Ekvall provides us with a rare case of population decline. As in Chapter 10, the area under discussion is one in which various agricultural and pastoral subsistence technologies are practiced, and individuals and groups can and do move from the practice of one technology to the practice of another. However, the most interesting feature of Ekvall’s data in the context of this volume is that agriculturalists seek to become nomads, not because of pressure of population on resources, but because they are able to make the investment in animals that will allow them to become nomads—that is, from choice, not necessity. Ekvall thus provides valuable support for the obverse of Boserup’s thesis: although the decline of population over centuries has left a surfeit of agricultural resources in the agricultural areas of Tibet, nevertheless population is continually siphoned off into nomadism—a less land-intensive technology—in the “high-altitude zone.”

That this nomadic zone of the country has not thus become overpopulated is traced to biological (among other) factors, which are further discussed by Katz in Chapter 16.

Population

The Tibetan nomadic pastoralists are known to themselves and all other Tibetans by the all-inclusive term aBrog Pa (“high-pasturage ones.”). Whatever, and however varied, may be the ingredients of their ethnic amalgam, they exhibit great cultural homogeneity, though they are widely scattered. They also are unequivocally Tibetan in important
aspects of culture—language, religion, and sense of a common history. Yet they are markedly different from other Tibetans and, because of their habitat, subsistence technique, and the behavior patterns stemming from that environment and way of life, form a self-consciously distinct subsociety. As a “people of the black tents,” they share many of the culture traits and something of the mystique of the nomadic tent dwellers from northern Africa to Central Asia. Because of a lifestyle affinity with Turkic and Mongolian nomadic pastoralists, which fostered contact, and—in the northeast of Tibet—because of geographical proximity to those populations, the Tibetan nomadic pastoralists probably also have a somewhat greater admixture of Turkic and Mongolian genes than do other segments of the Tibetan population. Indeed, there are some nomadic communities that, though apparently completely Tibetanized, are still called “Turk ones” or “Mongol ones,” and take pride in the fact.

The relative size of the nomadic-pastoral subsociety, as compared with the sedentary-agricultural subsociety is the subject of ad hoc opinion that varies greatly. Majority opinion concedes, and some Western Tibetologists argue, with some heat, that the nomadic pastoralists are fewer in number than the sedentary agriculturists, and what fragmentary tax, or census, reports are available support this thesis. Parenthetically, such records are notoriously understated—no one wants to be listed on a tax record if he can help it, and the nomads have a situation advantage in such evasion. A number of Tibetans, however, insist that the “high-pasturage ones” do in fact outnumber the “deep-valley ones,” “country ones,” “soil-field ones,” “village ones,” or however else the cultivators may be designated. For example, the high Tibetan official who recently wrote a political history of Tibet flatly stated that the nomads are the more numerous (Shakapba 1967: 6).

This concept of relative size—actual or ascribed—takes on special significance because the only observable shift in population, which is mostly by individuals and small family groups, is from the sedentary to the nomadic. This trend is well substantiated by the origin and the direction of culture change, as well as actual geographical movement, of so-called seminomads. These are, in all reported cases, from the sedentary agricultural to the nomadic pastoral in habitat and life-style.
Ecological Niche

The *aBrog* ("high pasturage") is the ecological niche occupied by the Tibetan nomadic pastoralists. Its location, extent, resources, and climate—each in its own way and degree—operate as population determinants and affect both material and nonmaterial aspects of culture. The niche consists of that portion of the Tibetan plateau which is suitable for grazing and lies between the highest limits of agriculture and the highest limits of vegetation. In terms of altitude this may vary from approximately 9,000–12,000 feet at 38° N to approximately 15,000–17,000 feet at 28° N. A large proportion of this zone forms a belt around the very high central part of the plateau, but it is not all coniguous, and there are many islands of high pasturage surrounded by lower land suitable for agriculture and at least partially cultivated. Considerable portions of this altitude zone are not part of the true high pasturage because of conditions such as extremely steep, eroded slopes, alkaline swamps and marshes of the internal drainage basin, rodent-denuded patches, and soil so rocky that nothing can grow. Only to a minor degree is aridity a determinant. Unlike the arid zones, which have generated the nomadic pastoralists of Africa and Asia, the *aBrog* is an altitude-determined zone, and the high-pasturage ones of the Tibetan plateau are altitude-zone nomadic pastoralists. This differentiation is of considerable significance, for it largely eliminates the possibility of exploitative competition for land between cultivators and herdsmen.

