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Chukotka Sleddogs in Chukotka. Photo by permission of Igor Zagrebin, 2004, Russia (copyrighted)

## Evolutionary Changes in Domesticated Dogs: The Broken Covenant of the Wild, Part 2

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### Defining a breed

It is agreed that a breed is defined as a group (population) of animals morphologically similar to each other and normally passing those similarities through subsequent generations. Usually this term is applied to populations of domesticated animals of the same species bred in captivity. Animals of different breeds have different appearances and are sometimes called races of domesticated animals. Because of their association with people, they are considered artifacts and therefore not assigned scientific names. However, primitive aboriginal dogs are profoundly different from dogs of cultured breeds because they have evolved by natural selection under conditions of free life and close interactions with people. Each of them is a unique piece of nature, time bound and place bound, most similar to zoological subspecies. At the same time, they are historically associated with ethnic groups and cultures. Primitive aboriginal dogs are the oldest and the only natural breeds of dogs in existence.

I divide dogs into three large groups of breeds, succeeding each other historically: (1) primitive aboriginal breeds, (2) cultured functionally performing breeds and (3) show-pet dogs derived from all breeds during relatively recent time, and replacing them globally.

Indog, the primitive aboriginal dog of India photo: Gautam Das

### Aboriginal breeds of dogs

To keep the size of this article within limits, I will describe only major groups of aboriginal dogs. Most specialized for performing a particular job, aboriginal dogs are (1) sled dogs with circumpolar distribution in the tundra and the polar desert zones, (2) reindeer herding dogs of the tundra zone from Scandinavia in the west to West Siberia in the east, (3) spitz-like hunting dogs, known from Scandinavian countries in the west, across the taiga zone of

Eastern Europe, Siberia, Korea, China and Japan in the east, (4) rabbit catching sight hounds of the Mediterranean region, (5) lop-eared sight hounds of North Africa, Middle East and Central Asia, (6) livestock guarding dogs distributed from Portugal in the west to Mongolia and Tibet. Six other groups include most wild breeds, feral living or sometimes with people. Some of them are used for hunting or as watchdogs, but most often they just co-exist with people as scavengers. These are (7) primitive aboriginal dogs of Africa, represented by a great diversity of types. They are small to medium size dogs with prick ears and pointed muzzles and some are looking like sight hound mixes. One of these South African dogs became the pedigreed breed known as the Basenji. The history of authentic African dogs has been studied by J. Gallant under the collective name "Africanis". In Africa, common are so-called small village dogs, most of which have lop ears and relatively small teeth. It is hard to tell if they are authentic or recently modified mixes with imported dogs. (8) Primitive aboriginal dogs of India known as Pariah Dogs. Gautam Das suggested calling them collectively Indogs. Large populations of these dogs live as feral, but many of them also live with people as watch dogs and family dogs. Feral dogs of Turkey and the Middle East, where they still survive, are similar to both northern spitz type dogs and Indogs. (9) Dingo populations still survive in Australia and, similar to the Dingo, feral dogs are still abundant in Southeast Asia, many of them kept by people as watchdogs. (10) Dingo-like dogs of Pacific islands are mostly extinct, but some survive, genetically contaminated by imported dog populations. Originally, they had been brought by Polynesians along with pigs and kept for meat. (11) Dogs of pre-Columbian Indians became extinct, except for the hairless Inca dog (the Xoloitzcuintli) and the Carolina Wild Dog, feral living and yet recently established as a pedigreed breed. There were several other unique aboriginal dogs, now extinct, which had been created in extreme environments, dogs abandoned on the Tuamotu Islands for example. They subsisted by learning to catch fish and surviving without fresh water. Captain of the *Beagle*, Fitz Roy, described them as exceptionally serviceable hard working dogs of the Indians of Terra Del Fuego. (12) A very interesting group of primitive aboriginal dogs of northern Europe, which gave us such remarkable cultured breeds like the Malinois, the Border Collie, the German Shepherd Dog and other related breeds, became lost before it had been studied.

**Why primitive?**

The term "primitive" is sometimes disputed as incorrect and belittling of aboriginal dogs. The word "primitive", in dog context, means natural, functionally justified and undistorted in appearance, behavior and health. Another reason for calling aboriginal breeds primitive is associated with their free, unmanaged way of life in their countries of origin.

