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+10-(499)-618-6370; Web site: http://www.pads.ru; E-mail:logoveg@mail.ru
D e s y a t o v a T a t y a n a E-mail:chaga10@mail.ru

№ 23

Primitive and Aboriginal Dog Society

Dear members of PADS and readers of our Newsletter,

We apologize for the delay in the publication of the 23rd issue of our Newsletter.

In this issue we include an article by Isik Guvener about problems associated with cropping ears and docking tails in sheep guarding dogs and an article by Bulu Imam about the Santal Hound. Vladimir Shakula also writes about differences in hunting behavior between aboriginal sighthounds of Asia and Borzoi. We also offer the first part of Valdimir Beregovoy's article about evolutionary changes in dogs during their domestication and adaptation to life under conditions of urban environment.

Sincerely yours,

Curator of PADS,

Vladimir Beregovoy

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D e s y a t o v a T a t y a n a E-mail:chaga10@mail.ru

Stub tails and cropped ears

Isik Guvener

The Santal Hound

Bulu Imam

Evolutionary Changes In Domesticated Dogs: The Broken Covenant Of The Wild, Part 1

Vladimir Beregovoy

Peculiarities of hunting with Asian Sighthounds

Vladimir Shakula
Aksu Jabagly Nature Reserve, Kazakhstan

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Stub tails and cropped ears

Isik Guvener
Turkey

But what is a tail? It is the most posterior terminal appendage of the vertebral column. It extends beyond the main structure of the body. It is basically the end part of the vertebrae and consists normally of 23 mobile vertebrae. Some dogs do not have tail. Some have undeveloped tails. The undeveloped tails are called rudimentary tails. They are very short but visible.

As it applies to Anatolian Sheep Dogs (ASD), not all dogs have a tail. Some dogs are born with short, rudimentary tails. Other dogs have their tails docked short soon after birth. Dogs without tails and those whose tails are commonly docked often belong to the herding and working breeds of dogs. In these breeds, a long tail is considered a disadvantage or a hazard, depending upon the dog's intended usage or line of work.

When people talk about dog tails, they associate the tails with communication. It is perceived as an organic and silent tool for communication. According to this approach tailless dogs must be lacking communication skills. The fact of the matter is that the tail is the barometer of the dog's mind. A dog does not communicate with its tail; although it cannot be denied that the visual position of the tail may have some affect on the communication, the tail movements are essentially the end result of mental state of the dog. We humans are very creative at the process of identifying the sources of our information. Some attribute the tail movements to communication. Dogs can use their tails and ears in the absence of dogs or humans. Reaction is not communication, but only taking a position. Our interpretation is limited to our perception.

Veterinarians do not mind cutting the dewclaws off the dog. Because they reason that they can get caught by thorny brush! Clearly their choice is a subjective one. The ASDs in their native conditions can manage without their dewclaws getting caught, much like Great Pyrenees. Dogs communicate with their torso, eyes and vocal cords. The tail is located at the rear of dog. A tail does not function like a human's hands. Then human hand communication differs from one culture to another. The head, eyes and mouth of a dog are the organs that face another dog. They are the front-liners. A dog that does not want to communicate turns its back to another dog. In addition, dogs' scents give them material to process and it takes place in the brain not in the tail.

The tails of British sheep are also docked with rubber bands. The ears of some goat breeds with very long ears in India are sometimes cropped because of the vegetation with thorny bark and branches. Long, hanging ears are not natural so they are shortened to help the goat move easily. Some goat breeds like the Maltese have their udders covered with a goat bra in Anatolia so that the udders do not get caught in the maquis. ASDs working in the maquis can easily tear their ears.

ASDs hear better with cropped ears. One can try to hear the same sound with an open ear and then try it with a folded ear. It is the same with the dogs. Dogs with pricked ears can rotate their ears towards the source of sound. ASD with ears can do the same but what they receive is not the same as that which a wolf receives. By cropping the ears the dogs can not only rotate the ear, but also receive more input as well.

Shepherd dogs have larger ears than wolves. Therefore a dog's large ears increase their effective surface area. Heat loss occurs by pumping blood into the ears of any mammal. By removing half of the ear the surface is reduced by half. That way a shepherd dog looses less heat from its ears. The same can be observed in Polar Bears and Arctic Fox clearly.

Lost heat can be compensated either by moving and therefore eating or by eating alone. This solution is not viable under traditional and natural settings. Although ear cropping for this reason only may not be received as a just reason, its benefit in lowering the heat loss is apparent.

Swollen earflaps are technically called Aural Hematomas. They are a fairly widespread condition in dogs. It is believed that there is a link between swollen earflaps and excessive flapping of the ears. Swelling is caused by a ruptured blood vessel after bleeding has occurred inside a tissue. When a blood vessel within the earflap ruptures the earflap swells with blood. This condition causes a significant change in the carriage of the ear. An aural hematoma can disfigure the ears. A dog with cropped ears does not have such problems.

Long drooped ears protect the eardrum from external substances such as rain, dust and wind. This protection comes with a drawback. Whatever enters the ear, cannot exit by itself. Assistance is required. A foxtail enters the ear needs to be pulled out by a vet with special tools. No air circulation in the hanging ears makes the ear smelly and uncomfortable for the dog. This condition invites fungal growth as well. While hair is growing inside, dust, mites, and ticks use ears as breeding ground. I have witnessed that a GSD Ridgeback-cross used to have severe fly infestation during the summer in Texas. Medication was a temporary solution since he lived outdoors with horses at all times as a guard. His summertime ears were so bloody that other dogs had to help him by licking them. A dog scratching its ears because they are infected with mites or fungus will cause the ears to bleed, which will invite more problems. One may deny all the above by reasoning that modern medicine can cure everything. Nevertheless the subject here is about the unspoiled Anatolian Shepherd Dog that works independently out in the open for the whole year under any kind of weather.

Ears are also cropped in the villages in Turkey because cropped ears are less likely to be ripped during an encounter between two dogs or between a dog and wolf. Apart from that it is believed that a cropped ear dog is a handsome dog. The modern medical and scientific philosophies claim that they provide answers for any problem and situation. The traditions of the past may seem brutal and meaningless to many, but this conclusion is out of convenience not out of knowledge and experience. It seems to me that it is too expensive to waste the accumulation of thousands of years of traditions by thinking that the recently released version of "Homo-Consumer" knows better.

