Appendix III

Some Galesh Proverbs

The Galesh have a particularly significant way of putting their thoughts across in a poetic, satirical way. They use the local metaphors of animals, lifestyle and nature to give expression to all forms of advice, caution and even remembering day to day experiences. Some of proverbs have been translated from the vernacular to enable ease of comprehension about the Galesh in particular and the rural forms of Mazandaran in general. Some Galesh Proverbs translations are as follow:

- “Ard hame ja, nun ja be ja”
  While wheat flour may be available commonly, good bread is hard to come by.
- “Akher khik re chenger deni”
  Someone who cannot be trusted to keep a secret.
- “Ademe tambel re bauteneh bur sayyeh, gonehh, sayye she eneh”
  When a lazy person was told by a Galesh to rest in shade instead of lying down in the blazing sun. The lazy man replied that he is waiting for the shade to come to him and to protect him from the sunshine.
- “Ashpaz keh deta bavveh. ash ya shur buneh ya bi nemek”
  When two cooks are sharing the pot for cooking there would either be no salt, less salt or too much salt in the dish.
- “Adem-e- bimaro khakher vuneh, bihemsayyeh navuneh”
  It is possible to have a Galesh home without a mother and sister but it cannot go on without neighbours and associates (Emphasizing the significance of the neighbourhood collectively in the life of the Galesh).

It may be possible for a Galesh to continue the life without mother and sister, but it is impossible to live without neighbours and associates (Emphasizing the significance of the neighbourhood collectively in the life of the Galesh).

- “Ademi keh shans darneh, veneh kerk yak linge sar merqhaneh kandeh”
  When a man has good luck, even the hen raises leg so that he may collect the eggs quickly.
  A lucky person’s hen lay eggs even with one leg up.
- ““Akem keh shans nedarneh, faludeh dannun eshkenneh”
When a man falls on bad luck, he tends to lose his tooth even while eating ‘faludeh’ (Faludeh is the name of a very soft and watery meal which mostly is eaten by ice cream)

- “Asemune kelaq merganeh hakoneh, me kerke sha”
  The greedy people have such a nature that even if the sky were to lay eggs, they would claim them as their own saying they have special hens that were laying such eggs.
- “Ademi ke bamehi ja baterseh, Katkhdagiri re kojeh betundeh hakeneh”
  How can one who is afraid of a cat expect to rule over a village? (He will always be scared and a poor manager)
- “Ta asb re nakhri, dar re khrab naken”
  Think and plan before doing and implementing a major task, otherwise it is like breaking the doorway after buying the horse for it to pass.
- “Ademe veshna din nedanneh”
  When a man is hungry he cannot hear God or spirituality. (It shows that how much primary requirements of people should be noticed)
- “Aval vajood davom sujood”
  First life is essential, only then can religion be understood. 
  **First a person has to care about his health and life and then he can praise and worship god.**
- “Payer, kayer, peser, damzanun”
  Father is very hard working while son is a totally lazy man, sponging off the earnings of his father.
- “Akher gu re ahen hedae”
  When one suddenly hears mean things about oneself from a totally unexpected quarter.
- “Aseju bigard navuneh”
  Only hardwork can beget results. No gain without pain.
- “Espeh mergene siyu kerke vachoea”
  Even the egg which looks white can come from a black hen. One must not forget one’s parents or ones humble beginnings.
  **Even a black hen can come from a white egg (not sure about the meaning)**
- “Atta daste cale deleh jagirneh”
Just as one hand adjusts the other in its cavity, a family member adjusts himself to the needs of the entire family.

- "Emsale michka parsale michka re yaddeneh"
  The fledgling of last year will be having more experience than that of the present year. Older people have greater knowledge and information.

- "Ashe heda khar bayte, az khshali par bayteh"
  How can you buy a horse first and then go in for a donkey. This is poor planning.

- "Assiyuchi vesnai ji miyernhe hamumi nasosti jeh'
  Even if I have means to earn and spend vast amount of money I will horde the money for our future.
  Even though I may own a “hamam” or elaborately laid out bath I keep it for other people whom I charge for its services but I live in filth myself as I keep putting off having a ‘hamam’ (bath) myself to accommodate others.

- "U dare kuzeh, adem dar dureh"
  Even when the water pot is at hand the individual searches for it everywhere but near himself.

- "Amea kheshke rukheneh hem u kafeneh"
  Today the river may be dry but when it rains it may even overflow its banks in the future.

- "Age darya burem, darya u kheshk vuneh'
  When one ill fated approaches the sea for travelling, even the sea waters dry up (bad luck).

- "U kherni, sar cheshmeh je bakhor"
  Indulge always in good and deep thinking to obtain good results, rather than indulging in idle talk. Only the origin of the spring bears the freshest and sweetest waters. The water down river would be infested with several ills.

- "Avvelem veshna, akherem veshna"
  He was born hungry and poor and even died hungry and poor. No change in the circumstances of the poor.

- "U xaneh bairi, gateh rud, zan gate ja"
  When you go to get water, go far get clean clear water. For marriage of a daughter look for the best family.

- "Ash re asbe ja vandanneh, khar re khare ja"
All behaviour should be limited to specific circumstances. Behaviour with parents, wife, children, relatives is ascribed and should be followed strictly and never should be interchanged just as the horse tied to a wooden shaft trots around his own perimeter and the donkey walks around his own area. They do not interfere with each other.

- “Asbe piskash re, dandun neshmarenneh”
  There is ancient tradition in galesh culture to present gift to special people as it considered being occasionally gift for someone. People take it happily without any negotiation.

- “Erbab keh geda bayye, khojeh ghevaleh vesseh gerdneh”
  When the Arbab (landlord) rich man becomes poor even the smallest thing seem significant to him.

- “Andeh chera hakerdi, pas ku teh dembeh”?
  The sheep carry a big “dembeh” behind them but the Galesh asks it “Where is your dembeh?” Even though he was following it all across the pasture, now that he wants to sell the weight of the sheep is coming out to be less. Despite rich grasslands the sheep does not gain weight.

- “Alan veneh her niyeh”
  Not being in the mood to listen to anything.

- “Amea henna rang nedarneh”
  My henna has no color while his henna has more color? That you favor his henna and ignore mine? Being partial to someone.

- “Ame dast nemek nedarneh”
  My hand has no salt- while his hand has salt that you are always thanking him while I am working equally hard for you with no acknowledgment from your side.

