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The veterinary system of the pastoral Pokot

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Introduction

While ethnomedicine has many adherents amongst anthropologists, scientists dealing with indigenous ways to treat animal diseases are still rare (McCorkle 1986: 132). Frequently the incentive to focus anthropological research on veterinary ethnosemantics, indigenous pharmacology, veterinary manipulative techniques or traditional beliefs concerning livestock diseases comes from veterinarians in development projects (Young 1989, 1990, McCorkle 1991). They face livestock-based economies where people have developed methods to cure sick livestock over a long time. Although these methods sometimes do not match easily with western veterinary science, it is widely acknowledged today that herders have developed comprehensive systems of analysing livestock diseases and frequently have found effective ways to treat sick animals. To work on this interesting subject as an anthropologist, of course, entails several problems. While there is on the one hand a definite deficit in identifying and analysing livestock diseases from a physical point of view, there is on the other hand the qualification to follow up concepts of diagnosis and treatments and to analyse an indigenous veterinary system as one sector of a more encompassing knowledge system.

It is the aim of this paper to describe the traditional veterinary system in one pastoral culture – that of the Pokot

pastoralists who herd their livestock in the semi-arid savanna of Northwestern Kenya. I will address the semantics of veterinary diagnosis and describe prophylactic and curative treatments involving the application of herbal medicines, manipulative techniques (e.g. cauterization) and magico-religious devices (e.g. blessings). In the last paragraph I will touch upon the fact that nowadays traditional and modern medicines are frequently used at the same time. Quantitative data on livestock diseases were gathered in the summer and autumn of 1988 in cooperation with a veterinarian (Young 1989). After we had obtained a list and an estimate of the frequency of major livestock diseases, I set out to document the traditional veterinary skills of Pokot herders. Further information was gathered on two shorter periods of field-research in spring 1991 and spring 1992.

The environment the Pokot live in is characterized by thornbush communities interspersed with patches of grassland. Minor habitats are gallery forests along the few seasonal rivers, bare and rocky plains and totally eroded spots marked by numerous erosion gullies and the lack of any vegetation. The Pokot possess large herds of cattle, camels, goats, sheep and donkeys. The basic social unit organizing the husbandry of herds is the polygynous household (Bollig 1990, 1992). Cattle, camel and smallstock are usually herded separately, and Pokot fully acknowledge the different nutri-

tional needs of each species. While there are specialists for the treatment of human diseases there are no corresponding specialists for the treatment of sick animals.

Major lethal and non-lethal diseases in Pokot herds

Pokot herds are affected by a number of more or less serious livestock-diseases. Epidemics like rinderpest, East Coast fever or anthrax swept through Pokot-herds and occasionally still do so today. Tick- and fly-borne diseases are endemic in some parts of Pokot-land. Table I gives an idea of the interrelation between livestock-diseases, mortality rates and herd off-take in general.

Around 10 % of all animals of each species die of some disease – i.e. one tenth of a herders' capital is eliminated continuously. This rate must have been even higher when western medicine was not available and, of course, is still higher when epidemics occur, nowadays. Hence there was and still is ample motivation for livestock entrepreneurs to look for efficient means to reduce losses due to disease. Table II summarizes and quan-

tifies causes of premature death.

Veterinary ethnosemantics and concepts of disease

Names of diseases frequently represent the affected part of the body: *psosoi*, literally "lungs", is the term for pneumonia (also for bovine contagious pleuropneumonia), *somewö kirisyö*, "disease of udder", stands for mastitis, *tiompö mu*, "things of the stomach", for worms and *chepkelyon*, "thing of the claw", for footrot. Other terms describe symptoms of diseases: *kiplok*, "shedding tears", the term for rinderpest, refers to the weeping eyes of affected cattle; *pkisön*, "the bleeding", presumably refers to symptoms of Babesiosis. *Chepirpirmöt*, "dizzy head", a disease-name applied to a recently introduced camels' disease was coined, as the animal in the final stage of the disease stands swaying its head or runs around without any sense of orientation (see table III).

Some terms for diseases are borrowed from other languages. *Cholera*, a term apparently covering symptoms of several camel disease syndromes involving

Table I. Fate of Livestock by Species (as percentage of animals of each species¹)

Fate	Camels		Cattle		Goat		Sheep	
	n	%	n	%	n	%	n	%
In Herd	612	47.1	519	54.5	325	48.3	201	45.7
Died of Disease	129	9.9	95	10.0	98	14.6	60	13.6
Died of Other Cause	110	8.5	102	10.7	100	14.9	47	10.7
Sold	124	9.5	54	5.7	46	6.8	28	6.4
Slaughtered	61	4.7	21	2.2	31	4.6	44	10.0
Gifted	100	7.7	54	5.7	33	4.9	27	6.1
Exchanged	66	5.1	19	2.0	8	1.2	11	2.5
Lost	4	0.3	1	0.1	1	0.2	1	0.2
Stolen	23	1.8	21	2.2	(?)		20	4.6
Other unknown	64	4.9	51	5.4	30	4.5	–	
total	7	0.6	16	1.7	1	0.2	–	
	1300		953		673		440	