In the arid zone water may be captured by diversion, conserved by damming and karsh-well irrigation, or brought to the surface by wells of various depths. By such means pasturage may be taken away from the pastoralists, but, beyond some minor gains to be achieved by newly developed cold-resistant crops, little can be done to take land that is too high for cultivation away from altitude-zone pastoralists.

So delimited and conditioned, the actual extent of the high pasturage is very great; and much of it is not fully exploited. Considerable variation in the quality of the grazing, factors of accessibility, and security problems that follow any too wide dispersion, account for much of this inadequate utilization. What is basic, however, is that there is not sufficient pressure from factors such as wealth-accumulation incentive,
uninterrupted annual increase of livestock, and population growth to fill any but the very best pastures. This leaves many spaces in the highpasturage zone empty of human activity.

The resources of the aBrog, as related to the needs of animal husbandry are varied and frequently abundant. Along some valley watercourses and on slopes with a northern exposure, coarse grasses, other vegetation, and low-growing shrubbery furnish good forage for cattle. The fine soft grass that grows on slopes with a southern exposure is excellent for horses and sheep. On many of the high plains, thick and tall-growing grasses furnish good grazing in summer and, when ungrazed, persist as standing winter-killed hay for winter forage. Even at the upper limits of the aBrog—near the snowline or close to bare scree slopes—alpine thistle, dwarf shrubs, and a fine flat-lying grass known as "yak grass"—licked, not cropped, by the yak—have their value. The total of all this abundance constitutes rTso KHa ("grass part"), which is the value factor of land in the pastoralist's universe of values.

Parenthetically, soil per se not only is neutral in terms of value but has negative connotations: for example, anthrax is "soil poison"; disturbance of the soil may arouse the wrath of the "soil lords," with the attendant possibility of disaster; and leprosy can be a "soil curse." Part of the pastoralist's feeling of superiority over the cultivator springs from the consciousness that he does not dig and disturb the soil to any great extent. The less "wounding of the soil" there is, the better.

In addition to suitable grazing for livestock, some of the vegetation of the aBrog constitutes minor resources to be exploited by gathering: for example, the collecting of wild-onion tops, wild leeks, and coriander seed; the extraction, from just under the surface, of the minute tubers of the potentilla; and the gathering of mushrooms and medicinal herbs. The latter activities are accompanied by some misgiving, for the soil is disturbed—though only to a small degree—in extracting the tubers or digging out herbs; and the mushrooms, because of value, color, and strangeness of growth, are regarded as "soil gold" that should not be plundered.

In a few areas real gold is placer mined to meet special tax requirements. However, this is done generally, not by the pastoralists themselves, but by itinerant miners who are regarded with aversion. The highpasturage ones—with much less misgiving—also play a part in exploiting
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Although hunting is inhibited by Buddhist scruples, combined with a more indigenous fear of poaching the preserves of autochthonous mountain gods, the abrog does have a considerable quantity of game. The herbivores—wild yak, wild sheep, antelope, and gazelle—supply appreciable amounts of meat and hides, and other game—such as stag for harts-horn, muskdeer for musk, and wolf, fox, snow leopard, and otter for furs—are subsidiary resources of considerable value.

The climate of this ecological niche is the product of continental land mass, altitude, and meridional position with relation to the sun. It is characterized by extremes of temperature and of alternate aridity and precipitation. The extremes of temperature are more diurnal than seasonal in character. Temperature changes within twenty-four hours of as much as 100°F have been reported, and although this is somewhat unusual, changes of up to 60°F are fairly common. The average diurnal range for both summer and winter is 40°F or more. Extremes of change are especially marked in clear weather (clouds at night tend to hold warmth in the atmosphere), and on a clear day steep-angle sunshine, through the thin air of high altitude, has a very special burning intensity of great ultraviolet content. The winters are largely dry, with little precipitation, but wide areas are drowned in torrential summer rains, and heavy snows occur in both late spring and early fall. Storms—rain, hail, snow, and relentless wind, which in winter may carry clouds of dust and sand mixed with pebbles—characterize the weather of the abrog; but when sunshine comes, it is strong and promotes germination and growth of vegetation.