Next, I will describe variations of different biological features among and within aboriginal breeds, which presents additional evidences in favor of their origin by evolutionary process.

Australian Dingo Photo by Jim Reid, Willaston, Australia

**Appearance**

Volumes are written about the variation in appearance of dogs. However, the range of variation of aboriginal dogs is not as wide as is the range of variation of cultured breeds. In general, diversity of aboriginal dogs increases from north to south, along with the increase of diversity of wild fauna. This is also evidence of their origin by evolutionary process. Thus, sled dogs of the polar desert zone are very similar everywhere around their circumpolar distribution range. Slightly further to the south, in the tundra zone, aboriginal dogs become more diverse, because of the presence of sled dogs, reindeer herding dogs and some hunting Laikas. Still further to the south, in the boreal forest zone, hunting Laikas of northeastern Europe and Siberia are even more diverse in size and details of body structure. They are represented by dozens of breeds and sub-breeds associated with ethnic peoples of northeastern Europe and Siberia. Further to the south, in desert, mountain, subtropical and tropical landscapes of Eurasia and Africa, diversity among aboriginal dogs becomes maximal: Dingo-like feral dogs similar to hunting Laikas of different sizes, sight hounds of several types and livestock guarding dogs. In many areas, several types of aboriginal dogs of different purpose co-exist. Nevertheless, variation of the appearance is still not as great as it is among cultured breeds. A similar increase of variation from north to south can be traced in now extinct aboriginal dogs of the Americas. Aboriginal dogs found on small Pacific islands are similar to dogs of the nearest large islands and continental landmasses. Many of them became extinct, some nearly extinct and some still exist being more or less mixed with all kinds of imports. For example, the New Guinea Singing Dog is an island form of the Dingo, now extinct but for a few specimens bred in captivity. The so-called Telomian is another representative of a Dingo-like island dog. In Indonesia there are some never recognized, but are actually Dingo-like aboriginal dogs. They can be seen in pictures taken by travelers. Nobody cares how pure, or not, aboriginal dogs are. Some island dogs became smaller and obtained peculiar features, which is also in keeping with their origin by evolution.

The individual variation of aboriginal dogs within a single population is much wider than would be allowed in a cultured breed. Even dogs used for the same purpose rarely

look uniform enough to be recognized as a pure breed. This is why old European travelers often wrote about local "mongrels", which they saw with indigenous people of far away countries. Usually only one or two distinctive types are numerically predominant and seen repeatedly, but a few other less frequent types occur as well among dogs and are also seen. Numerical proportions of similar type dogs may change in the next population, living miles away in a different river valley, mountain range or village. Some of the variation can be attributed to recent genetic contamination, but variation of the appearance of any primitive breed in its authentic condition far exceeds what is considered acceptable in a show breed. When an aboriginal breed becomes designated as a pure breed in order to be "saved from extinction", the same mistake is made repeatedly: one type, which seems most frequent or most attractive, is selected and the rest of the pre-existing variation is purged. For example, all hunting Laikas currently designated as purebred are supposed to have a tail carried curved over the back, or on either side, and high-set prick ears. Among aboriginal Laika ancestors, even within one ethnic group, these traits are more variable. The tail might be carried low and be sickle shaped and the ears could be high or lower set, with rounded or pointed tips, etc. Native people do not care about details of the appearance of their dogs, but pay much more attention to their working ability. In every community variation among dogs is maintained by exchange of dogs during travels and trading. This is why aboriginal dogs of the same nomadic camp or a village have less uniform appearance then pedigreed breeds do.

