeping quarters, the wood insulates against cold and moisture. This allows transport bags, bundles, small chests, and boxes to be piled along the tent walls. Blankets woven of yak wool or plastic protect the piles from rain.

Everything in the tent has its appointed place. Weapons, equipment for horses and yaks (saddles, saddlebags), furs, blankets, and coats are piled on the men's side. At the rear is the sitting place of honor and the family shrine. Sacks and boxes piled at the back contain religious objects as well as provisions such as butter. On the women's side are the kitchen equipment and the tools for milk processing, which is entirely women's work.

The number and type of household goods found in the tent depend on whether the nomadic family owns a "safe" winter house where winter equipment and a supply of food can be left behind. It also depends on whether the entire family has a mobile lifestyle. If the core family is sedentary, most household goods remain in the house and the tents are nearly empty. No additional walls protect against the cold.

### Location for tent pitching

The factors that determine locations for tent pitching include tribal and administrative borders, governmental directives, protection against inclement weather, and the proximity of water. During seasonal migrations, 2 strong transport yaks carry the tent cover. A third yak carries the poles. A nomadic family needs 6–8 hours to pack household goods, dismantle the tent, and mount everything on the yaks. Pitching the tent and furnishing it at the new location take about half this amount of time. A nomadic household returns to the same campsite every year, which is marked by the clay stove if the family uses one. The tent is erected over the old fireplace, usually at the foot of a hill to provide shelter against wind, with the entrance facing downslope. In Dzam-thang, where the wind comes mainly from the northwest, slopes with a southeastern exposure are preferred. If there is no suitable slope, the entrance of the

tent is situated opposite the direction of the prevailing winds. The campground and hence the tent are likely to be located on a considerable incline. This helps prevent water from collecting inside the tent.

Usually 3 or 4 tents are grouped together in a *yul*. Members of a *yul* are extended families, friends, or the remnants of brigades from the era of collectivization. The tents are located 500–1000 m apart. This allows communication between the households by shouting and permits enough space for animals to spend the night near each tent. "Most encampments have three or four tents but a camp may have from one to fifteen. Pasturage prohibits larger numbers for any period of time, although hundreds will be pitched in a valley at the short festival seasons" (Duncan 1964:217). The author found dozens of tents grouped in circles during a festival in southern Gansu near a bend in the *rMa-chu* (Yellow River). In Dzo-ge County (Aba Prefecture) on the huge plain of Ser-thang, all 156 tents of one village (Cun) were pitched in a straight line at intervals of 20 m.

### Strategies for better protection against cold and rain

Tibetan nomads have developed various methods for better protection against inclement weather. In Dzam-thang, most nomadic households use the tent as a dwelling from spring to autumn. Some of the protective methods applied during that season have been described above. The use of the black tent in autumn, winter, and spring requires additional insulation and wind protection. Walls of sod, brushwood, boards, adobe, or turf about 70 cm high are built around the outside of the tents to block the wind. On the shores of Koko Nor Lake (Qinghai Province), the black tents are fixed in 1–3-m deep holes that remained from the time of road construction. Goldstein (1990) mentions that the Phala nomads of central Tibet dig rectangular pits for winter campsites over which they pitch their tents. Protective walls can reach as high as the tent. An intermediate form between mobile and stable housing results when the tent roof is spanned over sod walls 2 m high.

The loosely woven strips of the tent do not offer much protection against rain, which is an important consideration in the eastern part of the Tibetan Plateau. The most waterproof place inside the tent is between the first and second folds of the tent cover. The steeper inclination of the tent roof allows the rain to run off better than it does from the flat part. Goods are piled on adobe cubes, sod, or small wooden shelves to protect them from humidity in the ground. Nowadays, plastic is fixed under the tent roof to shield working, sitting, and sleeping areas from rain. The plastic sometimes shields only the *pho* side, and it must be removed as soon as the rain ceases. Plastic interrupts air

ventilation and becomes sticky and hot when it remains in the tent. Nomads can buy plastic of varying quality by the meter from shops in the Cun and Xiang centers.

When asked about traditional strategies of rain protection, interviewees usually answer that there are really none. They simply wear raincoats inside to protect themselves. In addition, they “knock away” rain and snow from inside with the help of a special tool (a kind of big wooden hammer with a long handle). However, this measure is meant less to protect against water than to prevent the wooden poles from breaking under the weight of water that collects in the woven cloth. One interviewee mentioned that greater amounts of fine yak wool were mixed with coarse hair in weaving tent covers in earlier times, which made the weaving denser. But since the demand for *kulu* (cashmere) on the world market has risen, it is usually sold. Prices in Dzo-ge County in August 2000 were 7–8 yuan for 1 jin (approximately 500 g) of fine yak wool and 3 yuan for 1 jin of coarse wool.