**Resources: Power and Production**

The basic production resource of cultivators is land that has been worked into fields. These fields may be ill-defined and temporary, as in swidden farming, or permanent and are worked with degrees of intensity, varying from long fallow to multicropping. Such resources are defined by the Tibetans as “soil fields.” The basic production resource of the pastoralists, by contrast, is not land alone but a combination of the natural vegetation cover of the unworked land and the livestock that feed on it.
for the pastoralists, in a very real sense, livestock are the equivalent of fields in the production cycle, as suggested in the title of my recent book, *Fields on the Hoof* (Ekvall 1968). These “fields” are cultivated by pastoral care and protection; and are reaped primarily in the taking of milk, meat, blood, hides, wool, and dung. Selection of stock for sale is also a form of reaping, but at the same time it is a subtraction from the fields, total. There occurs, moreover, a continuing addition to that total in the annual natural biological increase of the livestock. Livestock fields are somewhat volatile in both size and value. At any point in time size is dependent on such variables as: the annual natural increase; the number of animals reaped as meat; the number sold or bartered; and attrition by aging, disease, accidents, and weather-caused fatalities. Value, on the other hand, fluctuates according to the quality and condition of the stock itself and according to trade values, responsive to the law of supply and demand.

The livestock that make up this production resource are yak, common-cow cattle, a hybrid cross between these two known as *mDZs*, sheep, goats, and horses. Though the numerical ratio between these animals varies greatly throughout the *aBrog*, yak are the most important and are indeed the essential livestock resource that makes Tibetan nomadic pastoralism possible. As uniquely high-altitude animals—in their wild state indigenous to the Tibetan plateau and presently found nowhere else—their importance and function in altitude-zone pastoralism are analogous to the importance of camels in arid-zone pastoralism. Yak supply the principal needs of the high-pasturage ones in: material for the black tents; milk, blood, and meat for food; dung for fuel; and all the leather for the innumerable artifacts necessary to a moving, pack-and-saddle existence. They also supply the essential biological base for the breeding of the extremely valuable *mDZs*. So important are the bovines that, to distinguish them from the rest of the livestock, they are called simply “the wealth.” Sheep, a special breed called “high-pasturage sheep,” that are big and long-legged with many traits that indicate closeness to wild sheep, far exceed the bovines in number, though the numerical ratio between the two varies greatly in different localities. They are only slightly less important in value, for they supply skins for clothing, wool for felt and woolen cloth, meat, milk, and fuel; and wool is the commodity of prime bulk and value for export trade. Goats, like the common
are the equivalent of the title of my recent book, cultivated by pastoral the taking of milk, stock for sale is also a action from the fields, ion to that total in the Livestock fields are point in time size is ul increase; the number etered; and attrition atialities. Value, on the 3 condition of the ve to the law of supply ource are yak, common-n as mDæ, sheep, 3en these animals ost important and are Tibetan nomadic pas- vs—in their wild state und nowhere else— toralism are analogous m. Yak supply the trial for the black l; and all the leather t, pack-and-saddle base for the breeding the bovines that, to are called simply "the rage sheep," that are closeness to wild e numerical ratio t. They are only 3 for clothing, wool wool is the com- ots, like the common cow cattle, are a small minority, being considered low-country—or farmer's—animals and not suited to conditions in the aBreg. Horses are not a production resource to the extent they are among the true horse nomads (for example, Kazakh and Mongol) as the Tibetans neither eat horsemeat nor milk the mares. However, the yield of natural increase does make the high-pasturage ones exporters as well as users of horses, and the prices the latter bring are a source of wealth.

Subsidiary forms of exploitation such as the furnishing of transportation and guide services for trade caravans, hunting, and raiding are not directly related to pastoral production; but the opportunities for such ventures and the capability to engage in them stem from or are associated with the behavior patterns and life-style of the nomadic pastoralists and substantially contribute to subsistence and the accumulation of wealth.