**Reproductive biology**

Primitive aboriginal dogs differ from cultured breeds in their ability to switch to a feral life at least during the most favorable season for breeding and successfully raising puppies. The reproductive biology of aboriginal dogs varies geographically and it depends on their way of life and physical environment. In the Australian Dingo and Dingo-like dogs of Southeast Asia, India and Africa, breeding time is seasonally adjusted to the most favorable time for feeding puppies. Females mature relatively late - after one to two years of age - have one estrus period per year, give birth to relatively small litters, ranging from one to seven, and they can reproduce without protection or assistance of people. However, even feral living dogs differ from the wolf, not sharing the wolf's rigid pack relationships. All mature dogs can attempt to breed. Females of northern sled dogs come in heat two times per year. Among hunting Laikas, females have one estrus per year, usually in February-March, as in the wolf. Other Laika females have one estrus per year regardless of the time of year, and some other females come into heat regularly two times per year. Females of livestock guarding dogs of Central Asia and females of aboriginal sight hounds, such as the Saluki and the Taigan, have one estrus per year. Females of sheep guarding dogs and sight hounds, in their original countries, are capable of making their own dens for whelping and raising puppies by hunting small mammals without assistance of people. The Australian Dingo became amazingly adapted to life in the desert and can raise puppies far away from water, because the mother brings water and regurgitates it into her puppies' mouths. In Dingo society the father and any remaining older siblings will assist in the care of a new litter. Subordinate offspring, if they survive, are driven out of the territory, and other offspring may then stay with the parents and help raise the new litter. In feral living aboriginal dogs of India (Pal, 2005) and the Middle East there are records in which both parents stay together, and males also help to feed and protect puppies. In specialized breeds, living in closer relationship with people, the role of the males in caring of puppies became more or less deteriorated; the job has been passed on to their human masters. However, even among more domesticated dogs, when they are provided with enough freedom during breeding time, some males engage in puppy-rearing behaviors, such as bringing a piece of meat to the mother with puppies.

**Behavior**

Primitive aboriginal dogs are acutely attuned to environmental changes. This is a survival adaptation. They are independent, freedom loving, somewhat wild and cautious of the unusual. Behavior is more discriminating and rigid in relationships with other dogs and people, or when choosing a mating partner as well as being protective over the territory where the dog lives. Attachment to a certain territory and to people comes naturally from puppy age and it becomes an important part of the working environment. If the dog is working in its home environment, it easily learns to obey commands by voice and by gestures if they are in line with their natural inclinations, such as pulling sleds, protecting livestock, etc. If they have to work in a new, far from home environment, they need some time for adjustment. Dog trainers accustomed to cultured breeds find aboriginal breeds frustratingly disobedient, inattentive and lacking interest to learn simple tasks. Such a dog is likely to present an impression of being worthless for any work. This may be quite true, if work requires close contact with a human leader and immediate action in response to a sudden command in a setting full of unusual, artificial objects.

Perhaps the wildest of all primitive aboriginal breeds is the Australian Dingo. In the past Dingoes were close companions of Australian Aborigines and even slept with them in caves, huddling together for warmth. It is easy to raise a Dingo as a family pet, but it is very hard, if not impossible, to stop it from killing farm animals. The Dingo makes a wonderful and interesting companion for a family living in a private place, but possibilities for using it for any practical service are limited. Now, when Australian Aborigines obtained cultured breeds of dogs, they preferred to use them rather than their Dingoes for a simple reason: they are better for hunting with and for people. Similarly looking aboriginal dogs of Australasia, Southeast Asia, India, Africa, Middle East and Turkey represent large groups of sub-breeds, having a generally similar appearance. They all have prick ears, a wedge-shaped pointed muzzle and nearly square body proportions, but their coats vary from nearly smooth in the south to the thick, double coat of sleddogs and hunting Laikas in the

north. Despite their similarity to the Australian Dingo, most of them are more docile and prone to obtaining their food by scavenging rather than by hunting difficult big animals. In the south, India, the Middle East and Turkey for example, feral dogs live in peace, watching farm animals and, if raised properly socialized, become watch dogs and make great family dogs.