Table II. Causes of premature death²

Cause of Death	Camels	Cattle	Goat	Sheep
Diseases	n	n	n	n
Lokurucha (trypano.)	8	10	-	-
Kiyitagh (diahorrea)	14	2	17	3
Simpiriyon (mange)	-	1	-	-
Tiompö Mu (worms)	8	20	11	4
Lomitinaa (unspec.)	7	-	-	-
Tilis (ticks)	29	-	-	-
Lipis/Cheptikon	10	27	-	-
Psosoi (pneumonia)	4	-	7	1
Lowkoi (CCPP)	-	-	5	-
Ngoriyon (F & M)	11	14	-	-
Lessana (bloat)	2	5	2	-
Musarer (bloat)	1	51	-	-
Wutöt (evil eye)	2	16	-	-
- (too much milk)	9	1	-	-
Solwö (abnormality)	1	-	-	-
Ngirimen (orf)	3	-	2	3
- (swollen knees)	2	1	-	-
Rolyon (coughing)	4	-	-	1
Cherempes (unspec.)	-	-	4	-
Pngerat (enterotox.)	-	-	36	-
Pkoghogh (unspec.)	-	-	7	-
Kipsiki (unspec.)	-	-	1	1
Chepkelyon (footrot)	-	-	1	-
Lotil (poisoning)	-	-	-	44
unknown disease	14	9	5	3
Premature deaths not caused by disease				
Famine	31	61	52	24
Injury	32	8	-	-
Birth Difficulty	11	3	1	2
Snake Bite	1	1	-	-
Cold shock from rain	1	-	-	-
Predator	52	25	47	20
Other	9	4	-	1
Total	238	100	100	107

heavy diahorrea, is obviously of recent origin and a simple reapplication of an English term for a human disease which also causes heavy and bloody diahorrea. *Lipis*, East Coast Fever, is the Samburu term for the dreaded disease; as East Coast Fever entered Pokot area fre-

quently from the east, *i.e.* from Samburu land, the borrowing of the term is easily understandable. Sometimes *Cheptikon* is used as an alternative term; however, informants said that it rather refers to a variant of the disease which came from the mountainous area of West Pokot.

Table III. Livestock diseases: vernacular terms and identification.

Pokot Name	Species Affected:				Veterinary Name or main symptom
	Camels	Cattle	Goats	Sheep	
<i>Cholera</i>	X				symptom: diahorrea
<i>Lomitinaa</i>	X				unspec.
<i>Psosoi</i>	X	X	X	X	Pneumonia (also BPP)
<i>Ngirimen</i>	X		X	X	Orf
<i>Lipis</i>		X			East Cost Fever
<i>Simpiriyon</i>	X		X		Mange (?) ³
<i>Somewö-kirisyö</i>	X	X	X	X	Mastitis
<i>Lotil</i>				X	Plant poisoning
<i>Lokurdoo</i>	X	X	X		unspec.
<i>Lokurucha</i>	X	X			Trypanosomiasis
<i>Tiompö mu</i>	X	X	X	X	Worms
<i>Tilis</i>	X	X	X	X	Ticks
<i>Ngwölöy</i>	X	X	X	X	symptom: limping
<i>Pkat</i>		X			Black Quarter
<i>Lokichum</i>		X			Anthrax
<i>Ngoriyon</i>		X			Foot and Mouth
<i>Kiplok</i>		X			Rinderpest
<i>Toroi</i>		X			Anaplasmosis
<i>Musarer</i>		X			Bloat (?)
<i>Pkoghogh</i>		X	X		unspec.
<i>Lessana</i>		X	X	X	Bloat
<i>Pkisön</i>		X			Babesiosis
<i>Chebloyos</i>		X			Ephemeral fever
<i>Ratata parwa</i>	X	X	X	X	Retained afterbirth
<i>Somewö minyon</i>		X			Lumpy skin disease
<i>Tonöt</i>	X	X	X	X	Abortion
<i>Mokoyon</i>			X		Streptothricosis (?)
<i>Psekö</i>			X		unspec.
<i>Pngerat</i>			X		Enterotoxaemia (?)
<i>Lopedokow</i>		X	X		unspec.
<i>Chepcherim</i>			X		Tetanus
<i>Chepkelyon</i>			X	X	Footrot
<i>Loporporiya</i>			X		unspec.
<i>Chepirpimöt</i>	X		X	X	Heartwater (?)
<i>Lowkoi</i>			X		Cont. cap. pneumonia
<i>Cherempes</i>			X		unspec.
<i>Kipsiki</i>			X	X	unspec.

Lowkoi, is the Turkana name for contagious caprine pleuropneumonia (CCPP). Pokot assume that the disease first occurred with goats which were stolen

from Turkana in the early sixties.

Still other disease terms name the cause of the disease: *lotil* (*Ruellia patula*) is the poisonous plant, which causes poi-

soning of sheep. Especially during wet years *lotil* is a major killer disease in sheep herds while other livestock species are not affected at all. Other grasses like the green *amuret* (*Cleome cf. parvipetala*) and *amekunyán* (*Indigofera spec.*) may also cause poisoning. Symptoms are also presumed under the term *lotil*. *Tilis*, ticks, is a general term for the first state of tick-infestation, before resulting in more dangerous diseases; several sub-species of ticks are differentiated. *Lokurucha*, trypanosomiasis, is the name for the fly (*Glossina spec.*), the vector of the disease, as well as for the disease itself. Many other names for livestock diseases could neither be connected to semantic origins nor traced back to specific ways a disease entered Pokot land.

Pokot herders have an intimate knowledge of the etiology of most of these diseases. They seem to differentiate between vector-borne diseases (e.g. fly-borne, tick-borne), contagious diseases (e.g. Anthrax, Rinderpest), and deficiency diseases – although there are no generic terms for these types of livestock diseases. Pokot ideas on the causes for livestock diseases resemble their concepts about human diseases. They explain disease causation at two levels and accordingly treat diseases in a two-dimensional way: on the one hand, every disease has its cause in the malevolent attitudes of personal opponents. These may bewitch, curse or cast an evil eye on somebody's livestock. Nothing is more certain than that a magical attack results in physical damage. Even intense negative emotions (conceptualized as hatred or envy in the vernacular) of one's enemy can cause severe damages to the livestock. On the other hand Pokot explain disease etiology very well at a physical level too. Many livestock diseases, be they due to vectors, due to contact with sick animals, or due to deficiency result in detrimental body fluids. Frequently it is said that a

certain disease is a "disease of the intestines", but rarely was there any reasoning as to how body fluids were altered or what actually was in the intestines to make the animal sick. The treatment of many diseases involves administering concoctions orally to cause diahorrea (rarely vomiting) in order to remove "bad" liquids. On the one hand this seems to aim at "removing" the disease physically, on the other hand this act of purging takes out the state of disease. This act of purification can be enforced by prayers, curses and blessings aiming at the restoration of the former healthy state of the animal.