All of the domestic animals thus listed are also power resources. It is animal (yak, sheep, horse) power that is the essential element in operational pastoralism and that makes nomadism possible. It moves the livestock themselves out to daily ranging and grazing; it moves them again, together with the pastoralists—their dwellings, and all their possessions—from campsite to campsite in the seasonal utilization of pasturage and in the basic reality of nomadism. It is also horse and/or yak power that gives efficiency to the mechanics of herding and extends the capability of the herdsman, so that when mounted, especially on horseback, the guardian of the herds can control many more head of livestock than any man on foot can handle—particularly at altitudes where even walking is taxing and running is out of the question. This same animal power also moves—either on the hoof or by packing—the products of animal husbandry to favorable markets, thus completing the final stage in the production cycle; and the transportation capability that this power provides is a marketable commodity, which brings in wealth when hired out. Horse power raises this mobility to a particularly high level, increasing the herdsman's control of the herds he guides and guards, giving to his hunting additional range and effectiveness, and adding the entire behavior pattern of offensive raiding and defensive counteraction to the life-style of the high-pasturage ones.

The production resources and the power resources to exploit them are never pushed to their limits. Pasturage is rarely, if ever, exploited to its maximum potential. Indeed, some communities do not follow quite the
same pattern of movement every year, and thus each year some pasturage is left completely untouched. This is not purposely leaving pasturage fallow for a year to help the soil recover. Grass grows as well after initial light cropping and simultaneous fertilization by livestock droppings as when it is left untouched throughout an entire season. What is crucial is the condition of the grass, and not the strength or the exhaustion of the soil.

Nor in general do the livestock fields ever reach their maxima in proportion to the available grazing. Bad weather, disease, and predators—animal and human—may take such toll as to diminish the herds at times, yet the general trend is for the livestock to multiply until they would reach such maxima unless otherwise limited. What does limit their increase is lack of manpower required for the degree of pastoral care needed. There exists a limit to the number of bovines and ovines that can be adequately taken care of by one herdsman. (In the case of horses this limit is much lower.) When the owner of herd or flock sees it approaching that limit, he must either cut down growth by putting the surplus into the channels of trade, where there is always a seller's market, or he must secure additional manpower. There appears to be, however, a chronic shortage of manpower within the communities of the high-pasturage ones, and so, instead of expanding the fields beyond limits that may be comfortably taken care of, the trend is to convert the potentially surplus livestock fields into other forms of wealth.

Because of this situation and within Asian and Tibetan contexts, the nomadic pastoralist subcommunity is an affluent, though by no means a nysbatic, society. There can be no quantum jump to the luxuries of modern living. The extremely wealthy live on a scale that essentially is little better in comfort or the amenities than that of those not so wealthy. Wealth tends to be spent on: ostentation—for example, the best horses or rifle in the community, or the most amber and coral worn by wife or daughter; status—lavish hospitality and gift giving; and religious observance—great offerings to lamas and monastic establishments. This observance effects a transference of wealth from the realm of the here and now—mundane phenomenal living—to the realm of the supernatural and the hereafter. Thus the nomadic pastoralists are self-consciously affluent in both realms.

This does not mean that everyone is wealthy or that there are no poor;
but the relatively wealthy are many, and the poor can always supplement their own production resources by selling their labor in a very good labor market within their own communities. They live too in the expectation—or hope—that with good seasons their own livestock fields may increase birth by birth. This general and relative affluence is evidenced in the fact that the two segments or subcultures of Tibetan society that concern themselves with the manipulation of wealth and its increments, the trading community and the religious community, both focus their primary attention on the high-pasturage ones. They are the ones who control the wealth of the land, which is to be both gained and converted into lucrative exports, religious celebrations, and monuments.

**Demography**

According to the Boserup model, such conditions might appear to point toward population increase, if not indeed explosion; yet the population of the high pasturage shows no sign of any such increase. Instead of growth to take up the slack and move toward greater exploitation of the available production and power resources of the ecological niche and of the accumulated cultural gains and techniques, the population is at best standing still. If indeed it is stationary, that equilibrium is due to a perceptible seepage of manpower from the cultivator communities and from among the drifters that constitute a considerable segment of the Tibetan population as a whole, and not because of adequate biological replenishment to compensate for the death rate. The birth rate is very low.