The tail has survival functions. A thick tailed dog would curl its tail around its body in the freezing cold, cover its face and insulate energy. Very swift dogs use their tail as a counter balance tool when they make sudden sharp turns. A tail can also be used as a rudder in the water and a fly repellent in fly infested areas.

Yet some dogs born without tails and some dog breeds come without tails like the Old English Sheep Dog and ASD. These dogs like hyenas have a very short tail yet they can communicate perfectly and even survive in freezing temperatures. Stub tailed dogs have a tendency to be shorter horizontally. In the northeastern part of Anatolia some shepherds get rid of 1/3 of the tail. Most shepherds anywhere in Anatolia do not like very long tails. Whether it has a logical base or not they feel a long tail comes with less courage.

Tail docking seems to be a cultural practice more than a practical use. As explained above cropped ears have several advantages like not getting chopped of during a fight. Some dogs are very sensitive to flies in the summer. Their ears are infested with blood sucking flies. If we let Alabias leave their traditional settings we might well see some individuals coming up with tail and parasite related problems. This has not been tested so we cannot explain the validity of health related docking reliably. However the crevices of a long fat tailed sheep's tail is a breeding ground for some flies. A very curled tailed of a dog may serve a similar nest under certain conditions. On rare occasions I have seen dogs with broken tails. Who knows how they were broken. It must be very painful. It is like castration: the sooner the better -less painful.

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D e s y a t o v a T a t y a n a E-mail:chaga10@mail.ru

Tail docking is not about a nature but a nurture kind of choice. Inflicting pain on the dog has indirect benefits for the shepherd to observe the puppy under physical pressure. This is purely cultural. It is a sort of test. A shepherd does not crop the ears of a puppy to inflict pain but takes advantage of the reaction of the puppy when the ears are cropped. He can see which puppy screamed most as he cuts the tail or the ears. Testing is not about pleasing and pleasure. It is about selection. There is nothing accidental about such "humane selection". There is either aesthetic oriented and culturally biased politically correct selection or purely commercial selection.

Breeding stump-tailed dogs is not illegal so far, but docking is in some countries, but again it is OK to breed the English bulldog. Is it not cruel to alter and bastardize a life form and to genetically fix those traits because that form entertains us? It is OK to castrate but not to dock. According to the masters of twisted logic, one is humane the other is cruel because of their biased egocentric culture. This kind of culture not only loves to ban anything that does not suit it well but also likes to crush minorities and their way of life. That is how the way to repressive society is paved.

Curly tails are becoming a new interest among the ASD breeders recently. A curly tail is basically a deformed vertebrate and man likes to breed deformed animals. Deformation is a branch of domestication. Increasing the head size is another form of deformation. It has to be noted here that ASDs do not guard with their tail, so there is no correct tail type that one can base on a scale of "absolute correctness". If one thinks curled tails are pleasing to the eye, he should go for it, but setting standards out of nothing is misleading and distorting. Some of the ASD breeders may have exaggerated souls, but exaggerating the dogs is torturing them. ASDs must be strong and fast, not necessarily big and large. Largeness comes after strength and speed in order to support the guarding ability.

Whether curly tailed, kink tailed or stub tailed, ASDs do not lack any shepherding qualities, just because they have no tails. Alabais may come with stub tails or their tails are cropped as a general practice. There are several heresies about ear and tail cropping, but apart from them the practice has been practiced not for the showing, but for either practical reasons or belief. Missing performance is more important than missing parts. Tail and ear cropping in the Doberman must not be confused with an Alabai or ASD tail and ear cropping. The former is practiced for mainly aesthetic reasons; the latter however is for functional or cultural and traditional reasons although it eventually leads to an aesthetic alteration. One may like the altered looks or not. It is purely subjective. Prejudiced standards have no place in real ASD selection for the tail does not wag the dog.

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D e s y a t o v a T a t y a n a E-mail:chaga10@mail.ru

The Santal Hound

Bulu Imam, India

"He may have been only a pi-dog.
But his heart and spirit were pure gold."

E.P. Stebbing, The Diary of a Sportsman Naturalist in India (1920), referring to a dog that had been killed on a hunt by a wild boar

The term 'pi-dog', a shortened form of 'paraiya dog', was commonly used by early British colonists to describe the hunting dogs of India. As noted in the Hobson Jobson, a 1903 glossary of Anglo-Indian colloquial words and phrases, the term was first encountered in the Tamil Nadu ports of Madras and Pondicherry, where local non tribal Indians referred to the dogs as Paraiya (a word denoting "belonging to somebody else"). The term 'pariah dog' has since become widespread in its usage, and in modern urban nomenclature refers to any mongrel. However this is technically incorrect since the so-called pariah dog, in its original form, is a pure indigenous breed. In India the name Paraiya is also used to refer to another animal, the Blue Rock Pigeon, which exists both in a domestic and wild state. This usage may indicate that the original pariah dog likewise existed both as a domestic and wild animal. Although the word pariah is often used in a demeaning and derogatory sense, this negative connotation does not extend to the dog and may be the most original name. This dog is identical to the small red hunting dog still found throughout the Indian subcontinent with many different tribal societies, and is here dealt with as the Santal Hound because of its association with the Santal tribals of Eastern India.

Bulu Imam with puppies of Santal Hound

The name Santal Hound is also intended to differentiate the red-coated pariah dog from other mixed breed pariahs common throughout the country. India's indigenous dog has been widely mixed with foreign breeds introduced during the period of colonization by the British, French, and other colonial societies. This has, as in other areas of colonization (i.e. South and East Africa, Australia where a mixed Dingo breed has developed among the desert Aboriginals, and America where Northern migrants brought Spitz breeds long before Columbus in 1492) led to a mixed breed. Many of the foreign breeds introduced to India were of Nordic/Spitz origin, and has led to mixed breeds such as the Indian Spitz or 'Indog'. This has been recognized and the Kennel Club of India has given the indigenous and Nordic/Spitz mix in India the official name 'Indog'. The Indog, instead of maintaining the standard reddish brown color of the Santal Hound, comes in various mixes of black, brown, and white.