## Conclusion

Tibetan tent dwellers have adapted the black tent well to their specific requirements and to environmental

conditions. In its easternmost distribution, the black tent serves Tibetan nomads as a form of mobile housing. Tibetan nomads can produce all components of the black tent themselves since the yak provides most of the materials. Different variations of the Tibetan black tent exist, and one family might own different tents serving different purposes. Yurts are also found on the northeastern Tibetan Plateau, although there is little information about them.

Traditionally, the black tent has served as mobile housing in summer as well as winter. Since the era of collectivization, most families have owned a winter house that they inhabit during the winter season. The more sedentary lifestyle of the core family that emerged in accordance with governmental directives during the era of collectivization subsequently gave way to nomadic mobility in many locations. However, most young nomads questioned are not very enthusiastic about their future profession as nomadic herders. This is likely to cause further changes in the nomadic lifestyle and herd management. Hence, the black tent—which is difficult to transport because it is so heavy and must be made at least partly by hand and which involves great effort to maintain—might be gradually replaced by easier-to-handle types of tents on the Tibetan Plateau.

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## REFERENCES

- Bonnemarie J.** 1986. Le yak domestique. *Production Pastorale et Société* 19:119–127.
- Cai Li.** 1989. *Si Chuan Mao Niu. (The Yak of Sichuan)*. Chengdu: Sichuan Nationality Publishing House.
- Duncan MH.** 1964. *Customs and Superstitions of Tibetans*. London: Mitre.
- Ekvall RB.** 1968. *Fields on the Hoof: Nexus of Tibetan Nomadic Pastoralism*. Case Studies in Cultural Anthropology 12. New York: Holt, Rinehart, and Winston.
- Faegre T.** 1979. *Tents. Architecture of the Nomads*. London: John Murray.
- Feilberg CG.** 1944. *La Tente Noire*. Copenhagen: Saertryk af National museets Skrifter, Etnografisk Raekke.
- Filchner W.** 1930. *Om Mani Padme Hum*. Leipzig: FA Brockhaus.
- Goldstein MC, Beall CM.** 1990. *Nomads of Western Tibet*. London: Serinida Publications.
- Hermanns M.** 1949. *Die Nomaden von Tibet*. Vienna: Verlag Herold.
- Manderscheid A.** 1998. Life and economic patterns of nomads on the eastern Tibet Plateau. Brog Pa and Sa Ma Brog in Dzam-thang. In: Clarke GE, editor. *Development, Society, and Environment in Tibet*. Proceedings of the 7th Seminar of the International Association for Tibetan Studies, Graz 1995. Vol V. Vienna: Verlag der Österreichischen Akademie der Wissenschaften, pp 59–67.
- Manderscheid A.** 1999. *Lebens- und Wirtschaftsformen von Nomaden im Osten des tibetischen Hochlandes*. Abhandlungen Anthropogeographie 61. Berlin: Dietrich Reimer Verlag.
- Pal RN.** 1992. Yak hybrids. *Asian Livestock* 17(8):85–88.
- Ren Mei'e, Renzhang Y, Haosheng B.** 1985. *An Outline of China's Physical Geography*. Beijing: Foreign Language Press.
- Ronge V.** 1982. Das Handwerkertum. In: Müller CC, Raunig W, editors. *Der Weg zum Dach der Welt*. Innsbruck: Pinguin-Verlag, pp 153–201.
- Scholz F.** 1995. *Nomadismus. Theorie und Wandel einer sozio-ökologischen Kulturweise*. Erdkundliches Wissen, Heft 118. Stuttgart: Franz Steiner Verlag.
- Wu N.** 1997. Conservation of yak biodiversity and its development potential in Western Sichuan, China. In: Miller DJ, Craig SR, Rana GM, editors. *Conservation and Management of Yak Genetic Diversity*. Kathmandu: International Center for Integrated Mountain Development, pp 131–163.
- Zhong G, editor.** 1981. *Ke Xue Yuan Qing Zang Gao Yuan Zhong He Ke Xue Kao Cha Dui. Xi Zang Jia Xu. (Domesticated Livestock in Tibet)*. Beijing.