This demographic recession requires analysis in two contexts: (a) that of population change among the Tibetan people as a whole and (b) that of population change among the high-pasturage ones, which is distinct from and contrasts with, the population change among the rest of the Tibetan people. Of the possible causes for these changes some are common to both a and b; some, though common to both, are intensified in the case of the high-pasturage ones; and others seem to affect only the latter.

Generally recognized indications (see Shakapba 1967: 6) are that the population of Tibet is and has been a decreasing one since the time of its peak, which was between 600 and 800 A.D. The nascent and expanding Tibetan empire of that period occupied oasis cities in Central Asia,
made contact with the Persian empire in the Pamirs, conquered non-
Tibetan peoples in the west and south, levied tribute on Bengal, Nepal,
Gilgit and Hunza, conquered—or displaced—Hunnic populations in the
region of the Koko Nor, and contended on near equal terms with China
of the T'ang dynasty for control of large areas in what is now north-
western, western, and southwestern China. These are not the exploits of
a shrinking population. From accounts of the armies fielded and Tibetan
colonies established in newly occupied border areas at that time, it would
seem that there must have been a population base of at least twice the
size of the Tibetan population of the present time.

Currently, in many areas of Tibet, as evidence of a former agricultural
production much greater than at present, there are many permanently
abandoned fields. Leaders of quasi-independent principalities and chief-
doms have told me that people are more important than land, and they
appear more interested in attracting the allegiance of populations than
in taking over territories. The relative emptiness of the land and the
challenge of unused fields—or soil fit for fields—are themes that appear
repeatedly in discussions of Tibet and its people by the land-hungry
Chinese. Throughout the country there is no sign of population pushing
against resources. Instead there is evident population hunger, for in all
communities transients and drifters are welcome and find employment
and subsistence with relative ease.

During the earlier period of maximum population it is by no means
certain that the birthrate was particularly high, because all Tibetans
live at altitudes that are suspected of adversely affecting the birthrate
through appreciable shortening of pregnancies with injurious effects to
the neonatal. Even the agriculturalists live at altitudes of from 7,000 to
15,000 feet, and at the higher levels of that range male fertility is also
adversely affected (see Katz, Chapter 16). Thus population growth may
have been relatively slow, though reaching a maximum at some point
later than the beginning of the ninth century, from which it has speedily
decreased.

There is no evidence of ecological changes to account for this decline.
Certainly the altitude did not increase significantly, nor, from all we
know, were there any great temperature changes. From that time to the
present the Tibetans have cultivated the same crops and have tended and
used the same domesticated animals in numerical ratios that have fur-
nished an adequate and well-balanced diet, rich in proteins. It is true that unknown ecological changes may have contributed to the shrinkage, but there are no known indications of such changes.

If not in the ecology, then were there any cultural changes—verifiable or hypothetical—that could have taken place since that peak period of population growth, which might account for very considerable population losses? There is a probability that one significant change in public health took place since that time. That high incidence of venereal disease adversely affects population growth is to be expected, and from all known data such disease is now widespread among the Tibetans. If, as seems likely, the spread of syphilis throughout the Old World is post-Columbian, then syphilis—at least—was brought to the Tibetans since the heyday of the Tibetan empire. I do not know whether any such fixing of time limits can be made for the introduction, or indigenous genesis, of gonorrhea. There may be a hint as to origins in the fact that one of the terms for syphilis is “Chinese sore.” On the other hand, the term for gonorrhea suggests that it is due to the effects of being cold. Parenthetically, treatment of hundreds of cases in one area of Tibet suggests that syphilis is more common among the sedentary house-dwelling agriculturalists, and gonorrhea is more common among the nomadic tent-dwelling pastoralists, which may have some bearing on a possible birthrate differential in favor of the former.