- “Az sanse bad, me kerk ve sar merquaneh kande”
  I am by ill luck that even my hens lay their eggs in river water where they flow away.

  It is my bad luck that even my hens lay their eggs on the flowing water, so I cannot collect them.

- “Un doreh beze badusteneh”
  Think of the future and newer times. Forget about the bygone times when the gods had children and were milking the cows.
**Uji dele mar**
Although the fragrance of the vegetables is attractive, remember snakes also dwell there. (Have to be on guard always less be caught unawares.)

**“Asb-e- Tureh deleh mahar”**
It is possible that the feeding bag of the horse may have a snake hidden inside, who may bite when the horse’s bag is refilled. To find an evil doer in an unexpected place. Galesh belief has it that those of evil character may strike anywhere as they are hidden everywhere.

**“Esm meh, rasm veneh”**
Work for me fame for you. One person working very hard to make the other person famous.

**“Atta livan-e -deleh u kherenneh”**
Close brotherhood willing to share from same glass of water.

**“Aftubeh kharje lahim”**
Spending too much to repair something which is of little value. When the old damaged thing can be easily replaced why spend too much time, energy, resources on an insignificant task.

**“Ame hareh chu nashuneh”**
Saving with a blunt saw. Not achieving anything despite lots of effort being put in taking endless lessly but nothing is understood.

**“Shevarigej”**
Self serving, selfish. Having no concern for others. Thinking only about myself.

**Ameh ketom aspeh bayyeh”**
My hair is white with experience, do not teach me, teach the children. I know enough.

**“Asbe baverdene. paluneh charkh gerni”?**
Why look for the saddle when someone has stolen your horse. (Why spending time on insignificant details when the major issue is much more important.)

**“Un halesteh, gu balesteh”**
Once opportunity is lost it may never come back again.

**U daken, chu daken”**
The wheels keep turning but the axle between the wheels remains static. Thus, the axle does not travel while the wheels go many places. (Excuse for not doing some work)

- “In chak un chak kenneh”
  The legs are going to a place but the mind is going elsewhere - Indecisive.
  **The person’s feet are going to somewhere but his mind is occupied by somewhere else.**

- “Ousar boos”
  Cutting away all restraint and going out of control. A child who is behaving out of mind. (Disobedient or not listening to parents.)

- “Aquzchinemah yak maeh”
  Time for walnuts is over since a month ago. All work has an appropriate time and seems odd when it is done at any other time.

- “Becha u re vazambi khremi”
  Being too careful, even while blowing on cool fresh water to avoid burning the mouth burn.

- Bez o mesh jedanaken”
  Take the good with the bad. When goat and sheep meat is mixed then it has to be bought together it cannot be bought separately.

- **You have to take some goat meat while buying mutton. Mostly good and bad things happen together so you have to overcome them together**

- “Bisage sereh”
  A house without a dog is without order. (Strong Galesh belief). There is no cheerful barking to greet friends nor is warning of enemies while there is no dog at home.

- “Bez, bez-e-, badiye, rameneh”
  Even animals stand up and show respect why you should not behave the same.

- “Behar, vash, paiz, lash”
  In spring the juicy green grass is plentiful so that the sheep and goats grow fat and by autumn the Galesh can put a good price for them.

- “Bakhete kherse dast kappel nadeh”
  Don’t disturb a bear that is asleep – you are calling trouble upon yourself. Let sleeping dogs lie.
• "Bezbazi darniyar"
  Always playing never accepting any responsibility. Just like goats are never responsible but the sheep always are.
• "asb bi nal navoneh"
• "Pitek piteck mejeneh"
  Walking very slowly and carefully taking small steps to avoid injury.
• "Pul ya tashe deleh dareh ya u deleh"
  It is not easy to earn money it is like fighting fire and water.
• "Per burde, kam bамunесe"
  Maximum is done, very little is left – have patience, the task will be completed soon. So not despair and give up.
• "Parchimshekh"
  Being boastful without any substance.
• "Pire gue eshkeme"
  Someone who knows everything and has all the answers.
• "Pol. Bapeteh pelaeh"
  Rice and money are meant to be spent and they are used very soon. Money invested future benefits.
• "Te ju hepatuae"
  You have husked the grain, so you will have a house full of greenery– why you should understand my requirements now
• "Terse enar, shirin navuneh"
  The bitter ‘anar’ or pomegranate cannot become sweet, no matter how much sugar is added to it. No matter how hard I may try but I cannot get someone to accept my friendship.
• "Te bar bar bayye"
  Successful in business.
• "Ta tandir garmeh hasee nun re bazen"
  When the oven (tanoor) is hot, quickly line it with naans (bread). When an opportunity is prepared for you to achieve your goal, never hesitate to do it quickly. There should be no laxity or delay.
• "Juneka sha serepissar jangeneh"
The young bull shows off in front of his own house but is shy and well-behaved when crossing someone else’s home.

- “Cappune keh ghame gusfend re kherneh”
  The shepherd worries only about his sheep. Similarly parents are always concerned about their children.

- “Cheshteh bakherdeh”
  Making a habit of anything. Once or twice one can get by but too frequent visits can be troublesome.

- “Khi pus”
  Thick skinned like a pig. Totally shameless.

- “khele dast, semshir deneh”
  Giving a sword to a foolish person is creating a dangerous situation. He will use the weapon mindlessly.

- “Daketeh vandekeli tan”
  The patient, though weaker spider catches the big prey. The big, noisy fighting person can be easily mastered by a weaker man who is patient and prepared.

- “Dare biriseh re va varneh”
  Shallow rooted trees are easily uprooted and transported elsewhere by a strong wind, someone whose antecedents are not known and for whom it is difficult to find a respectful matrimonial match or even any social alliance.

- “Dejembeli Aghuzeneh”
  Twin walnuts – very close friends

- “Dare me dandune vejeni”
  Incisive background search can provoke this comment of “Do you want to take out my tooth to examine”? Why are you asking for so much of personal information.

- “Rashe gu juneka navuneh”
  Nobody takes responsibility for a rash bull or a bull that is out of control similarly for people and children, especially youth.

- “Zebune khosh, mahare kali je dar iyarneh”
  A sweet tongue can influence even on a snake to leave his house. **Behaving in a good manner can make the snake to leave his house.**

- “Zan, sabone mard hasteh”
It is the wife who ensures her husband is well turned out. Without a wife a man’s appearance is neglected.