Pokot clearly relate certain disease vectors to specific diseases. They thus differentiate between three sorts of ticks (*tilis*) causing disease. The *sinkur*-ticks cause *somewö kirisyö* (literally disease of the udder) and sometimes affect the nostrils of camels, cattle or goats. If they enter into the head *via* nostrils they may cause *chepirpirmöt*. The *kipesay*-ticks only affect udders but obviously do not result in mastitis. *Chepötutu*-ticks affect the ears of goats and cattle. Informants were moderately sure that ticks of the *chepötutu* type cause East Coast Fever. While the last sort of ticks are red, the two others are only discernible by size. *Ngirimen*, orf, is transmitted by unspecified ticks – or in the words of an informant is "caused by the poison of ticks" – this may be an indigenous version of disease transmission *via* a vector. Ticks are differentiated from lice. These are either of the *kömöt* (unspecified) or *ngisir* sort, both of which are unspecified. Both sorts nest in the hair of all livestock species. *Kömöt* are the cause for *pngerat* (enterotoxaemia). Flies are another vector of disease. The most dangerous fly is *lokurucha* (*Glossina spec.*) which causes trypanosomiasis. A fly called *lokodongor* (unspecified) is thought to cause *pkisön* (Babesiosis). Picking off ticks and lice or

washing affected animals with certain concoctions are major curative devices. Other diseases are "in the grass" or "in the dust". These are usually severe epidemics against which traditional medicine has found little help.

Veterinary diagnosis and treatment

Pokot know plenty of herbal medicines; probably more than one hundred are used for human treatment. Those used for the treatment of livestock are much less, perhaps twenty or thirty. Pokot differentiate between herbal medicines that cure directly and those that cure via purging. Cauterization and minor operations are the major veterinary manipulative techniques. There are further techniques which satisfy the herdowner's aesthetic sense and serve him as a social strategy: ears are cut to represent clan specific patterns, horns are bent and burnings are put like tattoos on the body. Blessings or rituals may accompany the treatment.

The more Pokot know about the etiology of a certain disease the more specific is their treatment. A rather un-specific treatment is frequently applied to major lethal livestock-diseases like Rinderpest and East Coast Fever. Many herders did admit that administering concoctions in such cases frequently does not meet with success. Treatments of such diseases varied considerably between informants, and one got the impression of trial-and-error experiments rather than of clearcut standards of treatment; basically everything which acts as an efficient purgative may be applied. Sometimes several herbs are mixed to maximize the effect. Intracultural variation is rather low when it comes to the treatment of frequent livestock diseases.

Here standards of treatment exist and even younger herdboys will be able to name the remedies generally preferred.

Treatment of specific diseases

Cholera: the head of a sheep is burned in the ashes of a fire. It is put in a pot and a soup is prepared. The concoction is administered orally. This causes the animal to diarrhoea even more; an oral infusion of a concoction of smashed *sorich* fruits (*Boscia coreacea*) or alternatively unripe *sorich* fruits has the same effect.

Lomitinaa (as to the correct specification of this disease I am rather at odds; while a tentative specification of a Kenyan veterinarian was "camel pox", I. Köhler-Rollefson (pers. comm.), an expert on camel-physiology, suggested that the treatment points more towards a deficiency disease, probably cutaneous skin necrosis): The disease is identified as a deficiency disease. In order to prevent *lomitinaa* camels are frequently taken to browse in areas where the salt content of the earth is high. Sometimes a sack of salty earth is brought home and placed in the camels' enclosure. Only when an animal is already very sick may several buckets of soda ash (*pariyan*) dissolved in water be applied in order to cause diarrhoea. The entire plant of *sukur* (*Kleinia spec.*) is smashed and put in water for some time. The infusion is then rubbed on the camel's body. A concoction from a fried sheep's tail may be administered in order to cause vomiting.

Psosoi (pneumonia and BPP): The disease may result from cold-shock in goat kids or from contact with affected cattle (BPP). A number of devices are applied in order to cure pneumonia. The bark of *sökwon* (*Cyperus alternifolius*⁴) is pounded and dissolved; administered orally it will cause slight diarrhoea. A concoction of

tobacco will have a similar effect. A solution of the pounded fibres of *malutyan* roots (*Cissampelas pareira*) causes intensive urinating. In either case the disease is taken out with feces or urine. These treatments may be accompanied by cauterizing the ribs and washing the animal with soda ash. Pokot obviously never applied the method of primitive vaccination that the Samburu practice: there the lungs of an animal which died of the disease were dried and pounded and then smeared on cuts which are made on the nostrils of the animal.

Ngirimen (orf): the disease specially affects goat kids. If a herder fears that orf may effect his herd of kids he will apply burns on the head of every kid as a prophylactic device. As treatment a paste of boiled *kinyotwö* fruits (*Ximenia americana* or *Ximenia caffra*) is smeared on the affected parts around the kids' snouts. Camels are affected by *ngirimen*, too. However, there are indications that here the term refers to camel pox, as the blisters on the camels' lips may be a sign of that lethal disease (I. Köhler-Rollefson: pers. comm.). *Ngirimen* in camels is treated in the following way: the blisters on the camel's lips are smoothed with the fat from a fat-tailed sheep. A certain blessing may or may not accompany this treatment: at the entrance of the camels' enclosure a yellowish or chequered goat ram is slaughtered. He is not killed in the standard way but his stomach is slit open. Then the stomach contents are thrown at the camels.

Lipis or *cheptikon* (East Coast Fever): Strangely enough most informants pointed out that only *cheptikon* may be treated traditionally, while for *lipis* only modern medicine will meet with success. A soup prepared from a ram's head is administered orally and causes heavy diahorrea. Not yet fully fermented honey beer may fulfill the same function. However, informants pointed out that tradi-

tional treatment frequently did not have the desired results.