India has many other indigenous breeds that have also been recognized and registered, some of which may be related to West Asian sighthounds, such as the Rampur Hound, the Mudhol, the hairless Alrurk of Andhra Pradesh, and various dogs of the nomads and caravans such as the Banjara Hound, Caravan Hound, Combai, Chippiparai, etc. But the mixed breed Indog is the most common.

Anthropological Significance

The dog in India first appears in the rock art of South Asia during the Meso-Chalcolithic period over five thousand years ago at two different sites: in Bhimbetka in the Vindhya mountains near Bhopal, and in the Nalamalls Renigunta in Andhra Pradesh. Historically associated with the earliest cultivation of primitive rice, potato and even maize-growing cultures in India, the dog's primary role was as a hunting companion, a role it continues to play among indigenous peoples throughout India.

Today it is found in all tribal inhabited regions such as Assam, Bengal (Singur); Jharkhand among the Santals and other tribal groups (in Hazaribagh, Santal Parganas, Ranchi, Singhbhum, etc.); in Orissa among the Khonds and Saoras (in Phulbani and the Eastern Ghats); in Chatisgarh among the Maria and Muria Gonds; in Bastar and in the Maikal Hills among the Baigas; and in the Billigiri Rungun Hills of Mysore by the Bender tribals.

The Dog Among the Santal Tribals

The Santal Hound is named after the Manjhi Santal tribe, which is based in the Hazaribagh district of northern Jharkhand. It is used by these tribals exclusively for hunting, both in a subsistence and ritual context, and is especially important during Desom Sendra. Desom Sendra is an annual ritual hunt in which almost one thousand Santal tribals and their dogs gather in one forested area of eastern Hazaribagh alone. This hunt has important religious meaning for the tribe, and is associated with the Hindu forest goddess Chandi, who is similar to the Arcadian huntress Diana and her hunting dogs. (It is of note that these ritual annual hunts have no agricultural significance, unlike with the sendras of another Indian tribal community known as the Munda).

The affection between Santal master and dog is unique, and though formally untrained the dog is of great assistance in the hunt. Almost every Santal has his own hunting dog and five or six dogs in a Santal home are not uncommon. The ability of these dogs to ferret out game like squirrel, deer, wild boar, or even leopard, is impressive. All game is fair game. During the ritual distribution of meat following the hunt, humans and dogs are treated as equal partners and according to custom both receive an apportioned share of meat. Should a hunter die during a hunt, his dog and widow will both receive equal shares of meat.

The Santals call the dog seuta or kukur, and sometimes affectionately tuio, which means jackal. The mixture of black or white in the breed may be taken as a mongrel admixture. Dogs are house companions as well as hunting animals and the ritual hunts would be incomplete without them.

Spiritual Significance & Cultural Comparisons

The Manjhi Santals are animists. However they, like many other tribals, have incorporated certain aspects of the Hindu religion into their own. Both in Hinduism and several different indigenous belief systems in the Hazaribagh tribal areas, one often sees a forest deity accompanied by two primitive-like dogs. The Hindu God Shiva and his two dogs Bhairav and Bhairavi, for example, are found in stone relief carvings in Shiva temples near Hazaribagh. The Oraon tribals and their god Dharmes, is accompanied by his two dogs Bhowra and Bhowri. The Rig Veda, an ancient Indian text of sacred Vedic Sanskrit hymns dating as far back as 1100 BC, writes of the two Four-Eyed dogs accompanying the god of death known as Yama (Rig Veda Book 13, Funeral Verses No.2, 12-13). Primitive-like dogs also appear in the Sohrai ritual harvest paintings of the Kurmi and Ghatwal tribals of the same area in place of the Bull (the more common and traditional animal depicted).

References to horned dogs are also present in the tribes of Hazaribagh, where they are said to belong to "times when dogs wore horns" (sihare diring paraiyare). This is a living tradition among the nomadic Birhor hunter-gatherers of Hazaribagh. Also known as the 'leaf people' of the jungle, the Birhor are traditionally semi-nomadic (although this way of life has all but died out in the last ten years), and live in shelters made of leaves. They believe that a jackal will shed his horns when he howls at a full moon (an event known among the Birhor as the Pharao).

Local art also depicts dogs wearing a ritual collar similar to those seen in other indigenous cultures such as the Egyptian Anubis, or the collared dog of Australian Aboriginals from the rock art of the Kimberley ranges, or the horned Sinaitic dog seen in the rock art of the Sinai peninsular.

Work with ancient texts has emphasized the sacred importance of dog cults during the fifth century B.C. during the Persian and Hellenistic periods in the Grecian, Phoenician, and Mesopotamian world. The ritual burials of thousands of dogs in the Southern Levant, Israel, Lebanon, and China confirm that the dog has been a part of spiritual beliefs across many cultures, and is not restricted to India.

Morphological & Genetic Similarities

Primitive dogs appear in similar forms in countries with temperate climates throughout the world. Dogs in these areas share a morphology known as the "long-term pariah morphotype" (LTPM) or primal body design from which most other dog forms are derived. This is typically described as a wolf or fox-like appearance with wedge-shaped head and a pointed muzzle, almond eyes, erect ears for optimal sound retrieval and body temperature regulation, and a long, curved tail.

Many early depictions of dogs exhibit this LTPM body. In 5,000 year-old rock art of Drackensburg, South Africa, for example, such a dog is shown hunting with the Bushman tribe. It is seen in the friezes and tombs of Egypt, hunting with the Bedouin nomads in the rock art of the Sinai Peninsula, and among the ancient societies of Mesopotamia, Iran, Pakistan, Iraq, Turkey, and Mohenjodaro. A perfect example of primitive type dogs can be seen in the famous pair of dogs in the 3,000 year-old Mesopotamian Handle of the Knife of Jebl-el-Arak (see illustration). All of these dogs appear identical to the Santal Hound.