- *Gosfen ta eeyb nedare, laqher navuneh“*
  When the sheep has problem, it gets thin and thinner. When a person’s physical features get changed, you have to realize that he is involves into some problem.

- “*Galeshi cehl o char nedarmeh“*
  Whether the *Galesh* has four cows, he is a *Galesh* and if he has 44 cows he remains a *Galesh*. It is not the number that matters but the habit and way of life that determines who is *Galesh*.

- “*Guk nakerd, keresh sazeneh“*
  Construction of a safe, warm shed for the new born calf well in advance of its birth. *Galesh* terminology for planning ahead.

- he is making the stable before the cow give birth a calf.

- “*Gu kesh bazu, seskeh bayyeh“*
  When the cow urinates it will splatter around on the clothes of passers by who simply brush it off their clothes. One should not care for idle talk as it is of no consequence.

- “*Gue shakh, gu re sangini nakenneh“*
  The horn of a cow is not heavy for the cow even if it grows big. Even as the child grows he or she is no burden on the family or community.

- “*Lamize dambek nazen“*
  Stop foul mouthing everything! Stop talking ill.

- “*Mamije bidem, mahi ye bitali“*
  The boneless fish and the seedless raisin can hide nothing, have no falsehoods. Their character is absolutely clear – no fraud or lies are associated with them.

- “*Mageh me Piyere guke pe dai“*
  Why are you burdening me with your work I already have my hands full. Why should I do more. Are you looking after my father’s cattle that I should be obligated to you?

- “*Mageh teh tim re hend je biyardeneh“*
  Have you come from Hindustan that you are wanting more / access?

- “*Veneh Sar bure, veneh Ghowl nashuneh“*
One is willing to get his head cut of rather than break his promise equated to the famous Hindi Ramayanic proverb “pran jayae par vachan na jayae”.

- “Vene Tuti yade hendestun hakerdeh”
  Day dreaming of riches. Is your parrot remembering Hindustan? Allowing the imagination to run amok.

- “Veneh Sar bureh, vene ser nashuneh”
  Keeping a secret all through life. Secret pact known only to two people. Not letting anything out despite the threat to life.

- “Heketh chu sar Essa”
  Searching excuses always. Always examining chairs and tables to see if termites are infesting them. Typical of Galesh character.

- “Harchi Gat basendiye, xurd jam Kendeh”
  Setting an example because in the village the youngsters always follow their elders.

- “Gu re vene badusten, na bakusten”
  Do not kill a cow that is giving good milk. Never sell land – it will sustain life and also appreciate in value. “Equivalent to” Why kill the goose that lays golden eggs.

- “Guk Nakerd, Keres Sazeneh”
  Construction of a safe, warm shed for the new born calf well in advance of its birth. Galesh terminology for planning ahead.

- “Gugeza Gu- e- Pali Azizeh”
  The calves are very lovable to the cow. Same is the case for all parents- their children are most lovable.

- “Galesh navoneh me du Terseh”
  Never say your milk and yogurt is old- always say it is fresh. If you give only good qualities of your own stuff – its sounds superfluous.

- “Gu be Rasen. Adem be sekhen”
  Just like the cow is controlled with its rope the children or men should be controlled by words and by speech or tone of voice.

- “Kam Bakher. Hamishe bakher”
  Use less use longer, save money, use less for sustained life.

- “Kam Hakan. Kerd Haken”
Work as per capacity. If you have a small capacity, have a small business but net profits. Do not spread your business beyond your capacity.

- “Sakhire Sek”
  Abandoned, orphan having no family or antecedents to fall back upon.

- “Se gate dare tan ja nuj bazenim”
  The Galesh believe that they have such a rich culture that it shines forth like no other culture.

- “Sch temen geva, no temen pulak”?
  Entire suit of clothes for 3$ and buttons being bought for 9$? Only superfluous riches – not so in reality.

- “Sha harfe ashegh”
  Following one’s own counsel. Self important. Not listening to anybody.

- “Shale Deva Sag Hasseh”
  The fox may kill the chickens but he is mortally afraid of the dog. Someone who is boasting a lot can be made to keep quite under threat of some one senior or superior attacking them.

- “Shemeh Sereh, lush Nedarneh”
  Does your house not have a door. Behaving differently at own home and in someone else’s home is considered ill-mannered.

- “Su siyu, gu siyu”
  Night was black and so was the cow, how could I recognize? Galesh response to someone who is asking for an impossible task to be done.

- “Sha Re be Geda Sar Bekareh”
  When the employee is not required to do anything the Shah does not want done. Thus when the shah wants he will employ a number of people when he can. When he cannot he can send them all away.

- “Sag –e- bameshi Re Mundenneh”
  Cat and dog fight – often children are caught fighting like cats and dogs. An unending baseless fight with lots of noise.

- “Zan o Shi Dava Behare Heva”
  Husband and wife’s fighting is like spring breeze – it comes and goes momentarily.
study in Thailand, where it is merely said that "women have demonstrated their expertise and skill in livestock production and provide their families with a major share of household income" (Natpracha, 1991), without offering more details on that specific expertise which would have made for some extensive, informative research.

On a regional basis, women's ITK of livestock and natural resources has been better documented in Africa than elsewhere. Documentation in Muslim societies has faced cultural constraints. The problem stems from the fact that research and planning teams have been male dominated, and there is a prevailing myth that women have a non-existent role in livestock production. Thus, they have been the bastions of health care giving and treatment receiving behavior but have been waylaid as they are not considered knowledgeable enough by the researchers. This is one error of omission that needs to be rectified with immediate effect to uncover the rich potential of curative therapies that have been tried in time and are more workable and cost effective than any alien treatment regimes that may be thrust among them. For example it was the Galesh women of the A borz mountain heights who were the first to point out that the newer breed of sheep being introduced into the area were causing the decimation of the native population of sheep as they carried certain vectors at the domestic sheep were not immune to.

In most cases, women have an indirect, if not a direct, influence on the use of land. For example, among the Boyr Ahmad pastoralists of Iran, decisions that affect the entire camp relating to migration and economic transactions are seemingly made only by men, but in reality, such decisions are never made without prior recourse to the opinion of women on the issue, and thus tacitly requiring women's support. Also, women often form their own assemblies within hearing of the men's assemblies, thus giving loud and clear expression to their views (Fazel, 1977).