Simpiriyon (mange, the identification is not clear): this is identified as a disease of the intestines. Salty water, or water containing high concentrations of soda ash will purify the intestines. Consequently affected animals are driven to pools of salty water near Kapedo. The animals are then made to drink the salty water and bathe in the pools. However, I. Köhler-Rollefson suggested that this treatment will not do much good to the animal and on account of this doubted the identification of *simpiriyon* as mange. The treatment may indicate a salt deficiency causing skin problems. Nowadays, washing the animal with specific veterinary drugs is the more successful method of curing.

Somewö kirisyö (mastitis): the disease is caused by ticks of the *sinkur*-type (however, veterinary science states that mastitis is rarely caused by ticks - Köhler-Rollefson: personal communication) and is most effectively fought by cauterizing the upper-parts of the hips. The burns should have the shape of a diagonal cross.

Lotil (plant poisoning): all cures aim at taking out the poisonous plant by causing diahorrea. Either a solution of ashes (*oriyon*) or a mixture of fermented milk (*soyö*) plus ashes is administered orally. Sometimes the ear-tips of sick sheep are cut - nobody could explain why.

Lokuruca (trypanosomiasis): all livestock species are affected by trypanosomiasis. The treatment is aimed at causing diahorrea in order to purge the body of the sick animal. However, the medicines applied differ. With camels diahorrea is most efficiently caused by solutions from pounded roots of *chepopet* (*Clerodendrum spec.*), from pounded root and bark from *pelel* (*Acacia nubica*) or from dried and pounded fruits and bark from *songowowö* (*Zanthoxylon chalybeum*).

Another purgative is produced from ashes of the root of *asiokonyon* (*Salvadora persica*) which are mixed in water. While camels respond favourably to this solution, cattle do not. For cattle the most effective concoction is produced from pounded bark of *mesiampo* (unspecified). But a *chepopet* solution will also work. One informant gave another effective purgative for cattle befallen by trypanosomiasis: a goat is slaughtered and the milk of *kereswö* (*Leucas pratensis*) is inserted into the stomach with its contents intact. After a while the stomach is pressed and the liquid coming out administered to the animal. Goats and sheep are administered solutions of pounded *songowowö* fruits (*Zanthoxylon chalybeum*) or *sökwon* (*Cyperus alternifolius*) leaves.

Tiompö mu (worms): like western medicines traditional devices aim at taking out worms by diahorrea. Solutions made from *ngirimen*-roots (*Digera muricata*), *mikitenwö*-roots (*Talinum portulacifolium*) or *sakatet*-fruits (unidentified) are used. The purgative produced from the bark of *kamakitin* (*Albizia anthelmentica*, pers. comm., M. Rottland) is frequently used to counter worms in all livestock species. A concoction from the pounded roots of *kabaramen* (*Locsonia inermis*) is thought to be best tuned to purge worms from goat kids.

Tilis (ticks): two treatments are combined. The animal is washed with several solutions which may be, especially for camels, based on pounded roots and leaves of *chebliswö* (*Maerua subcordata*); on *asupka* (*Sarcostemma vivinale*) for goat kids; and on the juice of pounded fruits of *kaliya* (unidentified) for camels and cattle. At the same time blisters from tick-infection are lesioned by the application of sheep's fat. A solution of smashed fruits of *songowowö* (*Zanthoxylon chalybeum*) may be applied orally. One informant stated that a concoction produced

from smashed roots and leaves is used to wash an animal if lice of the *komöt-tyt* have befallen it.

Pkat or *kipkat* (Black Quarter): this disease which is "in grass and water" only affects cattle. One of its symptoms are swollen glands, for which there is no effective cure. The only treatment known are burns along neck and ribs.

Lokichum (anthrax): a disease which according to Pokot disease etiology is "in the ground" (which is not in accordance with western veterinary medicine – I Köhler-Rollefson: pers. comm.). It occasionally appears in the late rainy season and dry season and, according to several informants, seems to be connected with dust. One informant remarked that the disease is actually "in the dust" and, if an epidemic is ravaging the country, dust is blown up during this time of the year as the disease spreads. Traditionally the root of *tolgos* (*Aloe spec.*) and the bark of *asekonyon* (*Salvadora persica*) are both pounded and boiled. The concoction is administered orally and causes diahorrea. Nowadays, the chemical for colouring jeans, widely used to paint the headdresses of adult Pokot men, is mixed with kerosene. This mixture is administered orally and (quite understandably) causes heavy diahorrea as well.

Ngoriyon (Foot and Mouth): the disease affects cattle only. The hoofs of sick animals are swollen and wounds may be found on the tongue. These wounds are opened and cleansed. However, this treatment seems to have been of limited value. One informant added that the ribs were cauterized. The milk of affected cows became "poisonous" and in order to prevent calves from drinking it these cows had to be milked "empty" for many days, not leaving a drop which might endanger the calf.

Kiplok (Rinderpest): the disease is "in water and grass". Buffaloes, warthogs and several antelopes (especially *ptuko*)

who are also affected by the disease, transport it from waterpool to waterpool, and from grazing area to grazing area. It causes diahorrea which becomes bloody after a day. The eyes of the sick animal water, blisters are soon found all over the body, and the animal dies within two or three days. Most informants pointed out that within the traditional system there were no cures for *kiplok*. However, some medicines had been tried. A concoction of fruits of the *seria* tree (unidentified) is administered to cause diahorrea. In any case the sick animal will be taken out of the cattle enclosure because its "dangerous shadow" (*rurwö*) will transfer the epidemic to other animals. Informants remarked that animals which survived one epidemic of rinderpest obviously became resistant as they never fell ill again with this dreaded disease.

Toroi (anaplasmosis): according to Pokot informants this disease is caused by water which is infested by *wurwur* (described as "small animals with tails living only in water", unidentified). A large quantity of butteroil is administered. This absorbs the *wurwur* in the intestines and takes them out with diahorrea. Informants added that *wurwur*-infested water can be drunk by humans without any problem.