Living examples of dogs comparable with the Santal Hound are the Bali Dog of Polynesia, the Basenji of the Belgian Congo, the Dingo of Australia, the New Guinea Singing Dog of Papua New Guinea, the Hottentot Dog of South Africa, the Pero Sin Pelo dog of Peru, the dog of the Wanderobo tribe of Eastern Africa, the Sica dog of South Africa, the Native Desert Sloughi of Tunisia (dropped ears are sometimes exhibited in the Santal Hound), the Telomian dog of Malaysia, the Xoloitzcuintli dog of Mexico, the Zande Dog of the Central African Republic, the Carolina Dog of America, the Canaan Dog/ Israeli Sheep Dog of Israel, the Rhodesian Dog of Zimbabwe.

The recent study conducted by Peter Savolainen at Stockholm's Royal Institute Of Technology confirmed that the domestic dog originated in Southeast Asia. The samples of hair from the Santal Hound used for DNA testing (collected by the author and facilitated through the efforts of Janice Koler-Matznick) show that the Santal Hound belongs to the so-called Indo-Polynesian Group, along with the New Guinea Singing Dog and Dingo of Australia, (and shows no Nordic/Spitz influence). Could it be that the NGSD and the Australian Dingo share a common ancestor in the Santal Hound?

Genetic studies show that the Australian Dingo originated from the dogs of Southeast Asia that followed human Austronesian migration streams into the Polynesian Islands and Australia. Dr. Elizabeth Matisoo-Smith of the University of Auckland (Department of Anthropology), for example, in her 1998 study The Austronesian Origins of the Dingo and Other Pacific Dogs—Evidence from mtDNA, confirmed that "all Pacific dogs, including the Dingo, share a common ancestor somewhere in Southeast Asia." Influence from the Chinese mainland cannot be ruled out as the Pacific dog haplotype was found in a Chow. However, in view of Southeast Asia and Polynesia having received primitive rice and sweet potato from India, it is not unreasonable to believe that they also received the first dog strains from there.

Further DNA tests are presently being carried out with the University of Berkley at Davis by the author. Although the present DNA tests were done with the Santal Hound, such tests may be carried out with other indigenous breeds from different parts of India, and interested people are encouraged to do this. Only then will a clearer picture of India's indigenous dog, and its relationship with other primitive dogs, emerge. India gave the world the domestic fowl, primitive rice, primitive maize, Panini's Grammar, and the sweet potato. In light of this, why should it not also give the first dog?

Breed Standard

The Santal Hound has a pointed and prominent nose important for a scent hound. The ears are pricked forward, and it has dark almond shaped eyes varying in color from golden to dark brown. The coat is short but not smooth, except in puppies, and is predominantly brownish red in color. The waist is narrow and sleek, but the chest is not broad though it is well ribbed. Male dogs stand seventeen to

eighteen inches, females an inch less. It has been observed in urban dogs of this type found in Bangalore and Mysore that they are heavier in build and one inch taller. Similar dogs among the Bender tribals in Mysore are of lighter build. It would seem that feeding and hunting life affect the dogs' conformation, as Santal Hounds are relatively thin, even bony in prime hunting condition. They tend to have dainty feet and a high-stepping gait, and when in a playful mood given to playing with objects between paws, "wipe" the face with their front paws, or stick the front paws out like hands. When chasing prey they travel with a low profile but the body is held high; the dog has a habit of wrinkling its forehead forming fine furrows between its eyes giving it an inquisitive look, especially when it sometimes cocks its head to a side. The tail is generally clean but sometimes shorter and bushy, carried in a curl over the back, the curl increasing when approaching one of their own kind. Though a bark is rarely heard the dogs when hunting only yap, and packs are known for "yodeling" to the moon, a polyphonous wailing seen in the New Guinea Singing Dog as well, and may also be compared with the pack howling of Dingoes in the Simpson Desert in Australia.

The following is a more detailed list of general appearance and habits.

GENERAL APPEARANCE: Lightly built, fine boned, high on the leg compared with length, always poised. Alert and intelligent. Wrinkled forehead with pricked ears proudly carried on a wall arched neck. Deep brisket runs up into a well-defined waist, tail tightly curled presenting a picture of a well-balanced dog of gazelle like grace.

- Body narrow, rather high on legs.
- Centrally balanced with a prancing, high-stepping gait.
- Delightful manner of cocking head from side to side when inquisitive or spoken to.
- Likes curling up and sleeping instead of roaming and except when hunting or hungry.
- Very playful and likes catching playthings between forepaws.
- Delicate eater does not gulp or grab food.
- Delicate in carriage, calm of temperament.
- Can sometimes be snappy with small mouth and sharp, pointed teeth.
- Barks little, yaps when hunting, yodels in packs to the moon.
- Alertness and keenness are its main characteristics in hunting specimens.
- Strong scenting power and highly developed hunting abilities. Runs with nose on the ground following a scent trail.
- Cleans itself cat-like, assumes skittish attitudes, paws its face or, lifts a foreleg and prances inviting play. Sits on belly with crossed forepaws. Lies on back with legs in air to sun itself, going to sleep in this position.
- It is a very fast hound when chasing a prey.

CHARACTERISTICS: Barkless but not mute, its own special noise a mixture of a chortle and yodel. Remarkable for its cleanliness in every way.
TEMPERAMENT: An intelligent, independent affectionate, alert breed. Can be aloof with strangers.
SIZE: Ideal height. Male17 inches(43cm) or 1 inch higher
Female 16 inches (40cm) at withers or 1 inch higher
Ideal weight. Male 11kgs (12 Kilograms under Kennel feed)
Female 9.5kgs (10.5 Kilograms under Kennel feed)
COAT: Smooth, short, sleek and very fine. Skin very pliant.
HEAD AND SKULL: Flat, well chiseled medium width, tapering towards nose, with slight top. Distance from top of head to stop, slightly more than from top to tip of nose. Side lines of skull taper gradually towards mouth, giving a clean cheeked appearance. Fine, profuse wrinkles appearing on forehead when ears pricked. Side wrinkles desirable but not exaggerated into dewlaps. Wrinkles more noticeable in puppies. Black nose desirable (as opposed to pink). Lean and long in head, medium breadth, narrowing at