Saluki with owners in Jordan. Picture donated by Sir Terence Clark

Specialized aboriginal dogs of nomadic peoples became exceptionally important because of their behavioral traits and their physical ability to perform specific jobs. Their behavior, as well as appearance, became considerably changed away from the most primitive generalist type Dingo-like dog. This became their new adaptation to survive, by working for people. The working performance is entirely natural; no stick-and-carrot teaching methods are needed. To them it is as natural as hunting and life in the pack are natural for the wolf. For a correct development of working behavior, the puppy of the aboriginal dog must be exposed to its natural working environment. Some dogs, if they grow up in their home country, may work well even if they had been poorly socialized and never having been taught the simplest things such as sitting, laying down and coming when called. For example, some extremely cautious and independent individuals of Central Asian sight hounds and Taigans live outside most of the time, are never tethered and instead roam free, like wild animals. Many of them would not come up even to the master, if it is not in their immediate interest. They are fed occasionally, but most often obtain their food by hunting marmots and other small animals. To these dogs hunting is a self-rewarding process. They hunt well because they really like to hunt, preferably with their master, returning the captured animal to his feet, if it is not too big and heavy. If well socialized, many of these dogs can be quite outgoing at home, yet still difficult to handle in an overcrowded place because of their natural aloofness and suspicion of new, artificial and unfamiliar things. The Tazi is specialized to hunt hares and foxes in desert and steppe regions. The Taigan is specialized to hunt big game, mountain sheep, goats and wolves in arid, high mountain landscapes. Major elements of working behavior within each breed are remarkably constant, with variation almost nonexistent. In fact, this is a defining feature of each working aboriginal breed. Function comes first and its appearance is determined by the function. All aboriginal sight hounds would chase and catch hares and foxes. All livestock guarding dogs would stay with the herd and fight stray dogs and wild predators in defense of the herd. Likewise reindeer herding dogs would stay with their reindeer herd preventing animals from straying, finding and bringing back lost ones and protecting them from predators. All hunting Laika breeds would find squirrels and other small game and bark at the base of treed prey. All sled dogs pull enthusiastically. Some dogs may work better, then others, but if some of them do not, most likely they do not belong to the breed. Physically intensive and complex jobs performed by specialized aboriginal dogs in their native countries is hard to call primitive because it is much more complex and sophisticated than it may seem to an observer unfamiliar with those dogs. For example, Laikas use different tactics when handling different game species such as squirrels, grouse, moose, sables or bears. It barks differently and the hunter, listening to barking style of his dog, can tell with a high level of probability what is going on and what kind of prey the dog has found. The dog knows when to use a "soft mouth" approach and when to bite hard. Sled dogs do not just pull sleds, they are running in a team, cooperating with the musher, traveling over areas of thin ice hidden under snow, finding the right direction in blizzard during the polar night, etc. Livestock guarding dogs organize themselves, cruising along the perimeter of the herd and making their own right decisions according to the emerging threat to the herd, etc. In every case, the behavior of an aboriginal dog is natural and it is of primeval origin, evolving for its function just like the dog's physical appearance. Although every element of a dog's behavior can be derived from behavior known in the wolf, performance of dogs became considerably modified, often entirely new, never found in wolves. For example, specialized barking style of a Laika serves for signaling a human partner. Preferential hunting of prey unpalatable as food to the dog, such as animals in the mustelid family, is done, because of the high market value of their pelts. Behavior of dogs, attacking aggressively big and dangerous predators, protecting livestock or their master's life, is another example. Some Caucasian Mountain Dogs are so very much specialized for guarding and being faithful that they cannot be sold or transferred because they would never accept a new owner.

Early socialization of the primitive dog is crucial, and puppies play an active role in the process. If the litter of puppies is born under conditions of life with people, children take care of the socialization and the process completes easily and unnoticed. However, if the puppies grow being locked up in a pen and see a person taking care of them only periodically, individual differences become apparent by age of six to seven weeks. Some of them run to meet a human, wagging their tails and will eat well, but avoid being touched by hand. Others openly crave to be petted, and will jump on legs, lick hands, enjoying physical contact. Aloof puppies can be easily redirected by gentle handling and petting at each visitation so they also become well socialized. However, if overlooked, they will remain extra cautious with people and especially unfamiliar people.

This can become a problem if the dog is going to be used for hunting or some service.