Musarer (bloat): the disease appears especially during the early rainy season. Animals eating too much fresh *seret* (*Cynodon nlemfuensis*) get slightly swollen stomachs. When the *seret* grass has grown there is no danger anymore. Some tobacco may be given to affected goats or cattle "to burn the stomach", some tobacco is put into the eyes. Additionally blood is drawn from the sick animal.

Pkoghogh (unidentified): the disease occurs frequently with cattle which are transferred from highland pastures to the lowland. Also "cattle having hot blood" are frequently affected. Pokot say that the liver of the animal is affected first. A con-

coction from either bark of the *mesiampo*-tree (unidentified) or from bark plus fruits from *songowowö* (*Zanthoxylon chalybeum*) is administered.

Lessana (bloat): the disease occurs with cattle when, after a long day of grazing, they are led to browse fresh leaves for another period of time. Grasses causing this type of bloat are mainly *asekuriyon* (unspecified), *amaretyon* (*Cleome cf. parvifolia*) and *amekunyanyan* (*Indigofera spec.*). With the help of a small arrow the stomach is cut open about one centimeter in length. Then the wound is held open with one finger to let the gas out.

Pkisön (Babesiosis): the disease is caused by a fly called *lokodongor* (unspecified). It is identified as a disease of the intestines. Consequently a diahorrea-therapy is adequate. Unripe honeybeer or fat from a sheep's tail may be administered to this end.

Cheblios (ephemeral fever): against this dreaded disease, which is in "water and grass", no traditional cure is known.

Ratata parwa (retained afterbirth): it is treated by administering a concoction from the root of the *iwak*-tree (*Sanseveria conspicua*). Alternatively the bark of *ses* (*Acacia tortilis*) may be used. Sometimes the concoction is mixed with the dung of a donkey. Pokot believe that this medicine is very effective.

Somewö minyon (lumpy skin disease): this disease affecting cattle is caused by the *kapirmöt*-fly (unspecified), which sucks blood; subsequently the bite gets infected and the animal loses hair around the wound. The milk from the *tonat*-tree (unspecified) is rubbed on affected parts of the body to "burn" the disease. If *tonat* is not available the milk of *motökörwö* (*Euphorbia heterochroma*) is used. To soften blisters, honey may be applied but this is regarded as too expensive a treatment.

Mokoyon (*streptothriciosis*): only goats are affected by this disease which is said

to be "in the water". Apparently no traditional treatment is known.

Turunogh (abortion): immediately after abortion, a concoction based on the root of *iwak* ((*Sanseveria conspicua*) is administered to bring the womb back into its correct position. After an animal has aborted two or three times the *tapa*-ritual is performed for the animal in order to purify it from the bad shadow (*rurwö*) it got from contact with the dead foetus. This ritual is also frequently done for humans who feel weak.

Psekö (unidentified): this disease affecting goats is "in the water". It is classified as a disease of the intestines. Hence, a purgative is the remedy. In this case diarrhoea is caused by administering ghee.

Pngerat (enterotoxaemia): the disease, mainly affecting goat kids, is caused by a subspecies of lice which was not given a name by the informants. The blood of a goat, a cow, or honey is dissolved in water and administered to cause a slight diarrhoea.

Lopedokow (unidentified): the disease affects the base of goats' horns. It is caused by ticks of the *sinkur* type (unidentified). Sometimes when bucks fight *sinkur* get into the blood easily and leave small wounds at the base of the horns. There are several curatives: the leaves of *tuwöt* (*Diospyros scabra*) are chewed and then placed on the infected wound. Alternatively the chewed leaves of *kaparsamugh* (*Acalypha fruticosa*) may be placed on it. The concoction resulting from boiling *kinyotwö*-fruits (*Ximenia americana*) is smeared on the wounds. If available the latter treatment is deemed to be the more effective.

Chepcherim (tetanus): this disease affecting all animals is caused by a small fly living usually in termite hills. Neck and spine are cauterized. Additionally, affected cattle may be given a concoction from the bark of *motökörwö* (*Euphorbia*

heterochroma). This causes diarrhoea and takes out the disease.

Chepkelyon (footrot): footrot mainly affects goats. It is caused by a "worm" also called *chepkelyon*. A similar disease with cattle is called *liptaltal* (unidentified). The wound is effectively treated with the stock resulting from boiling the fruits of *kinyotwö* (*Ximenia americana*). Alternatively or before applying the *kinyotwö*-stock the wound may be rubbed with soda ash. Crushed leaves of *tilingwo* (*Meyna tetraphylla*) are sometimes put between infected hooves.

Koloswö (or *kipkoloswö*, unidentified, coined as "a disease of the liver"; the same name is used for hepatitis): This disease is "in the water". Like rinderpest, sick warthogs bring the disease to water pools where livestock take it up. The green bark of *koloswö* (*Terminalia brownii*) is pounded and placed in water for some time. The concoction is administered orally.

Loporporiya (unidentified): kids and lambs are particularly affected. The disease is said to be "in the trees" or "in the water". It is caused by the fruits of *ses* (*Acacia tortilis*) and *asekonyon* (*Salvadora persica*) or leaves of a grass called *lokingar* (unidentified, probably a Turkana term). The disease is, according to informants, mainly found along the gallery forests. It is especially the fat kids which are affected, rarely the thin ones; hence, one informant remarked, slaughter is a frequent treatment. One curative effort entails cauterizing the back of the sick animal.

Chepirpirmöt (perhaps heartwater, but today used to denote a hitherto unknown camels' disease; the first treatment given here does not relate to this recent application of the term). Another disease caused by ticks of the *sinkur* (unspecified) type. The ticks enter the head, whereas when affected by *lopedokow* they only affect the base of the horns. Nowadays

the disease is only treated with antibiotics. Traditionally both sides of the head were cauterized.