One very great and important cultural change did, however, take place exactly within the period of peak population—600–800 A.D. Buddhism, after meeting with intermittent and—at times—very strong opposition for at least two centuries, finally became established as the dominant and, eventually, the state religion, which in turn remade the Tibetan polity into a religious state with ecclesiastical rulers exercising ultimate control.

Buddhism replaced an earlier religious system known as the Bon religion. The exact outlines and content of this system—before it was ever subjected to the overwhelming influence and pressure of Buddhism—are overlaid with Buddhist terminology, if not indeed ideology, and are blurred by disuse and the lapse of time. It appears, nevertheless, to have stressed the following: reverence toward the Sky—or Blue Sky—with worship of the sun, moon, and stars; an extensive pantheon of local deities—mountain gods and spirits of lakes, forests, cliffs, and so on; and
a cult of ancestor worship in which the ancient ones were identified with mountain gods and kept in remembrance by tombs and monuments. The priests of the system were shamans; specializing in healing, exorcism, the ordering of funerals, the foretelling of the future, the demonstration of magical powers, and the claim of relationship to, and control over, spirit beings. Ritual was characterized by bloody sacrifices—sometimes on a large scale—that included human beings. All in all, it was much like the religion of the Mongols at the time when, under Genghis Khan, they began their conquest—or devastation—of half the world.

In replacing this indigenous religion, Buddhism did adopt—the Tibetan word is “subdue”—many of the local gods, but it forbade the sacrifices and disregarded the Blue Sky as being nothing more than blue sky and the heavenly bodies as little more than adjuncts of horoscope manipulation. It also substituted tantric experimentation for the shaman’s magic and lost the ancestors completely in cycles of innumerable rebirths throughout the entire range of sentient beings—from the human to the insect and microscopic. Buddhism also brought to the Tibetans the ideal and practice of social and biological withdrawal, denigrating—if not actually forbidding—the procreative function and, by introducing monasticism, segregating the choice one-third of the males from the breeding pool. Thus there was created a great female-over-male imbalance in the breeding population.

Family and living ancestors and descendants too are thereby lessened in importance. The living ancestors, soon to lose their identity in the lottery of Karmic rebirths, are not a part of a long line that extends changeless into the far past and claims worship and remembrance in tombs and monuments. The living descendants too, though useful for facilitating the withdrawal of their parents from mundane concerns, do not have that crucial importance which belongs to those who will honor and worship their ancestors, for those parents will soon become generalized being instead of retaining identity as specific beings. They themselves feel no compulsion to have descendants to honor and worship them, for they too will soon lose identity in the changing cycles of rebirth. In such a frame of reference marriage becomes more incidental and a matter of economic convenience; and burial, though attended with ritual to send the soul on its way toward rebirth, is more a matter of simple corpse disposal, involving neither tomb nor monument of remembrance. The
family too—whether monogamous, polygynous, or polyandrous—is more fragile and more subject to breakup. In such a universe of values there is no overriding imperative to have progeny.

The fact that this cultural change, as hypothetically summarized in the foregoing, did adversely affect population growth becomes a very reasonable premise when demographic comparisons are made with the Chinese, who are near neighbors. The latter have no ethic of social or biological withdrawal and no large celibate segment of the breeding population. They worship the sky but go their earthly ways, very much preoccupied with mundane concerns until death, and when that takes place, the funeral is celebrated with enormous formality: sons mourn fathers visibly—in behavior and attire—for years. Above all other worship is the worship of the ancestors who, rank on rank and generation after generation, are individual beings in the spirit world, demanding individual attention. It is indeed a kind of immortality, but to be without male progeny is to end that immortal succession and become an untended, wandering derelict in the spirit world.

The desire to have sons is more than desire. It is a compulsion for both men and women. For the man it guarantees that the line of innumerable ancestors in the past linked to unending descendants in the future will not be broken and that when his turn comes, he too will be worshiped. For the woman it is the ultimate blessing as expressed by the ideograph for woman, which combined with the one for son signifies the basic—individual and ethnic—good. Thus the Chinese, who also have venereal disease and whose diet at times is meager, breed and breed; and there is no stopping population growth.