Detailed knowledge of natural resources is often linked to specialization. Among the Mbeere of Kenya, older women know annual herbs best (because they gather them for food and medicine), young herders have a particular understanding of varieties of edible wild fruit (because they eat them on the way) and specialized craftsmen have their own discrete knowledge (e.g., honey collectors know more about the flowering cycle of plants) (Brokkensha & Riley, 1980b).

In systems where wc men are in charge of animals kept at the homestead, women obtain a detailed knowledge of the land by monitoring the condition of the range through the milk produced, and by observing the state of the animals returning to camp (Niamir, 1990). Women have a distinct advantage over men when it comes to feeding small penned animals because of their access to household wastes and by-products of food processing and crops (Okali & Sumberg, 1986).

Similarly, women have a comprehensive understanding of natural water sources, the variations in quality and quantity during the seasons and of the process of extraction and purification for human and livestock use. The fact that women have such knowledge and know where to collect water and how to cope with its scarcity, including ways of recycling water, has been consistently ignored in development work. In Kenya, women carry out water collection, and will use different wells in alternative seasons in order to allow replenishment of the resource, thereby avoiding the indiscriminate exploitation of groundwater. But now with increasing population pressure, the traditional system is no longer effective. In one case, that of Migwani village in highland Kenya, young men refused to work on communal projects to collect water for the village and left for urban employment, which was when the women organized themselves into bands and built the dam as they were aware of their water needs (Oxberg, 1987).

All pastoralists worth their salt have extensive knowledge of animal diseases and their cure. Their traditional knowledge encompasses the areas of pharmacology, toxicology, vaccination, surgery, cauterization, bloodletting, castration, obstetrics, amputations, dental procedures, dehorning, skilled bone setting, treating boils, nose-ringing, tattooing, skinning, etc. Many of their herding practices (e.g., avoiding certain pastures at particular times of the year; not staying long in one place to avoid parasite build-up; lighting smoke fires to repel insects, especially tsetse flies; mixing species in the herd to avoid the spread of disease; avoiding infected areas or moving upwind of them; spreading livestock among different herds to minimize risks; and quarantining sick animals) are designed to prevent disease and its spread among the hordes in their control. In addition, attention to breeding and genetics has led to disease-resistant species and high yielding varieties of animals (McCorkle & Mathias-Mundy, 1992).

Division of labour concept

Over centuries of observation and transfer of institutionalized knowledge pastoralists have extensive knowledge of animal diseases and their cure. Like ethnobotanical literature, ethnoveterinary literature rarely distinguishes between women's and men's ITK. Where available, the consensus seems to be that detailed medical ITK is also linked to specialization and division of labour.

Women in general have more in-depth knowledge of traditional medicine and pharmaceutical practices than do men (Hoskins, 1981), and carefully tend sick animals (Henderson, 1980). This may be linked to their image as the nurters and healers of society. In Peru, ethnoveterinary concepts and practices, many of which have real therapeutic and prophylactic values, are used extensively by women. For example, a large number of remedies are effective in assuaging diarrhea or in preventing parasitic infections. Another study found that the traditional concepts of animal disease and treatment among the Fulani of Nigeria were "often startlingly close to the orthodox" (McCorkle et al., 1987). In general, Fulani herdsmen know more about cattle and small ruminant diseases, while women have a greater understanding of poultry diseases. Knowledge of horse diseases is held by those working in the ruling families of the north (Ibrahim et al., 1983).

Frequently women are more comfortable with traditional veterinary care than with modern techniques and medicines. This may be partly a result of the fact that in almost all countries, veterinary agents are men, who rarely approach women, but also because men take over when there are any external contacts to be made. For example, among the Fulani of Nigeria, the cost of vaccination and modern medicines is paid by the husbands (Henderson '80). Poor households continue to seek out traditional livestock healers, but rich houses holds prefer to consult government services.

As the examples illustrate, general concepts and descriptive knowledge of animals and natural resources form a part of the ITK of both men and women. However, access to detailed knowledge is tied to the division of labour, specialization and membership besides participation in various groups, many of which are gender based.

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Either detailed ITK can be an entirely female domain, or women and men may have different knowledge about similar things. Both sexes may have different ways of organizing knowledge, and different ways of preserving and transferring this self same knowledge. The integration of ITK into development may not be effective if women’s expertise is not included. Policy planners and those concerned with the design of development interventions should be trained and encouraged to put aside their “paternalistic one-way mode of communication” (Brokensha & Riley, 1980b) and engage in participatory development that includes discussions with women.

**Health among pastoralists**

In comparison to settled communities of rural areas, causes of increased mortality among mobile pastoral groups can be summarized as: late medical attendance for example for maternal and neonatal mortality. Morbidity patterns of mobile pastoralists have been observed to not to differ substantially from those of poor people of rural zones especially in resource-poor countries, but periodic exposure to disease risks due to migration, seasonal periods of climatic extremes, difficult hygienic conditions, timely response to a disease, inappropriate information, and close contact to livestock can lead to a shift in the importance of diseases, for example of tuberculosis and the zoonosis anthrax. Comparative nutritional studies show that pastoral children are better nourished than sedentary children in normal times; however, this can dramatically change during droughts or sudden loss of livestock.

Among the pastoralists studied in the Savadku area of Iran, especially those who call themselves the Galesh, the traditional health care services for both people and livestock are maintained more often than not through a combination of formal and informal or traditional and western-type medical services health care delivery system which is partially if at all utilized. The geographical dispersion of mobile population groups and their spatial relationship to each other and to health services interact with other factors such as time and economic pressure. Even with efficient and good quality fixed or mobile clinics, significant barriers to service delivery may continue to exist not only due to this spatial distribution but also to the mistrust between health service providers and pastoralists, the inconsideration of pastoralists’ health priorities, and preference for traditional medicines/treatments by pastoralists.

**Approaches and programmes providing health services to pastoralists**

Delivery of health care services to mobile pastoralists has been considered as a choice between either mobile clinics or static health centres placed strategically in pastoral zones (as sometimes has been the case in former Soviet countries). However, a combination of both mobile and static health services seemed to better meet the requirements of sustained services as can be seen from the case study of two health programmes in Kenya and Niger which have been practising outreach among the mobile pastoralists for several decades. Purely mobile services have been attached to static services for easier managerial logistics and because it was less costly than mobile services alone. Both programmes increasingly sought and encouraged increased community participation and have engaged in activities like the training of traditional birth attendants and health information campaigns.