Recently camels were affected by a disease which, according to all informants had never been noted before (Bollig 1992b). Abortions at early stages of the disease and severe disturbances of the orientational system (*i.e.* the camel runs around in a circle, or sways its head) during the later phases were symptoms of the disease. After some time the disease which killed up to 60% of Pokot camels in the central Loyamoruk area, the disease was coined *chepirpirmöt*. The etiology of the disease was construed in the following way by some, though not all, informants: ticks of an unknown type were entering the brain via the ears and caused mental disturbance. However, there was still a lot of disagreement on the exact diagnosis of the disease. Although Pokot spent quite a lot on modern medicine for these camels they did not have any success. Traditional treatment confined itself to magical intervention. Herbal medicines or cauterization were not tried.

Animal health management

All herders are aware of the fact that livestock need a well tuned diet to stay healthy. Different species have different needs when it comes to the consumption of minerals. Camels are separated from cattle and smallstock. Calves and the kids of smallstock are herded near the homestead, away from the adult stock in order to prevent them from suckling. Differentiated daily migration courses for each species are carefully planned in order to grant animals access to different qualities of browsing and grazing. In the morning the herd-owner will give his herdsboys detailed descriptions of the routes they should take with each herd.

Rarely does a herd graze or browse for several hours in one place. Herding is an active task and is not just protecting animals against predators. Camels, because of their need for mineral salts and the scarcity of places to obtain mineral salts, present the biggest problem. The most important prophylactic device to ensure good health of camel herds is to bring them to places with high concentrations of salt. Pastures with grasses of high salt content are found around Nginyang and from Kapedo onwards to the Turkana plains. An alternative is to bring camels to *orusyion* – places with fountains of saline hot water. Most *orusyion* are near Lomelo in Turkana country; hence in the last decades these fountains could not be used due to interethnic raiding. Keeping hygienic measures within the livestock enclosure is another way to hinder the spread of infectious diseases. A measure to prevent tick infestation in camel herds is to put donkeys for some days in their kraals or to splatter donkeys' urine into the interior of the camels' enclosure.

Before the herds are taken out in the morning the herd-owner scrutinizes the health of his animals. Although this sometimes seems to be a hasty business, herd-owners apparently pick out sick animals very efficiently. Usually they were briefed by their herdsboys about the state of certain animals the preceding evening. This may be a generalized statement of a small herdsboy ("*kituru arte*", the goat is sick) or an elaborate description on grazing and flocking behaviour by an older boy. Animals reported to be sick will be looked after carefully. Minor problems are treated on the spot: infected swellings from footrot are opened and pus washed out, wounds are treated with traditional medicine or modern antibiotic powders or sprays, and ticks are picked off. If there are signs that the animal may become severely sick, a broad-spectrum antibiotic is in-

jected. Almost every household possesses a syringe and many have some antibiotics in store. If an animal is too sick to walk with the herd it will stay within the livestock enclosure and the herd-owner will think about more appropriate methods to restore its health.

Herbal treatments

There are some treatments which are administered when a special disease is not yet diagnosed but the animal is thought to be sick or weak (*kituru*). A concoction based on the roots of *tuyunwö* (*Balanites aegyptiaca*) is administered to strengthen sick goats; the milk of *mötökerwö* (*Euphorbia heterochroma*) may be given to all animals in cases of weakness (*kiturunogh*).

Most herbal medicines are prepared in a similar way. A specific part of the plant (roots, bark, leaves or fruits) is pounded – the entire plant is used rarely – and then put into water (usually cold water). There it is allowed to stay for some time, sometimes several days. Rarely are plants mixed for treatment. These medicines are then administered orally, or in case of anti-tick or anti-lice medicines, rubbed onto the body. Only very few herbal medicines require another preparation. The fruits of *kinyotwö* (*Ximenia americana*) are boiled and finally result in a thick paste which is smeared on the blisters caused by orf. Occasionally the milk of certain plants is used: the sap of *tolgos* (*Aloe spec.*) is used against eye diseases, the milk of the *tonat*-tree (unspecified) against lumpy skin disease and the milk of *mötökerwö* (*Euphorbia heterochroma*) against general weakness. In a few cases the ashes of certain plants are used as an ingredient of herbal medicine. In one case the preparation of the medicine simply meant chewing part of

a plant: to cure *lopedokow*, an infection at the base of the horns, chewed leaves of *kaparsamugh* (*Acalypha fruticosa*) are put on the festering wounds.

Non-herbal treatments

Many medicines Pokot administer to their livestock consist of ingredients that are not based on herbs. Quite frequently some part of an animal (usually the head) is burned for some time in the ashes of a fire. Finally the burnt head is put in a pot and then boiled in order to prepare "a soup". Sheep heads are frequent ingredients in such concoctions. Interestingly, concoctions based on parts of the body of an animal are most often chosen in order to treat severe livestock diseases (e.g. camelid "cholera", East Coast Fever). Here the variation between informants was considerable; e.g. it never became clear whether it is better to take the head of a ram or whether the head of a sheep will do. Blood from a goat or a cow, dissolved in water, is given if *pngerat* (enterotoxaemia) is diagnosed. Fat from a sheep's tail may be used in several instances. It is smeared on wounds to soften lesions. Mixed with honey-beer it is administered to an animal affected by babesiosis. Fermented milk and/or butter-oil are given as purgatives in case of plant poisoning and anaplasmosis.

Pokot experiment with different materials to create more effective veterinary medicines. Tobacco is given to goats and cattle affected by *musarer* (bloat) in order to "burn the stomach". Recently introduced chemicals offer a wide spectrum for trial and error experiments. A mixture mentioned above of kerosene and a chemical for colouring jeans was recounted as a most effective purgative that might help against anthrax. I witnessed one phase of experiments in 1988.

After heavy rains many goats were suffering from footrot. Some traditional medicines were known to reduce the infection of the claws. However, some young men started injecting Omo (the washing powder) into the lower part of the goat's leg, just above the infected parts. The "drug" worked very well and soon many households tried to get rid of the "chepkelyon" (footrot) problem with the help of Omo.