I once traveled through a frontier valley where Chinese live on one bank of the river and Tibetans on the other bank. Particularly good bottomland fields belong to one community or the other in an alternate pattern according to how the course of the river meanders from one side of the valley to the other. The crops were the same, the livestock were the same, and the ecological niche offered the same opportunity; yet, as noted at each stopping, by every criterion the Tibetan population appeared to be a shrinking one and the Chinese population a burgeoning one.

As the Tibetan population, in its entirety, has decreased in size, the high-pasturage ones have shared in that general shrinkage. Postulated
causes for the inhibition of population growth, such as the ethic of social
and procreative withdrawal and the effects of venereal disease, apply with
equal probability and degree to the high-pasturage ones as to those other
Tibetans. The nomadic pastoralists, however, have an even smaller popu-
lation growth than other Tibetans. There is an absolute dearth of child-
ren. This appears to be due to an extremely low birthrate rather than to
any abnormally high infant mortality, for the few children that are born
are given relatively good care. Although weaned somewhat early by
general Asian standards, there is an abundance of yak and sheep milk
for substitutional feeding. Children who cut their teeth on chunks of
meat, gristle, and lumps of very hard cheese and are fed curds and yogurt
have no problem of protein deficiency.

This absolute scarcity of children in a nomadic pastoral community is
most marked. One of the few comments on Tibetan demography that the
Chinese Communists have made, since their take-over of the country in
1959, is to the effect that there are very few children among the tent-
dwelling herdsmen of the plateau. On my part, for a considerable period
I had a close and continuing association with a Tibetan tribe that was
half-sedentary-agricultural and half nomadic-pastoral, and lived in both
villages and encampments. The number of children in the encampments
was perhaps less than one-half the number of children in villages of anal-
ogous size. Being considered a man of medicine—of a sort—I heard many
of the confidences that in our culture are heard only by doctors or psy-
chiatrists. Among the high-pasturage ones—never among the “valley
ones”—I frequently was asked by both men and women—individually
and in couples—for medicine or any advice that would make it possible
to have children. By contrast, only once in all that time was I ever asked
about birth control, and the request was made with no particular urgency.
The seemingly healthy and contented woman quite casually added to her
husband’s plea the explanation that, having five children in ten years—
all still living—did complicate moving and following the herds. If an
unmarried woman does have a child, her marriage chances are corre-
spondingly enhanced, and the chance—if it ever presents itself—to adopt
a child is accepted as an auspicious opportunity. As a result population
hunger among the tent people is very strong and reaches out in many
ways for manpower additions to the community—and with some success,
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tell of other origins and of making the transition to pastoralism and nomadism.

The search for answers as to why the nomadic pastoralists are relative demographic failures—in spite of all their affluence, their great need for manpower to exploit available but unused resources, and their relative health and high-protein diet—must focus on significant differences in their ecology and their way of life in comparison with other Tibetans. Two items of major interest suggest answers. One is related to a special characteristic of their ecological niche, and one stems from activity and habits, connected with technique and available power resources, necessary to both pastoralism and nomadism.

Though all Tibetans are high-altitude people, the high-pasturage ones are a yet higher-altitude population, the difference being that between a 7,000- to 15,000-foot range and a 10,000- to 17,000-foot and over range. Many of the high-pasturage ones seldom if ever go much below the 16,000-foot level. This high-altitude factor as a possible, and even highly probable, cause of lowered birthrates can affect both women and men. If relatively low altitudes—6,000 to 10,000 feet—as in Colorado, can adversely affect the birthrate by shortening pregnancies, it may be assumed that the much higher altitudes of 10,000 to 17,000 feet have a disproportionately greater adverse affect on pregnancies, for such altitudes go beyond the 12,000-foot critical threshold of physiological reaction in the process of acclimatization. How, and to what extent, such oxygen-thin altitudes affect male fertility, by inhibiting the formation of sperm, have been studied in some depth, among the inhabitants of the Andes by Carlos M. Monge (1968: 176-185). Complete loss of sperm marks initial reaction to residence at 17,000 feet. This is followed—after a period, the duration of which varies with the individual—by degrees of recovery which again vary with the individual's success in generally adjusting to high-altitude conditions. Some do very well, some barely make it, and some fail in this adjustment. Recovery of fertility thus varies, but, in any case, there remains a residual disability that affects both the individual and the breeding pool of the population. This pretty well establishes one cause for a low birthrate among the high-pasturage ones.