Community-based health and animal health workers and traditional birth attendants are an important part of health service provision to mobile pastoral communities because their services are available nearby and are of particular importance and usefulness to the women. They can play the roles of intermediaries between their community and the health staff. The three phases of the ‘Pastoralist Development Project among camel keeping pastoralists in Northern Kenya’ is another example because this project depicts the continuous learning process and the needed modifications of the programme. The programme has trained a large number of community health workers, traditional birth attendants and community animal health workers who, in addition to providing basic health and hygiene services, have also facilitated the development of community action plans and advocated for changes in government legislation.

The health of their animals is of great importance to pastoralists as is the health of the family members. The example of a project in Chad describes the combination of vaccination service for pastoralist children and women with vaccination of the livestock. Sharing of transport logistics and equipment between physicians and veterinarians reduced total costs and joint delivery of human and animal health services was adapted to and highly valued by pastoralists (“a one health” approach). The development of adapted human health information material can harness the good knowledge of pastoralists on animal diseases.

**Galesh habitat**

In former socialist countries, households’ need for cash income and access to social services create increasingly ecologically maladaptive incentives for herders to cluster close to transportation arteries and market centres, which result in more pasture degradation, reduced opportunity to take advantage of seasonally available resources, and in an intensification of conflict over pastoral resources (Yenhu, 1996; Janes & Chuluundooj, 2004). In Central Asia, where access to traditional winter pastures and shelter has become insecure, herders are restricting their mobility, but this may lead, more adversely, to the overgrazing of grasslands (Swift, 1999).

Conflicts alter ecologically sound grazing patterns towards ecologically destructive patterns because groups reduce mobility to avoid contacts to other groups (mistrust between pastoralist groups). This behavior is precipitated by pastoralist households tending to stay together due to insecurity and herds being grazed on the little remaining secure land (Frank, 1999; Unruh, 2005). Growing urban populations in particular rely increasingly on effective land management by pastoralist and dryland ecosystem health, for example maintaining water cycling in healthy drylands and thus ensuring drinking water and hydro-electricity for urban settings. Therefore, governments need to recognise that undermining pastoralist systems has implications for many non-pastoralists (World Initiative for Sustainable Pastoralism, 2008). While policies should strengthen resilience of pastoral people through supporting diverse risk management strategies, they should also address the growing imbalance between humans, livestock and the environment in some pastoral areas through facilitating the engagement of pastoral people in alternative income generating activities (Simpkin 2/05; Rass 2006).

More studies are needed that relate changes in health and education policies for pastoral communities to environmental outcomes for critical assessment of sustainable extensive livestock production systems.
Decentralization of health care delivery among Pastoralists

One observes decentralization processes (for example in the course of health sector reform programmes) to better empower communities and such processes will also benefit mobile pastoralists if they strengthen regional economic cycles including extensive livestock production systems (Lister, 2003; Bonfoh et al., 2007). In the past, interventions in the pastoral setting have been mostly sectoral, focusing on specific issues such as water, marketing of pastoral products, land tenure reforms (pastoral codes), and access to fodder. However, the variety of actors involved in the pastoral development shows that problems of pastoral people could not be tackled in an isolated manner. Factors like access to markets and health status of livestock strongly influence the quantity and quality of livestock production. Due to such various interdependencies, policy makers, donors and researchers increasingly recognize interdependencies and synergies and the necessity of inter-sectoral programmes for pastoralists.

Treatment seeking behaviour patterns

It has been observed all over the various communities of pastoralists that maternal mortality rates of mobile pastoralist communities are amongst the highest world-wide. Pastoral women often deliver at home assisted by the nearest female relatives. Costs, distance from health outlets and logistical difficulties for patient transportation to perinatal consultation and maternal services are known reasons for not receiving appropriate and timely care (Amooti-Kaguna & Nuwaha, 2000). The main diseases and health conditions among pastoralists do not differ substantially from diseases that are typical for poor people of rural zones in resource-poor countries such as respiratory diseases, malaria and diarrhoea (Schelling et al., 2005). The few analytical studies comparing morbidity among pastoralists and settled crop farmers in the same area suggest negligibly few differences (Chabasse et al., 1985; Ilardi et al., 1987).

However, pastoralism also implies specific aspects of disease ecology which influences access to health services and which may alter their mortality and morbidity patterns compared to other populations of rural zones. Loutan (1989) and Swift et al. (1990) have identified five main factors affecting the morbidity patterns in nomadic pastoralists. They are listed as follows:

- Proximity to animals,
- A diet rich in milk,
- Mobility and dispersal on with resulting difficulties in getting and maintaining treatment,
- The special environment (hot, dry and dusty), and
- Socio-economic and cultural factors including the presence or absence of traditional healers.

Seasonal morbidity patterns of semi-nomadic Fulani differed considerably from those of settled Rimaibe of Mali (Hilderbrand, 2000). The main diseases and health conditions among pastoralists do not differ substantially from diseases that are typical for poor people of rural zones in resource-poor countries such as respiratory diseases, malaria and diarrhoea (Schelling et al., 2005). The few analytical studies comparing morbidity among pastoralists and settled crop farmers in the same area suggest negligibly few differences (Chabasse et al., 1985; Ilardi et al., 1987).

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Seasonal morbidity patterns of semi-nomadic Fulani differed considerably from those of settled Rimaibe of Mali (Hilderbrand, 1985). Migration of people exposes them periodically to disease risks, for example at waterholes which are highly contagious places, but is also a way to escape from exposure (MacPherson, 1994; Foggin et al., 1997). Mobility and dispersion influence the spread of infectious diseases such as measles. Pastoralist groups may be more frequently affected by water-borne diseases (parasitic such as schistosomiasis or bacteriologic such as typhus and cholera) because they consume surface water more often than settled groups (sometimes due to loss of traditional access rights to wells) (Bonfiglioli, 1990). Lack of water makes it also more difficult to maintain good hygiene practices. The degradation of wetlands provide (potentially) favourable environments for disease transmission between people, livestock and wildlife populations because they are forced into small isolated areas with available water.