Manipulative techniques

Herders look after wounds carefully. If necessary pus is removed every morning and evening. Usually this is done by the help of a twig broken off a tree at the moment when it is needed. Preferably the thorny part of an acacia tree or bush is used in order to remove the hard surface of the infected wound to scratch out the puss. No further care is taken to create more sterile conditions. After the wound has been cleaned it may be treated with antibiotic powder or traditional medicine.

Only when an animal is obviously affected by some form of bloat do Pokot really cut into its body. If *lessana* is diagnosed the stomach of the animal is cut open about one centimeter in length with the help of a small arrow. The wound is held open with one finger to let the gas out. In case *musarer* is diagnosed blood is drawn from the sick animal in addition to the tobacco-therapy mentioned above.

The most frequently used manipulative technique is cauterization. Each Pokot household has at least one iron-rod to cauterize. The scars remaining from cauterization are called *machey* and are as frequently applied for aesthetic reasons as for medical reasons. If goats' kids are affected by orf all goats younger than a year may be cauterized: some diagonal

machey along face and neck prevent an outbreak of the disease. Treatments against pneumonia are accompanied by cauterization: several horizontal and parallel *machey* are applied along the flanks of the animal. Mastitis is dealt with by cauterizing the upper parts of the hips; these *machey* should have the form of a diagonal cross. Against Black Quarter no traditional cure is known; however, one informant responded that cauterization of neck and ribs may help occasionally. Against tetanus the neck and spine are cauterized. As mentioned before, sometimes it is hard to differentiate those *machey* applied for curative reasons from those burned on the animal's skin for aesthetic reasons. Especially oxen may find themselves tattooed all over. For Pokot herders this second type of *machey* is of considerable importance to denote adherence to clan affiliations. Each clan owns a set of symbols (*enwait*) and amongst these second only to clan-specific ear-cuttings, *machey* feature prominently.

Castration is another manipulative technique. Preferably steers are castrated in their second year, camel steers in their third and rams and bucks after half a year. Several methods of castration are known. The scrotums' of camel and cattle steers are cut with a knife at the lower end. Then the testicles are slowly pulled out. Usually every homestead has somebody who is said to be an expert in castration, somebody who has "cold blood" or at least is not "hot". Goats and sheep are castrated with the help of a little wooden anvil and a wooden hammer. The scrotum is placed on the anvil so that the part where the spermatic cords enters the scrotum lies on the anvil. A few hits with the hammer are usually sufficient.

Magic, religion and veterinary medicine

Every veterinary treatment may be enforced by magical devices. As mentioned earlier Pokot see a connection between the physical etiology of a disease and its spiritual cause. When reasoning about diseases, usually a culprit will be named who has had bad feelings towards the owner of the animal. The accusations vary in intensity and openness. Rarely is there much reasoning about a single goat affected by footrot; however if the entire herd is affected rumours will spread quickly as to who is thought to have caused the problem. Serious diseases are treated both physically and magically. There are several possibilities. Frequently one herder will ask the elders of his community to say a blessing for his sick goats, cattle, sheep or camels. The blessing cited below was spoken by one of the eldest men present on that occasion. His blessing was meant to chase away footrot (or perhaps better the metaphysical causes for it) from the herd of Ptikom, a middle-aged herder.

Apuriang's Blessing

(The slashes in the first lines indicate where the main speaker pauses and the chorus of men gathered in the *kirket* repeat what has been said. The entire text is spoken in this way.)

"A white cow / What did she say? / How did she chase the bad words? / Gather all here! / Why do you gather here? / For the goats' well-being! / Let us ask God! / to give us many goats! / and many children. We have heard! / that footrot said! / 'I am going! / I will leave these goats for you! / I am going! / I will leave these goats to stay in peace! /

We ordered the goats of Nginyang to leave footrot in the bush. Who said that? The circle of men said that with much emphasis. The council of men said that the land up and

down shall be annointed. The smell of fried oxen-flesh fills the air, so much, so much, so much.

These bad words are gone, there is no footrot anymore. These men here chased the disease. Yes, it is gone. When it was ordered to leave the homestead, it fled immediately.

... We bless the goats of Ptikom, who told us yesterday that his goats are sick because of an oxen. We told that disease: 'Go away! Come to an end! Disease that befell Ptikom's goats, come to an end!' Even if this man hid away his oxen when men came to ask for it, these goats shall not suffer because of this. Whose goats? Whose goats? Ptikom's goats. ...

Footrot has been chased away, hence Ptikom's goats got rid of the disease. We have heard that this thing went, this thing that caused whose disease? That caused the disease of the goats of this homestead. When the council of men said 'go away' and 'leave this place' it was chased away.

We have said that Ptikom's goats shall be free from the disease, as the council of men said 'Go away'. Where did these goats go to? They went into the bush! This night rain will wash away the disease of the goats? Wash away from whose goats! From Ptikom's! And from whose camels? From Ptikom's camels!

We told the disease of the sick camels 'This disease shall come to an end'. Sneeze out that disease. Sneeze it out! Sneeze it out! Even if the foam at the mouth gets cool, disease 'Come to an end!' The bad foam making camels sick was left behind in the bush. This thing shall stop. The council of men says 'Hey! hey! hey! This disease affecting the nostrils of camels'.

My friends, we tell this disease which affected the camels' eyes 'Come to an end! Finish at once!' Shall Ptikom, who talked about the disease of his camels, be rendered a liar? The council of men chased away the disease of Ptikom's camels.

We told Ptikom who was so scared because of his sick livestock to go home, and to come back tomorrow with better news. Yes, we, the

council of men, say that this disease befalling the livestock shall come to an end. Where shall this disease be chased to? To the far end! To the far end! To the far end! Go away, go far away!

We order Ptikom's camels 'Be cured, be cured, be cured through and through!' They shall be blessed, shan't they? Shall they not be blessed? Shall they not be blessed? Ptikom, if you go home now you will see that your animals have been cured.

'Be blessed! Be blessed! Be blessed!' This house! Whose house? Ptikom's! We have defeated the disease! The disease who told us of? The disease Ptikom told us of. Be blessed! Be blessed! Be blessed!