eye level and carried high. Flat skull with porously wrinkled brow when inquisitive. Cocks head from side to side at this time. Muzzle narrow from eyes to nose. Nose shorter than skull, conspicuously set on fine muzzle. Teeth level. Jaws strong, with perfect regular and complete scissor bite.
EYES: Dark, almond shaped, obliquely set, far seeing, rather inscrutable in expression. Light brown eyes generally accompanied by pink nose. Eyes are highly reflective, and in the dark under low light they shine to a bright emerald gleam as in wild animals (and as demonstrated in the New Guinea Singing Dog). Range from light to dark brown in color, sometimes black with a slight pinkish tint at the corner, and set in almond-shape. Whites often show at rest when it can look back with the corner of the eye but this is not suspicious-looking as in some other breeds.
EARS: Small, pointed, erect, slightly hooded, of fine texture, set well forward on top of head, tip of ear nearer centre of skull than outside base. Skin of ears is thinnest in bright tan coloured dogs having smooth coat, cupped and pointed, carried erect, set high on head and angled forward. In dogs with thick coats, the skin of the ears is noticeably thicker. Ears move independently to observe various sounds.
NECK: Strong and have good length without thickness. Slightly full at base of throat with a graceful curve accentuating crest. Well set into shoulders giving head a “lofty” carriage. The thickness of neck depends on type. Thin coated dogs have thicker necks.
FEET: Small, narrow, compact, with deep pads, well-arched toes and nails.
TAIL: High set with posteriors curve of buttock extending beyond root of tail. Curls lightly over spine and lies closely to thigh with a single or double curl (sometimes).
FORE-QUARTERS: Shoulders well laid back, muscular, not loaded. Elbows tucked in against brisket. When viewed from front, elbows in line with ribs and legs should continue in a straight line to ground, giving a medium front. Forelegs straight with fine bone and very long forearms. Pasterns good length, straight and flexible.
HINDQUARTERS: Muscular with short level. Hocks will let down, turned neither in nor out, with long second thighs and moderately bent stifle.
COLOUR: Light to dark reddish-brown. Yellow-brown is the most common color. Mix of black or white not acceptable, although in litters may contain both types due to siring. In these cases the pure browns develop true characteristics while the mixes stray from the Breed Standard. Apart from coloration however, they remain true in every other aspect.
BODY: Balanced with short level back. Ribs well sprung deep and oval. Loin short coupled. Deep brisket running up into definite waist. Square in outline, oblique, well-set on shoulders. Deep chest in coarse-coated specimens. Prominent ribs, level back, medium loins, well defined waist. Bright red specimens have tighter skins and are lighter built with silky smooth coat.
LITTERS: In mixed litters, black and white, and brown and white, seem to dominate. Generally one or two pups are brown, the rest may be four or five dappled. The brown pups tend to survive. The sire may be any one of the village pi-dogs, so mongrel strains may be indicated by dappled pups, but many of these mixed color pups are fine dogs and now listed as Indogs. Many are as fine as Santal Hound.
HEAT: Generally once a year, during winter when days shorten, in keeping with the Dingo, Basenji, New Guinea Singing Dog, in spring in the Southern Hemisphere.
PACK INSTINCT: Pack instinct occurs in these dogs observed in villages and towns.
HOWLING: The Santal Hound has a pack howling instinct. It lasts 10-15 minutes. During this there may be some intermediary variations. Local tribals believe that the short single howling are a bad omen and mean somebody will die. A similar polyphonous chorus has been marked among the New Guinea Singing Dog (NGSD), with a similar trill or variation, and these dramatic changes of the pitch have to be unique to dogs in the wild. The Indian wild dog (Cuon alpinus) is known for making a high-pitched whistling sound to keep contact between the pack members when hunting. There is also pack howling among the Indian jackals (Canis aureus). Generally it seems the howling is directed to other members in the distance, and it is performed on moonless nights also, so it is not howling to the moon. Trill in the middle, common to NGSD (as noted) may be attributed to the single lone series of howls in the pack howling of the Santal Hound noted above.
GAIT/MOVEMENT: Legs carried straight forward with swift long, tireless swinging stride.

FAULTS: Any departure from the foregoing points should be considered a fault and the seriousness with which the fault should be regarded should be in exact proportion to the degree.
NOTES: Male animals should have two apparently normal testicles fully descended into the scrotum.

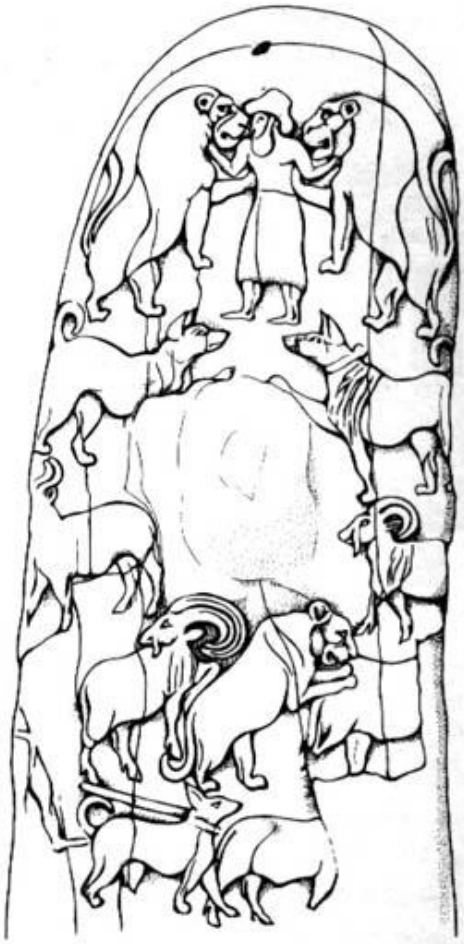

Fig. 14.8. The 'contest' motif on the ivory handle of a flint-bladed knife, found at Gebel el-'Araq in Upper Egypt. Carved in Egypt in the Sumerian style of the Jemdet Nasr period, *c.*3000 BC. Drawn after Pritchard 1969b: 90, no. 290.