Swaziland Hunter photo: Johan Gallant, The AfriCanis Society

**Way of life and selection**

Every dog breed is shaped by its way of life. Dingo-like feral dogs are the oldest, survival is their only behavioral function. Their populations are controlled by natural forces such as shortage of food, predators and epidemics causing high mortality among puppies and young dogs. They live by scavenging and hunting and gravitating to human camps and communities, which makes their way of life different from a wolf's way of life. Australian and New Guinean Dingoes, which can survive very well independently by hunting, can easily switch to life with people if treated well and fed by humans from a young age. Feral dogs of the Middle East make good watchdogs and livestock protection dogs. Feral dogs of India and Thailand, if raised with people, make good hunting dogs. The so-called Indian Spitz, the Santhal Dog, is an important hunting breed of the Santhal tribe of India. Even without any utilitarian use, in some countries Dingo-like aboriginal dogs are valued at least as a source of meat. They also make good companions and watchdogs. Some of the generalist Dingo-like dogs of Africa became very useful hunting dogs; the Basenji is one example. In southern countries with good climate, dogs and people can easily manage to live without each other, but feral dogs can easily switch to life with people and then back again to a feral life. But since prehistoric times, dogs have been valued and this is why, with the assistance of people, they expanded their range in Australia and then to big and small islands of Australasia and Oceania.

The way of life of dogs had been changed in harsh climates of arid plains, high mountains, boreal forests, tundra and polar deserts. Here their ability to survive was improved through work beneficial to people. Nomadic people use dogs for work and never keep them as pets. There are no long-term breeding programs to improve the breed. People keep useful dogs and abandon or kill worthless ones. In effect, this works like a form of natural selection. Genetic exchange is facilitated by nomadic way of life of dog owners and together with natural selection for function makes them what they are now. While working for people, these dogs remain the same low maintenance dogs and are capable of finding their own food. They will breed freely in the right season, reverting to a feral or semi-feral way of life at least temporarily. In this capacity, they remained members of both local fauna and as well as parts of ethnic culture.

Under original conditions, and in many regions now in Siberia, sled dogs in winter are often harnessed or remain tethered for a prolonged time, and fed regularly. In the harsh winter climate, dogs depend on the care of people. Any lost dogs do not survive, primarily due to predation by wolves. All dogs are turned loose during the warm season and left not fed. They hunted lemmings and other small mammals. Discarded fish or a dead whale drifted to the shore made a feast for local dogs. In the summer, chances of survival of puppies were higher. However, some litters still died if the lemming population was low or the weather too cold and wet. When approaching a village near its shoreline, a traveler was greeted by hundreds of dogs running loose and barking. Dogs would wag their tails, approach closely but not be aggressive, some not minding being petted. But many others stayed away. Most of the dogs were males, some old, with fresh wounds or old scars, missing part of ear or limping, many injuries caused in dogfights. Every dog belonged to someone in the village of hunters and fishermen.

The way of life of a primitive aboriginal sled dog was and remains harsh. If a dog is injured or ill, it either dies or survives, usually without treatment because immediate veterinary intervention is almost never available. But a good sled dog is generally a healthy dog and this is a quality supported by selection, survival of the fittest.

Inuit hunters (Aqaatsiaq, Ipeelie Inuksuk, Felix Alaralak, and Uqaliq), with sled dogs, harvesting a walrus. Taken near Igloolik, N.W.T. (now Igluliq, Nunavut) mid-1900s.
Photograph: Reproduced with the permission of Library and Archives Canada. Source: Library and Archives Canada/Credit: Richard Harrington

Being bigger and stronger, sled teams are formed primarily of males. Within Inuit Sled Dog society, there is a dominant boss dog (king dog) who helps the musher and controls the entire pack. While he may not start fights, a good boss dog will end them quickly in order to keep the general peace among the group. When the boss dog becomes old, he will be challenged and often killed. Then fighting among lower ranking dogs happens until a new boss takes his place. The boss dog is the one most likely to

sire pups. The lead dog in a sled team is never the boss dog.

Females are few, but they are harnessed as well. Females come in heat two times per year. If a female is pregnant, it has to work in harness anyway. If she gives birth to a litter of puppies when on the trail, the puppies die unless the owner wants to save them. He would wrap them in an animal hide and transport them in his sled, allowing the mother to suckle the litter at rest stops.

The worst thing that can happen to a northern nomad is the loss of his mobility. If isolated on a piece of drifting ice, he may resort to killing his dogs for food to save his own life. We can assume that the best dogs would be killed last and thus given a survival edge. To the northern sled dog, pulling sleds is a part of its everyday life. Dogs seldom live to old age and the cause of death is usually violent. Nevertheless, some emotional attachment to the dog is present even in this environment. There are cases reported, when the owner of an outstanding dog protected and fed it well until very old age.