Swings in Pastoralist Economy Influence health

Reduction in mobility of pastoralists is caused by various factors that may range from involuntary settlement due to settlement policies to facilitate 'social control', administration, and delivery of social and livestock specific services (Pratt et al., 1997), due to invasion of other dry lands utilization such as dams, farms, industrial exploration of natural resources and protected areas (World Initiative for Sustainable Pastoralism 2007b), events such as drought, famine and civil wars, dismantling of pastoral management regimes and traditional institutions, and, last but not least, the inadequacy of basic services for pastoralists which force them to stay closer to urban centres (Morton & Meadows, 2000; ALIVE, 2003; Janes and Chalunduoj, 2004).

Traditionally, the diet of pastoralists consisted of livestock products milk, meat, and blood that were supplemented by grains and other foods that were grown or purchased (with money obtained by selling livestock and livestock products). Milk was the main pastoral diet providing 60% to 75% of the daily calories (Galvin et al., 1994). Meat was often reserved for special occasions, times of need, or consumed only when an animal died (Galvin, 1992). Pastoralists of West Africa relied more on grains than those in East Africa (Benefice et al., 1984; Wagenhaar-Brouwer, 1985; Galvin, 1992). Generally, the amount of intake may vary strongly due to season, place of stay and socio-economic factors (Swift et al., 1990; Galvin, 1992). The critical period in terms of adult and child nutrition among Sahelian pastoralists is often the end of the dry season, characterized by reduced milk production of livestock, high temperatures and aridity combined with increased external expenditure associated with pasturing and watering herd animals (Loutan & Lamotte, 1984; Galvin, 1992). During the wet season, when milk was abundant and grain prices were at their highest, milk provided almost 90% of dietary energy to Turkana pastoralists and 80% to the Masai (Nestel, 1986; Thébaud, 1992; Galvin, 1992). Frankin et al. (2004) found that pastoral Ariaal children had better growth patterns in both the dry and wet season when compared to those of the settled Ariaal. Turkana mothers attempted to minimize the impact of food shortages on children by reducing their own dietary intake and preferentially feeding their children (cited by Shell-Duncan (1995)). Economic status was significantly associated with maternal arm-fat area among pastoralist community of Northern Kenya, whereas milk consumption was a significant factor associated with maternal weight and arm-muscle area among an agro-cultural community (Fujita et al., 2004).
Borana pastoralists are keeping more small stock for marketing opportunities (Galvin et al., 1994) and pastoralists are increasingly entering the market because they need to sell more animals to buy enough food (Fratkin et al., 1999). Many families diversify their activities and also start crop-farming. Hence, diets once rich in animal protein from milk and meat, though often deficient in calories, are changing to diets more and more based on grains, and sugar has become a new important source of energy for pastoralists (Schelling et al., 2005).

Never heard of earlier ailments have begun making their ways into the general life style of the Galesh pastoralists as well. Epidemiologic transition from high risk of infectious diseases to more chronic ones (e.g. cardiovascular disease such as hypertension, mental disorders and cancers) are nowadays increasingly seen as the health problems of pastoralist groups, particularly where there are rapid changes of mobility and diets. 

Traditional and informal services to treat ill-health and perceived illnesses

Given the dispersion of mobile pastoralist groups, a traditional medical system that is rather easily accessible is maintained in most communities (Wiese, 2004) and remote communities which show more adherence to traditional forms of treatment than those closer to urban centres (Daba et al., 2001). In pastoral regions of Inner Mongolia and Xinjiang (China), as western-type medicines have become more scarce and expensive and access to formal health services more difficult, pastoralists are turning to traditional medicine - practised more often at present than in the past (Medvedeva, 1996; Humphrey & Sneth, 1996). Traditional healers often prescribed herbal remedies and they also had high abilities in treating fractures and joint traumas. Also patients with fractures and dislocations rarely attend the hospitals, since the indigenous bosesetters treat this condition with a great degree of ease and success (Ailiu, 1995) and the faith healers or shaman may offer oral and written prayers for any protective and curative purpose. A traditional birth attendant assists in case of complications. Nomadic pastoralists of Chad sought primarily traditional health services for relief for sudden diseases and accidents (Wiese, 2004). In comparison to care of livestock, fewer members of the community acquire specific skills in treating people (Wiese & Tanner 2000).

The perceived success rate for any kind of treatment (formal and informal, traditional and western-type) can be quite low (Hampshire, 2002). The fulfillment of obligations and daily tasks is considered as 'health' in many pastoral societies (for example also among the Kel Alhafra (Münch, 2007), or Fulani's system of norms and values - Pulaaku - encompasses a high degree of self-control to not express 'health' in many pastoral societies (Wiese & Tanner 2000). Decrees that are rooted in religions can also affect health behavior, for example the weaning age of girls and boys at the age of 23 and 24 months, respectively, as written in the Quran.

Traditional ways to manage human and livestock diseases preventable by vaccination definitely do exist (Martin et al., 2001). The contact rates of people having measles or whooping cough (or earlier also small pox) with other members of the community are kept low. Traditional vaccination against contagious bovine pleuropneumonia (CBPP) (by rubbing pieces of affected lungs in scratches of noses of healthy animals) was widespread across the African continent, but this practise has become rare nowadays (Martin et al., 2001). Illness concepts (i.e. the local illness categories which do not necessarily correspond to biomedical disease categories) are based on the experience and the expression of illness, and, in turn, can influence health care practices. The environment, hygiene and contagion are sometimes linked with particular illnesses, but the causes or origin of most diseases are unknown to pastoralists due to lack of appropriate information. Among Fulani pastoralists, there was no local concept unifying the characteristics of the biomedical term 'zoonoses'; these diseases were conceptualised either as animal or as human illness with the exception of anthrax (Kröncke, 2004). Among nomadic pastoralist communities of East Mauritania, the illness 'tuberculosis' had a rich and more complex nomenclature than the biomedical disease. Tuberculosis was part of different illness concepts according to different causes and different stages of the illness. Causes were, for example, hereditary, warm or bitter foods (Igindi), and lack of sufficient milk (Timchi). Tuberculosis was perceived either as a stigmatizing illness (Soualla) due to religion (Sihat elmoumnin) or biomedical (Khouba).