Research

The dog has been subject of research and documentation by the author at the Sanskriti Centre, (Hazaribagh, Jharkhand) which is also the office of the Hazaribagh Chapter of The Indian National Trust for Art & Cultural Heritage (INTACH), www.sanskritihazaribagh.com. A Video film was made by National Geographic in 2003 titled In Search of the First Dog and in which the Santal Hound featured prominently in its natural environment. The film was produced by Lloyd Fales of Working Dog Productions (NY) for National Geographic, and after being premiered in the USA in 2003 was shown in India on National Geographic Channel TV in March 2004. It went on to win the Explorers' Club film festival award in New York.

The Breed Standard by the author with photos and description of the dog appears in Muriel Landers-Cooke's work Dogs of All Nations, Vol. II "Wild and Semi-Wild Varieties". The dogs used for DNA testing by the author have been carefully selected as standard Santal Hound types. Researchers are advised that only dogs conforming to the author's description and Breed Standard for the Santal Hound should be used for DNA samples.

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+10-(499)-618-6370; Web site: http://www.pads.ru; E-mail:logoveg@mail.ru
D e s y a t o v a T a t y a n a E-mail:chaga10@mail.ru

Evolutionary Changes In Domesticated Dogs: The Broken Covenant Of The Wild, Part 1

Vladimir Beregovoy, USA

Introduction

It all started during the Stone Age. As human populations increased and expanded their geographical range, a new ecological niche became available to scavenging animals, in the form of piles of refuse near human camps. The idea that wolves became domesticated through adaptation to scavenging human refuse, proposed by R. Coppinger (2001), is based on sound archeological and zoological data, and it provides the most plausible explanation of why and how wolves evolved into domesticated dogs, Canis familiaris. The removal and hand-rearing of puppies as tame companions may also have helped, but that became practicable only after the scavenging wolf had changed enough, becoming more docile and compatible with life near people. In the beginning, under the conditions of a mild southern environment, people did not really need dogs, except for companionship, or for being useful as meat. Most likely this event took place in Southeast Asia (Olsen, S. J and J. W. Olsen. 1977; Savolainen, 2002, Jun-Feng Pang et al. 2009). The custom of eating dog meat is very old in Southeast Asia and China and has remained widespread to the present day. When both species began to populate regions with a harsh environment and marked seasonal changes, such as arid plains, high mountains, boreal forests, tundra and polar deserts, they needed each other for survival. This became particularly obvious in the north, where people and dogs simply could not survive separately. First hunting by itself, and then hunting combined with the management of domesticated herbivorous mammals, opened new directions for the uses and evolution of dogs. In the process the dogs changed, becoming friendlier and less fearful of people, less predatory, more discriminating in their relationships with different kinds of animals, and better able to communicate with humans emotionally and physically and during work. Their anatomical features have also changed, in adaptation to the local environment and to different kinds of work. Once fully domesticated, dogs underwent further evolutionary changes in different parts of the world, considerably influenced by the continuing increase of density and expansion of the human population.

R. Coppinger (2001) observed the life of feral dogs and their relationships with local people in Africa. He called them "village dogs". It remains uncertain whether those village dogs were indigenous feral dogs or mixes with recent imports. In this context, that question is of minor importance, because any domesticated dogs, if abandoned, can revert to a similar way of life, provided the climate is mild enough and there are no wolves. As Coppinger explains, the village dogs and the villagers coexisted without antagonism and the dogs were ownerless. Both shared the same space, just as we share the same space with other commensalist animals. In those relationships between village dogs and humans, however, one important additional element was present. Although people did not own the dogs, they easily tolerated their close presence and moreover enjoyed watching dogs eating handouts. They also encouraged the dogs to chase and kill small predators, and both shared that activity. These two forms of interactions with dogs, feeding and hunting, had been important factors driving evolution from scavenging wolves to feral generalist-type dogs, and further to dogs specialized for different functions and highly serviceable to people. Similar relationships between local people and indigenous Dingo-like feral dogs still persist over large areas of rural Africa, India, Southeast Asia and Australasia. This is what the relationships between the Dingo and Australian aborigines were like when Europeans first arrived. This oldest form of ownerless relationship between dogs and people reemerges easily under favorable conditions, whenever dogs are abandoned and revert to a feral way of life. A basic behavioral adaptation of dogs to survive, feral or not, is staying with people, who treat them kindly enough and feed them, at least sometimes. All aboriginal dog types specialized for performing specific work evolved naturally out of more primitive Dingo-like feral dogs; this is why we call them natural breeds. They still retain many wild traits of their ancestors, dogs capable of permanent feral life. At the same time, they possess unique working qualities, which became their new survival adaptation, actively cooperating with people and

helping them in hunting, in managing other animals and in pulling sleds. This became a crucial factor for survival of both species in extreme environments. The uniqueness of the dog lies in its extraordinary cognitive ability, allowing this animal to share in our lives emotionally both at work and at leisure. This is a specific adaptation of dogs to live with people and influence them to its own advantage, which helped the dog, Canis familiaris, to inject itself into human society. This peculiar trait cannot be traced directly in the fossil record, but ancient joint burials of people with dogs and artifacts indicate that the transformation of wolf into dog was completed as early as 15,000 years ago. A "covenant of the wild" was made between dogs and humans, and from then on both stood together against the rest of the world. Natural dogs became adapted to live with people and serve them, and at the same time remained members of the local geographic fauna - until an emerging and expanding civilization began destroying them all.

A heavy built type of the Caucasian Mountain Dog adapted for property protection. Picture donated by Lisa Valiev

As human populations increased and ancient civilizations emerged, dogs gradually lost their freedom to choose, and became part of an ownership society. As a result, the dogs' opportunities to influence our behavior diminished, but their evolutionary changes continued at an ever accelerating rate, because people began breeding dogs in isolated groups and deliberately changing them. This is how a new type of breed, which we may call cultured (or man-made) breeds, was created. Cultured breeds became further domesticated and more submissive, and easier to teach novel kinds of work. Their appearance also changed, becoming more diverse, because particular traits of appearance, helping to distinguish breeds, became favored. Cultured breeds grew in popularity, replacing natural breeds, now forced to retreat to the fringes of civilized society; some of them still survive in regions remote from the densely populated, economically advanced centers of civilization.