Another example of way of life selection is with hunting Laikas of traditional Mansi families. Mansi keep two to five Laikas per family. The dogs live outside all the time and are allowed to wander loose. Certain pairs of Laikas are prone to wander for a day or two, having fun. During the hunting season, when dogs may be needed for work the next day, they are kept chained near the cabin; only one dog at a time is turned loose for exercise. If the hunting is successful, parts of the carcass unwanted by people are left to the dogs. If a big animal such as moose is killed, dogs have plenty to eat. The hunter may return home without dogs, leaving them to eat all they want. The dogs return home an hour or more later. When dogs are to be fed during the hunting trip, a Mansi hunter throws pieces of meat to his best/dominant dog first and then to subordinate individuals in a descending order to avoid dogfights. During the summer, dogs are not fed and have to hunt for themselves. The breeding selection is determined based on females proven best at hunting. This is because the female is the only known parent of puppies, although the dominant and best hunting male, running loose, is most likely sire of the puppies. However, other males may arrive from miles away to take part in the dog wedding. When the hunter has enough dogs, unwanted litters are killed. Lazy dogs and ones not very good at hunting are killed for making mittens and moccasins. A small group of Mansi families, living in log cabins in the wilderness is about ten to fifty miles from other such groups. Dogs of one family and group of families may become inbred for a few subsequent generations until the time when an opportunity emerges to trade dogs with neighbors. A good new Laika can be obtained at a trading post or at the regional fair. Mansi, Hanty, Evenks, Nanai and other Siberian people value dogs for their hunting qualities, but ignore variation in details of conformation as long as they do not impair physical performance. Their dogs retain a certain physical type only because isolation by space of roadless lands. Despite dogs being treated harshly by today's standards, emotional attachment between individual Laikas and the hunter has its place. Dogs who had saved their master's life from an attacking bear, received better care. Particularly talented hunting Laikas are remembered and accounts of their skills are told in hunting stories.

The Saluki of the nomads of arid plains and deserts are treated with much greater honor and care then northern dogs described above. The Saluki is considered clean and, unlike other dogs, receives better treatment. It is allowed to live inside the tent or house, and is fed the same food that people eat. In Syria, if dogs have to live outside, they are provided with beehive-like doghouses built of stones. This design provides excellent protection from summer heat and from blowing winter winds. The dogs are covered with lovingly embroidered blankets for protection from weather elements. Females in heat are carefully isolated from other dogs in order to breed them with a male proven at catching hares. Modern writers about the Saluki emphasize the glamorous side of life of these dogs with well-to-do nomads and high status people. However, many of these dogs live a lot harsher life, especially those owned by poor people. Dogs eat leftovers or given one pita bread per day which does not seem enough for a dog of this size. In order to supplement their diet, we can surmise they have to scavenge or hunt to catch small mammals such as ground squirrels, jerboas and marmots. Despite these glorious dogs being so important to the culture of nomadic desert people, most of them do not live long beyond the age of four to five years, after which the dog has passed its peak performance at catching game. However, there are people who will keep their dogs until their last days. There are reports from Kazakhstan and Kyrgyzstan that Tazi, as well as Taigans and Saluki will sometimes switch their loyalty to a different person, a family friend or a relative living nearby, if that person feeds them, treats them kindly and takes them hunting. This part of their way of life is not unlike typical feral Dingo-like or village dogs. A need to survive overrules the love and loyalty to only one master.

In the high mountain zones of Kyrgyzstan, the Taigan is only one kind of dog in the possession of local people. Taigans function is to find and catch big game such as mountain sheep. They also hold at bay or kill wolves. Such dogs are considered very valuable. On the plains the Taigan is replaced by the Tazi, which is better adapted to a hot climate and is used for catching small game such as hares and foxes. In mountain foothills and valleys, there are large populations of both Taigans and Tazis and mixes between the two. Taigans are never chained or tethered and are rarely supplied with doghouses. Females are perfectly capable of making their own whelping dens using suitable natural features, and of raising their puppies by hunting marmots and other small mammals.