In order to understand the structure of the blessing it seems necessary to summarize Ptikom's problems: many goats of his herd suffered from footrot and quite a number had become very weak. Ptikom's camels suffered, too. No specific disease is named but we learn that they had a bad foam on their mouth. Obviously Ptikom had no idea who heeded bad feelings against him, else the person would have been named. He just had a vague idea: in the dry season men from his neighbourhood were approaching him to offer an oxen for a celebration but he refused to offer them something. These men went home hungry and in an extremely bad mood. Perhaps one of these men had caused Ptikom's problems.

The senior mentions all aspects that are related in one way or the other to Ptikom's bad luck. The rhetorics of the blessing are characteristic for this type of oral literature. The disease is personified and hence can be spoken to directly. Several times it is ordered to leave the body of the sick goats. Occassionally Apuriang states that the disease has left the body of the animals already, at other times he still orders it to do so. In this magical context such statements are not contradictory.

Both sentences imply that the animals are without disease – right now or in the near future. The emphasis on a disease-free physical state is thought to have direct impact on the factual state. The council of men is the agency invoked; this institution has the spiritual power to encounter the disease forcefully just by choosing powerful words for the blessing.

If the culprit is already known then a *kikatat* may be undertaken. This is a ritual especially designed to thwart off the malevolent effects of personal enemies' curses and witchcraft. The herder whose livestock is suffering calls upon the men of the neighbourhood. He invites them to come to his home for a ritual in defense of his sick animals. The animals are then placed in the middle of a semicircle of men who are ordered according to their generation-set system. Each man has brought with him two spears. Both spears are then pointed towards the sick animals in the centre of the semi-circle. Whilst clinking the spear points rhythmically against one another and towards the sick animal, the *kikatat*-verses are recited. Structurally these magical rhymes are very similar to the blessing cited above, only that a culprit is named and threatened. The spearpoints symbolize the collective defensive power of men. Their strength and their will is dramatically enacted in the *kikatat* ritual.

Other forms of ritual in order to heal sick livestock are known. Pokot magic is closely tied to colour symbolism. The colour white represents and at the same time enforces harmony and peace; so occassionally a herder splatters white coloured earth over his animals if he feels that lack of harmony within his family or with close friends may be the cause of problems.

Modern and traditional medicine

Nowadays traditional and modern veterinary medicine exist side by side. An experienced herder is supposed to have a broad knowledge of traditional ways to cure sick livestock as well as an idea about the application of modern drugs. Whereas all ingredients for traditional treatments are accessible locally and rarely cost any money, modern medicine costs a considerable amount and is available only in towns. Hence, poor households or households far away from the few administrative centres are still dependent on traditional veterinary treatment. Legally, private users are only allowed to buy a certain number of drugs. Broad-spectrum antibiotics (Terramycin, Novidium) are only sold to veterinarians or to government livestock officers. However, Pokot herders have been successful for several years in obtaining these. In 1988 they usually bought small amounts of the drug from government employees at the local administrative posts. In 1992 the pattern of drug distribution had changed considerably: quite a large number of young men had found ways to purchase large amounts of antibiotics (e.g. 0,5 l bottles). They acted as itinerant traders and sold small quantities of the drug to farmers in need. The profit was about 50%; they bought 0,01 l at 1 KSh (Kenyan shilling = at the time 0.12 DM) and sold it at 1,5 KSh. These drug traders had rarely more than one or two drugs in stock. It goes without saying that this kind of veterinary service bears considerable risks. Rarely do farmers obtain a prescription together with the drug and consequently are left alone when they have to decide what quantities they should inject. They may have heard from others what quantities have the best effects or they have to learn via trial and error experiments. Obviously both overdosing and underdosing are

frequent. In the long run the ecology disease strains may be altered considerably. However, the keen interest Pokot take in modern drugs could represent a good starting point for further intervention from development agencies. Frequently policy papers of such agencies emphasize that a combination of modern and traditional means is a precondition for a low-cost veterinary system working with and for mobile herders. Pokot no longer have to be taught to use both traditional and modern drugs. However, it seems necessary that a low-input programme helps them sort out when to use what drug and in what quantities to use it.

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Notes

- (1) The data for this table were abstracted from progeny histories on all the different species of livestock herded by the Pokot. They were gathered in collaboration with John Young from ITDG. While progeny history analysis has some disadvantages – at this stage it is impossible to give a clear account of deaths per time unit – it gives a good idea of the frequency of diseases.
- (2) John Young identified the livestock diseases according to western terminology (Young 1989). However, these identifications were preliminary. Due to

changes in the development project Young was cooperating with he had to terminate his work in East Pokot.

(3) The question mark indicates that the identification of the disease was doubtful.

(4) M. Rottland, a pharmacist working on Pokot medicinal plant use, gives *Warkurgia ugandensis* as the correct specification.

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Résumé

Le système indigène de médecine vétérinaire chez les Pokot de l'Afrique de l'est consiste en un corpus de concepts concernant les maladies et leurs traitements spécifiques. Ce travail décrit l'étiologie des maladies telle qu'elle est conçue par les Pokot et présente la terminologie qu'ils employaient pour le diagnostic. Le système vétérinaire des Pokot connaît aussi bien des mesures préventives que de nombreuses thérapies, telle que la cautérisation et les procédés magiques. L'auteur termine son étude par une discussion de l'impact des méthodes vétérinaires occidentales sur la médecine indigène.

Resumen

La medicina veterinaria indigena de los Pokot consiste en un conjunto de conceptos de enfermedades y un cuerpo de tratamientos específicos. En el presente trabajo se describe en primer lugar la visión de los Pokot de la etiología de enfermedades y la terminología que emplean en sus diagnósticos. El manejo sanitario de los rebaños consiste en medidas preventivas y numerosos tratamientos tanto con hierbas como sin hierbas (por ej. cauterizaciones y lemas mágicos). Finalmente, se discute el impacto de la medicina veterinaria occidental sobre tratamientos indigenas.

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