Diagnosis was usually made by the people in the surrounding of a patient after he or she has consulted a faith healer (hajaba) and/or a traditional healer and at a late stage of disease. Three types of 'tuberculosis illnesses' were treated by the healer, two by the faith healer and only one by the physician (Ould Taleb, 2007). pastoralists have experience with western-type vaccination for decades, and, in sub-Saharan Africa, pastoralists ascribe the eradication of Rinderpest and of small pox to vaccination. In some communities, women are better informed on available vaccines than men because they have more contacts to villagers when selling milk (Schelling, 2002). 

Barriers for pastoralists in accessing health services

Mobility, quality of health services, gender disparities, high maternal mortality rates and child health care, are particularly poorly addressed in health policies for pastoral people (Zimmag et al., 2006). To reach equity effectiveness, a healthcare strategy and policy for nomadic pastoralists can only be one integrated element of national health policies with specific adaptations and decentralized decision-making (Tanner, 2005). An institutional framework adapted to pastoral needs and way of life could facilitate accessibility, adequacy and appropriateness of basic social services for nomadic people also in a trans-boundary context (Fokou et al., 2006). Existing health service policies are almost exclusively for settled communities (after the breakdown of socialism it is also more difficult to find exceptions in Central Asia), but what does the absence of policy for remote and partly mobile populations incorporate and how would a new policy interact with rural development policies and sustainable use of drylands?

Supported by the political drive towards decentralisation of health care and to determine resource allocation, analytical approaches that can trace the roots of ill-health beyond health services to determinants such as income and education as well as to infrastructure, environment and lifestyle, are being implemented. Better access to the governmental health system alone, without political improvement of the situation of a marginalised population, however, may not have the expected positive health impact. Even with efficient fixed or mobile clinics in pastoral zones, significant barriers to service delivery still may exist. Pastoralists have had contact with modern (western-type or international) medicine for
many decades, including through the veterinary services. Pastoralists will visit health facilities and consult physicians (Medvedeva, 1996) if information on 'successful interventions' rather than poor performance at health facilities spreads along their communication networks. Barriers to health services can be classified in geographical, economic, cultural, technical, social and political barriers (Wiese, 2004). Mobility and lack of conflict management are sometimes regarded as major barriers. For mobile populations, the geographical dispersion of groups and their spatial relationship to each other and to health services interact with other factors linked to everyday constraints.

Poverty, remoteness and marginalization of pastoral communities

Most governments of developing countries rely heavily on complementary donor funding from bilateral and multilateral partners. The ability of health systems to deliver services is constrained by declining public sector budget, loss of confidence due to unmet (increasing) expectations and needs, and a severe shortage of human resources especially of qualified personnel (Wyes et al., 2003), inadequate infrastructure and equipment, and weak monitoring and information systems (Cheneau et al., 2004) - which fuel discussions on appropriateness of health services. In socialist countries of Central Asia, the collectives provided high quality medical services through small inpatient clinics and specialized maternal care facilities in the county centres. These centres also have supported community health workers. After breakdown of the Soviet system, the government's ability to provide social services has been seriously compromised. Access was restricted to those services still functioning and where access to transport is no limiting factor (Medvedeva, 1996).

Health care facilities are unevenly distributed in most developing countries, clustered in urban areas and scarce in poor rural zones. Health facilities in rural zones rarely offer outreach services to more effectively reach the remote populations and their quality of care is generally poor since they most often lack adequate infrastructure, drugs, quality of care and supervision and, therefore, have a weak performance (Gilson, 1995; Medvedeva, 1996). In Mongolia and Inner Asia, an emerging adaptive strategy is for households to send some members to town, provincial centres and the capital to both work for wages and provide social access to town-based resources such as health care and education (Yenhu, 1996; Janés & Chuluundorj, 2004).

Quality of care offered at health facilities can be an important pull-factor and bad quality or mistrust a push-factor. Staff of formal health services is in many instances from other ethnic groups than the local rural communities (they do not choose the location of their posting and usually stay for a limited time at one health centre) and have little working experience in different cultural settings. When availability of drugs and vaccines is reduced at health centres, mobile pastoralists are likely to be excluded from treatment or vaccination (Swift et al., 1990; Omar, 1992; Azarya, 1996). Therefore, even if pastoralists seek a western type system of treatment, for example anti-malarials, they often do not consider a visit to a health centre due to fear of not receiving the needed drugs.

Gender disparities

Gender disparity, which is often deeply entrenched in pastoral societies, is an important determinant of access to health services.

While certain types of health resources fall within the female domain (home-based treatment, caring and supportive roles, and knowledge surrounding particular reproductive conditions), access to most outside health practitioners, treatments and knowledge is largely controlled by men. Next to the unavailability of transportation means, the access of women to health services depends on their social support system and the network they can mobilize in case of illness to receive the necessary resources for treatment (particularly those of male household members; the rank within co-wives is also important) (Hampshire 2002). Women cannot visit health centres or outside traditional services unaccompanied and without the permission of their husbands or fathers. The lack of a male chaperone due to spatial separation may make it impossible for women to receive the treatment they need.

Method

Participants

The sample unit was the household consisting of people dependent upon family-owned livestock for their sustenance. A sampling frame for the target population was created by listing all pastoral households across the study sites-this alone took over six months because a suitably detailed official census was unavailable. A final sample of 250 households was selected for survey. Each study site had an almost equal distribution of about 125 households. The wealthier and highly educated classes among the Galesh were sampled in proportion to their occurrence. Wealthier, middle-class, and poorer households in the sample were segregated in the case studies.

The sampling design was random stratified. With snowball sampling being used to go from one to another Galesh respondent. Finally, we wanted to sample only "visible" pastoral households, and thus we did not consider pastoralists who had no stocks at all or had taken to a totally non-pastoralist way of life.

Results reported here were obtained using two surveys implemented over a summer and winter period to include all forms of climatic changes. I was successful in interviewing nearly all households in our sampling frame. For both surveys about 90% of designated households participated. Our household-level data lead us to speculate that declines in food security and wealth appeared more attributable to an increase in the human population rather than any or a total drop in the live stocks.

Besides human population growth, the next most important factor contributing to reduced productivity and heightened food insecurity here may indeed be loss of key resources, fall-back on grazing reserves, and environmental degradation. This has been exacerbated by government initiatives that have reallocated critical grazing.