Protecting livestock is the every day life of dogs bred for this task. This also requires skills of a feral dog in order to take care of its own wellbeing. The work of these dogs requires endurance and courage. In the Caucasus they are fed one time per day with grain cooked with dairy products. In spring and the early summer season, the dogs eat livestock afterbirths they can find in the field. Also, they catch ground squirrels, marmots and other small mammals. In Tajikistan, when marmots are plentiful, the dogs are not fed at all because they find the food on their own, like feral dogs do. Both males and females are used, but working

qualities of males, which are bigger, stronger and more aggressive at work, are particularly important. According to ancient tradition, males are tested for fighting ability. This is done during national holidays and other gatherings for festivities. Two males are allowed to fight in a circle of onlookers. Their fighting performance is judged by respected and experienced villagers. This has nothing to do with infamous pit fighting for money in USA and some other countries. The fight does not last long and it does not end with death of the loser. Dogs stop the fight on their own, naturally, as soon as one of the dogs submits. These kinds of fighting tournaments are necessary for finding out which male is the best dog for a livestock-protecting job. The best fighters have enough courage to confront stray dogs, wolves and even bears. The nomadic way of life of sheep flock owners and especially transhumance (the semi-nomadic method of keeping livestock, usually sheep and goats in Portugal, Spain, Caucasus, Balkans and some Central Asian regions. Owners of livestock live near their herds in valleys and lowlands in winter. In spring they migrate to higher altitude pastures, to avoid hot weather and bloodsucking insects, and forage their animals on green alpine pastures. In the fall, they return back to mountain foothills and valleys. Some migrations of this sort end closer to marketplaces where many animals are sold. Some of these migrations cover hundreds of miles. Guard dogs are crucial in the lives of people, using transhumance, no fences and barns). They are conducive to genetic exchange between populations of sheep guarding dogs across large parts of their distribution range. Because of a harsh way of life and the selection for both ability to survive and for working performance, heterozygosis in aboriginal dog populations must be high and this is why these dogs are as healthy as any wild animal can be. Folklore stories indicate a certain level of emotional attachment between owners and their outstanding guard dogs which have been admired for their skill at protecting livestock as well as their owners and families from wild predators.

Mediterranean sight hounds, such as the Malta rabbit hunting dog and related breeds, are also selected for best performance in the field. They are not pampered by their owners. Some visitors from the USA were horrified when they saw how the dogs live. For example, dogs sleep on the flat roof of the house during the day and are allowed to roam loose overnight. They are fed cooked potatoes with fish heads. In fact however, this food is much healthier for the dogs than most popular kibbled dog foods.

All aboriginal dogs specialized for particular jobs seek the attention and favor of their owners by competing with each other to determine the best performance in field. The best dogs gain an advantage in the form of protection and food, which may become critical in the harsh season. This increases chances of survival and successful breeding.

When modernization of a traditional way of life brought radical changes into formerly primitive societies, people did not need those natural dog breeds any more. They abandoned their dogs and they were exterminated or genetically diluted by stray imported dogs of man-made breeds and their mixes. Aboriginal dogs are being replaced by dogs of cultured breeds worldwide. Actually, this process is not new; it began when the first civilizations and overcrowded human communities emerged.

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**In part 3: Cultured breeds and show-pet dogs: their appearance, reproductive biology, behavior, way of life and selection.**

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**In 1979, Beregovoy immigrated with his family to Vienna, Austria and in 1980 to Oregon, USA. He worked on series of research projects in North Dakota State University and in 1989 accepted a position as Senior Agriculturist in the Department of Entomology, Oklahoma State University, where he worked until retirement in 2000.**

**From 1991 to 1996, he imported five West Siberian Laikas, three males and two females, as the foundation stock of this breed, newly introduced in North America. Currently, he is retired and lives with his wife, Emma, and their favorite Laikas on a small, 90-acre farm in Virginia.**

**Beregovoy has published several articles in popular magazines and two books: *Primitive Breeds-Perfect Dogs* and *Hunting Laika Breeds of Russia*. He is also the advisor and curator of the Primitive and Aboriginal Dog Society (PADS) as well as a member of the editorial board of the PADS *Newsletter*.**