As suggested earlier in this chapter, yak and horse power improved techniques of pasturing and facilitated and extended the range of nomadizing. This made riding an important part of the routines and habits
of both men and women. The many-faceted influence of riding as a factor in the formation of a societal ethos and as a character determinant has been touched on elsewhere (Ekvall 1968: 93, 91). Within the topical parameters of this paper the problem is the relationship of riding—constant, hard, and rough, and at all times of the day and month—to the birthrate. There are no discriminatory taboos on the basis of sex. Both men and women ride—either using the saddle or bareback, according to need—and some ride extremely well.

There are no data—only a strong suspicion—that such riding, through its immediate effects on women of childbearing age, has an adverse effect on the birthrate. Women have to ride, cutting out or rounding up stock, at maximum speed over rough terrain without regard to what period of each woman’s menstrual cycle it is. It would seem inevitable that this must lead to a considerable number of early miscarriages. In advanced pregnancies some care undoubtedly is taken, but even in such instances, if the community is shifting camp, the expectant mother still has to ride, possibly for a long day, thus further shortening a pregnancy already shortened by altitude.

How the effects of prolonged and hard riding, as a way of life, may affect the procreative function in men is, on the other hand, somewhat more than a mere suspicion. One aspect of such riding which may affect male fertility is the clothing worn and the manner of riding, or seat, of the rider. The high-pasturage ones wear sheepskin clothing with the fleece inside. Riding a high-treed saddle with extremely short stirrups in what is a pronounced “crouch seat,” the rider has as many as three layers of heavily fleeced sheepskin—winter fleece is as much as seven inches long—wrapped closely around and under the loins so that the genitalia are nestled in fleece and, without question, have the highest temperature of any part of the body. It was Dr. Anton Carlson of Chicago, who pointed out to me that such localized high temperature is particularly deleterious to sperm and its formation and can well be a cause of periodic male sterility.

A more important, or at least somewhat more credibly substantiated, threat to the birthrate lies in the possibility that hard and continuous riding contributes to male sexual impotency. There are references that point as far back as the mounted Scythians, which suggest this possibility; as do some accounts of the part played by brutally hard and punishing
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riding among the Plains Indians in setting aside, or fitting, transvestites for their role as men-become-women. Nor should the generally known rumor in the French cavalry about horsemen tending to become impotent—cited even in Stendhal's writings—be lightly dismissed, for I heard much about male impotence among the Tibetan nomadic pastoralists. On many occasions men came to me to ask for medicine, treatment, or advice to cure impotency. Frequently their wives would come with them, and the problem in all its details would be discussed with utmost candor. Of particular significance is the fact that those who came were mostly the young and those most continuously active—the ones doing the greatest amount of riding. Of course, it could be that older, less-active men had given up their sexual role.

**Note**

1. The material presented here is largely a description of a culture and an economy as they were prior to the Communist Chinese take-over of Tibet in 1959. Propaganda notwithstanding, not very much is known about what has taken place since then, but what may be gleaned from Chinese sources (via the publications of the Union Research Institute, Kowloon) strengthens the thrust and argument of this chapter.

The Chinese were much impressed with the resources—inadequately exploited—of the ecology of the high pasturage, and with the value of the animal husbandry products produced by the nomadic pastoralists. They have imposed less coercive restriction on the high-pasturage ones than on any other segment of the population and appear concerned mainly with leaving the herdsmen undisturbed, provided only that the latter continue to produce. They bemuse the fact that production is less than it should be, and they have some things to say about increasing the birthrate by elimination of venereal disease. With great pride, they report increases in livestock and in the production of wool, meat, hides, butter, and animal fat; and they are obviously experimenting with projects and devices calculated to reduce nomadizing while maintaining full-scale pastoralism. Furthermore, though they are farmers no one has seriously suggested “opening new soil” and setting up farms anywhere in the high pasturage. That right still belongs to the Tibetans—the high-pasturage ones.