Cultivation started to become widespread as people opportunistically planted 'Shaltuk' or long grain rice to deal with food gaps created by massive sheep mortality, especially for vulnerable flocks. It could be expected that cultivation would predominate among the poorer rather than wealthier households simply because the poorer households have fewer livestock per capita and less ability to purchase food (Hogg, 1986). We found in our current effort, however, that wealthier and middle-class households were also heavily engaged in cultivation as they attempted to mitigate pressure to sell their livestock to buy grain (Desta, 1999).
It would therefore seem that in certain locales a transformation of pastoralism to agropastoralism was being driven by an increase in the human population and decrease in the number of livestock. Despite the equivocal nature of the sheep and goat data, many households interviewed declared that one of their goals has been to increase small ruminant production. Survey respondents commonly expressed a need for opportunities to diversify their economy, given the concurrent pressures on the traditional resources.

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**Changed situations changed paradigms**

If the damdar can find a shepherd, then he will accompany the herd after the arrival of the livestock in the lowland rangelands, and take it to the rented rangelands every day. Galesh pastoralists have to rent lowland rangelands for about two months in the grazing season, because the lowland rangeland located outside belongs to another village. The damdar rents these rangelands for the entire group. At that time, the herd is a mixture of small and adult animals. No milking is done in the 4-day birthing period and the small animals can have all the milk of their mothers. However, when a small animal dies, the pastoralists go on milking the mother to prevent lactation from stopping. Animals that cannot be milked are called Mijak (dry animals). When the milking season has started, the herds are reunited for one hour after each milking turn so that the small animals can have the remaining milk from their mothers.

These traditional considerations, however, have undergone a sea change because the changed lifestyles and the changed situations of the Galesh pastoralists have made the old ways of their ancestors redundant and impractical.

In the high and middle rangelands, an annual rotation system is in place to make sure that all pastoralists have equal access to choice grazing lands. The middle rangelands are much preferred because they are near to the pastoralists’ homes and families and feel safer than the more remote areas.

On the 12th of September, the herds are brought down to the middle rangelands again and stay there for 13 to 16 days. The end of this period coincides with the end of the milking period. After that, the herds arrive at the Alaf Chin rangelands and stay there for approximately one month (October). The small and adult animals stay together in a united herd until the end of October because the milking period is over and the animals need to put on weight to be able to survive the harsh winter months. When the livestock is in the middle rangelands, every villager harvests forage from the Alaf Chin and stores it in his house, usually on the second floor of the building, for the winter stable feeding. In November and until late December, the herds are moved to the Beyne Rahi rangelands of Middle Taleghan region and stay for two months. Small and adult animals continue to graze together here and are accompanied by the shepherds. Sometimes, to decrease costs, just one shepherd takes care of the herd and the other pastoralists help him in rotation.

In January, the herds go back to Nariyan village. Every pastoralist stables his animals and feeds them three times a day. Winter does not mean time off for the pastoralists, because it is the breeding period and regular stable feeding requires plenty of time.

Pastoralists use several methods to hold their herds together. The animals are trained to listen and react to particular words and sounds. These sounds guide and direct them to the water or grazing ground, or they may forbid movements. A bell is usually tied to a buck (kal), because the pastoralists believe that the kal is intelligent and reacts very quickly in case of danger, alerting the shepherd’s dog to combat the danger. The sound of the kal’s bell indicates the speed of the herd’s movement to all of the animals and prevents the shepherd from falling asleep. One pastoralist told us “... that experienced thieves will first silence the sound of dogs and the livestock’s bell”. Some pastoralists believe that old, experienced livestock help keep the herd together because they are used to moving in groups and show courage by encircling young livestock in case of danger. According one of the Galesh of Alborz mountain heights, the livestock does not sleep until they find a suitable and desirable place for resting. A desirable place is usually at a higher level than the surrounding area and the site opposite of this resting place should have the shape of a crescent. The livestock prefer these places to have a full view of the surrounding area. After staying in this selected place, the livestock guards itself and if it feels any danger, they warn the other members and the shepherd and his dog by making some typical noises.

**Policy implications and recommendations**

With neither outside assistance nor support from government subsidies, the Nariyan pastoralist tradition has, according to what informants reported in informal interviews, survived almost unchanged for centuries. Livestock rearing, based on intricate traditional knowledge and practice of grazing land economy, seems to have been a showcase-like precedent of the sustainability concept long before the latter became a key term in environmental sciences and policy. Its economic viability is thus beyond doubt and its social foundation, a prerequisite, has maintained the virtues of cooperation in livestock rearing on a basis of reciprocity and mutual cooperation and without altering the social hierarchies among herd managers. Rangeland management in the Taleghan region is an example where an adequate contribution to a local subsistence economy from transhumance can be realized without violating the fodder-providing capacity of the grazing land.

The environmental conditions and the socio-cultural responses to them fulfill the demands of this livelihood system and make for an intricately woven fabric of this unique ensemble of nature and culture (Seeland, 1997). Persistence in maintaining the tradition of renewable resource management is imperative to making a sustainable living even when the socio-political conditions are not favoring it, as was the case in Taleghan following the land-use reform of 1963. In resource-use regimes that are managed under conditions of scarcity, with a very limited labor force, indigenous
environmental knowledge becomes the key resource of sustainability. Berkes et al. (2000) characterize indigenous ecological knowledge as a “library of information” that can be used to overcome the challenges related to dynamic changes in complex ecosystems. Ingold (2011) and Ingold and Kurttila (2000) have made valuable contributions in this context by approaching the traditional ecological knowledge (TEK) of pastoralists through the perceived environment in boreal cultures. Various examples on the use of traditional ecological knowledge as a means of adaptation under changing climatic conditions are provided by Nakashima et al. (2012) who relate it to contemporary challenges of global warming.

Conclusion

Therefore, the foregoing discussion proves that the Indigenous ecological knowledge plays a very vital role, especially at the local level, regarding the sustainable use of natural resources in the context of animal husbandry. The ecological knowledge of pastoralists of whom both men and women are equivalent repositories has so far maintained sustainable rangeland management in this region through adaptive rangeland management strategies; landscape classification; knowledge of plant-animal interactions, plant characteristics, and acceptability of the plants by their livestock; treatment of animals with plants; herd conservation and composition methods; and estimation of overall grazing capacity of the entire herd in suffering at any given time at any given location.

Thus it can be concluded that the older ancient time tried followways and mores of the Galesh have stood them well through the various harsh changes of life patterns as dictated by climate, nature and terrain but they have adhered to their traditional heritage of the little peoples: current issues, future prospects. In New York: Oxford: Berghahn books, pp. 35-52.

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