Finally, from the late 19th century onward, breeding dogs for showing changed their role once more; the interactions between dogs and people during hunting and other work were largely eliminated, along with much of the emotional sharing that accompanies those activities. Dogs enjoy sharing all kinds of physical activities with humans, but many do not like dog shows; competition among dogs became replaced by competition among their owners. Dog breeders became hobby breeders, similar to breeders of other organisms, such as goldfish, snakes, rodents or ornamental plants. Hunting and other working breeds, inherited from the past, became the pedigreed pets of urbanites, and the old covenant of the wild was broken. Although some hunting and other physically capable working dogs are still bred and used for their original purpose, show and pet dogs are growing in popularity worldwide. They outnumber, pollute genetically and swamp not only the primitive aboriginal dogs, but also those dogs of cultured breeds still capable of high performance.

The history of the domesticated dog, with all its breeds, is negligibly short by comparison with the history of life on Earth. This may raise a question: Why concern ourselves with the evolution of dogs and dog breeds? Adaptive and ecologically meaningful changes of the genetic structure of natural populations are a part of evolutionary biology. They are micro-evolutionary phenomena. Although dogs live under human control, their adaptive changes associated with domestication, and their successful specialization for performing different jobs (or for extinction) are interesting and exciting subjects for micro-evolutionary studies.

The dog show culture, with its purebred dog concept, developed before the science of genetics became established. Even after geneticists had made important discoveries in natural populations,

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+10-(499)-618-6370; Web site: http://www.pads.ru; E-mail:logoveg@mail.ru
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breeders of pedigreed dogs continued to ignore the observed facts of superior vitality of heterozygous individuals. A general obsession with competition at dog show contests overwhelmed common sense and empathy to dogs, which as a largely unintended result became genetically abused, sometimes to the extent of chronic pain, suffering and early death. The most vigorous dog is most likely a heterozygous dog, which can be found among naturally "mongrelized" actively working aboriginal dogs, which earn their keep by hunting, herding, sledding or guarding. Therefore, I will begin by reminding the dog loving public about the history and importance of discoveries made by studying the genetics of natural populations.

Natural populations

Essential to an understanding of evolution is the realization that hereditary material is passed on unchanged from one generation to the next; it is not modified by the life experiences of the individual who carries it. Gregor Mendel discovered the basic laws of genetics by crossing pea varieties in a monastery garden, and published his "Versuche über Pflanzen-Hybriden" in 1866. This work remained unnoticed, however, for more than 30 years. In the meantime German zoologist August Weismann laid important groundwork for later understanding by insisting on the "continuity of the germ plasm" even though, at the time, a physical explanation for inheritance was not yet available. Mendel's work was rediscovered in 1900, by three researchers independently of one another, and in 1902 Sutton recognized that the behavior of the chromosomes, during reproduction, corresponded exactly to that of Mendel's "factors". That publication could be considered the foundation event of modern genetic science. In 1915 T. H. Morgan and colleagues published "The Mechanism of Mendelian Heredity" spelling out the mature chromosomal theory of heredity in detail. In the 1920s Sewall Wright, R.A. Fisher and J.B.S. Haldane founded the modern science of population genetics. These discoveries provided a solid physical basis for Darwin's theory of evolution, which then became the backbone of modern biology. Genes have all the properties necessary for explanation of the evolutionary process: they are particulate, constant, but can change as a result of mutations, do not blend or mix with each other, are passed unchanged from parents to offspring, reshuffle in each generation and interact in many peculiar ways, usually with a maximal beneficial effect in a heterozygous state. Genetics, systematics and the Darwinian theory of evolution thus merged, becoming one unifying biological science. The concepts of species and subspecies took their modern form.

Tuva Ovcharka - male.
Picture donated by Ilya Zakharov-Gezekhus

Now, a species is understood as a population, or a system of several genetically variable subpopulations, changing in time and space. Genetic diversity is a normal attribute of a natural population and results from a complex process, involving mutations, genetic recombination in meiosis and also genetic exchange among subpopulations by dispersal of individuals. Genetic diversity in every population is tested by natural selection, and beneficial genes and gene combinations are preferentially passed to the next generation. Differences between natural populations can be described in terms of frequencies of alleles, causing morphological, behavioral and other kinds of variation, observable by different methods, such as chromosomes with different arrangements of genes, or variations in enzymes and other proteins. Recent progress in methods of DNA analysis is providing powerful tools for research and for making detailed comparisons to establish affinity between individuals and geographic populations.

Only a small part of the existing genetic variation is expressed in a form accessible to direct visual observation; most of it remains hidden, because it is expressed only in physiological or behavioral

differences or in resistance to pathogens, etc., things which can be analyzed only under laboratory or experimental conditions. Many quantitative differences, such as body size, proportions of body parts, qualities of skin, feather or hair color, etc., are controlled by multiple genes, each with only a small effect on the phenotype. Much of the observable genetic diversity is called "neutral", because we have so far been unable to find any advantage or disadvantage of having certain alleles. Sometimes minor changes in a DNA sequence do not change the gene product at all.

Genes with definite effects on survival, fecundity, endurance, etc. are of major interest to evolutionary biologists, and have received the most scrutiny. Each gene may have a single effect on the phenotype with obvious impact on viability, but it may also have multiple effects on several different traits of the body, some of which may be either beneficial or deleterious depending on the environment. Moreover, the system becomes even more complicated because each gene acts not singly but in concert with other genes, and the same gene can be deleterious in one combination, and advantageous or neutral in other ones. This is how genetic diversity within a population serves as a buffer system against both environmental changes and the damaging effects of newly arisen mutations.

The detrimental effects of inbreeding were well known to people long before genetics emerged as a science, and incest has been avoided and outlawed in most human societies at many different times and places. We know that the almost universal occurrence in higher organisms of sexual rather than asexual reproduction is also an evolutionary adaptation, facilitating genetic recombination and so promoting faster adaptation to a changing environment. There are vast amounts of data confirming the competitive advantage of heterozygous individuals in wild populations. The superior fitness of heterozygous individuals can be observed in many different taxonomic groups and with different forms of genetic variation. This involves superior fecundity, better survival of the young, physical endurance, resistance to diseases and better survival under all kinds of stressful conditions. Even sexual selection favors heterozygous individuals. Thus, heterozygous males of some butterflies have the most symmetrical pattern, and are selected by females as carriers of "better genes". Perhaps this may be a principal function of the extravagant sexual displays of many animals with elaborate courtship behavior.

Cases with conspicuous color polymorphism represent an easily observable aspect of variation within a single population. Variation of color forms within one population is often maintained selectively in a form of balanced polymorphism, due to the superiority of heterozygous individuals. The balance of frequencies of series of different so-called co-dominant and recessive alleles within one population is maintained by their relative selective value in heterozygous states. Some of the alleles may be even deleterious, if occur in homozygous state, but still remain in the population due to their advantage in heterozygous combinations. Although balanced polymorphism has attracted the most attention by researchers, it is only one small aspect of the much broader variation in natural populations, which is also maintained by the beneficial effects of alleles paired in heterozygous combinations.

Comparisons of variation within species across an entire species distribution range showed interesting patterns. In a series of contiguous populations, isolation by space is incomplete and migration or dispersal of young (or seeds) is another powerful cause of genetic diversity. In the 1920s the Russian geneticist N. V. Vavilov studied variation in wild wheat and other plants. He observed the highest level of variation near the central and oldest parts of the species range. Similar facts were discovered in animals as well. A general rule is that a large geographic range, and a large number of breeding individuals, is better for creating and maintaining a higher genetic diversity.

Detailed descriptions of empirical data, theoretical discussions and bibliography on this topic can be found in "Selection in Natural Populations" by J.B. Mitton, Oxford University Press, 1997, and in "The Natural History of Inbreeding and Outbreeding. Theoretical and Empirical Perspectives" edited by N. W. Thornhill, The University of Chicago Press, 1993. There are more recent publications which repeatedly confirm that genetic variation and a high level of heterozygosis is a healthy attribute of natural populations.

The wolf, before its mass extermination, had an enormous geographic distribution range in Eurasia and North America. It was one of the most adaptable and individually variable species, forming

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numerous subspecies (races). It is not surprising that some of its south Asian populations conquered a new ecological niche and became a different species – the domesticated dog.

Together with people, the dog expanded its geographic range farther to the south in Central and South America and in Australasia, including many islands and Australia, regions where wolves never existed. Most primitive Dingo-like aboriginal dogs continue to live both wild, ferally, and with people. A few other aboriginal breeds became functionally specialized for performing specific jobs. In their home countries, however, all aboriginal dogs live and reproduce without pedigrees, relatively free, and their populations are therefore essentially natural. They are very variable within each population, and retain a high level of heterozygosis. Unlike primitive aboriginal dogs, dogs of cultured (pedigreed) breeds live and reproduce under strict control. Their breeds are effectively isolated from each other, selected for maximal similarity of appearance and sometimes for peculiar recessive traits with special appeal to dog show fans. Thus a uniform appearance of each cultured breed is achieved by taking genetic shortcuts, especially inbreeding disguised under different terms, such as line breeding and close breeding, which ends with the fixation of valued recessive traits but unfortunately also with degenerative changes in the dogs' health and vitality.

East Siberian Laika.
Photo by Tatiana Desyatova

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Peculiarities of hunting with Asian Sighthounds

Vladimir Shakula
Aksu Jabagly Nature Reserve, Kazakhstan

Southern Kazakhstan is a peculiar country. Here, in an area of 116,000 square kilometers, mountain landscapes of the Western Tian-Shan and Karatau, the steppe plains near the mountain foothills, the Kyzylkum Desert, the Muyunkum Desert, the Betpakdala Desert and the taigas [flood-plain forest] of the Syrdarya River intermingle in a surprisingly intricate way. The majority of the population are Kazakhs, who retain their nomadic traditions. A major occupation of the local people is livestock management; their favorite activities during their free time are games on horseback and hunting with

Southern Kazakhstan. Photo by Vladimir Shakula.

Sighthounds mainly for foxes. In the Tian Shan Mountains, bordering with Kyrgyzstan, dogs are used for hunting mountain hoofed animals. Basically two dog breeds are used, which are considered as Oriental hounds: the Central Asian Tazy and the Kyrgyz Taigan. Oriental Sighthounds have always been interesting to dog breeders and hunters. People with a little knowledge of these hounds are often incorrectly informed about their hunting abilities. However, because Oriental Sighthounds are growing in popularity and are imported into other countries with a different climate, landscape and fauna, it is interesting to compare the hunting traits of the different Sighthound breeds.

However, for some reason, not everyone has correct knowledge about how our Slav ancestors used this dog for hunting. In the mind of the layman, the word Borzoi evokes an image of a tall, narrow-headed dog, which runs with a group of horse riders in fields and the steppes and occasionally catch hares, foxes and wolves. Such a picture is often seen in movies: pink cheeked hussars and girls are seen riding on horseback across snow covered fields and magnificent (perhaps, recently from a show) Borzois running with them. This picture is an invention by cinematographers!

Actually, hunting with Borzois was very different. Borzois were not allowed to run in fields, searching for game. The dogs stayed leashed in an ambush, so-called “laz”, together with the hunters and waited until other dogs, Scenthounds, find and flush game animal out of the forest right towards the noses of the Borzois. Then, the Borzois were unleashed, ran at high speed and caught the animal. Here is an excerpt from E. E. Driyansky’s old description of hunting with Borzoi:”…Finally, the pack [of Scenthounds] ran in our direction and, indeed, in a minute, something began breaking though the rushes; soon after this, a mature wolf showed up, running over the tussocks, straight to the height, where we had a secret ambush… Finally, the wolf appeared right next to us, at a distance of about 25 meters; Yegorka silently pointed at it to his dogs and slipped the pack. Five dogs rushed forward at once and Sokol engaged with the wolf chest to chest first…” (E. A. Driyansky, “Notes of Melkotravchaty”, 1930). Hunting with Borzois was done without gun, only a knife was used, often the wolf was taken live. Of course, if the wolf ran away, the dogs would chase it for some time.

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There was another method of hunting with Borzoi, which was less popular at that time, in which hunters on horseback moved slowly in a wide line across the field to flush out the hare. The dog would be slipped to pursue the animal fast and catch it. Note that in this kind of hunting the dog should be eager to chase, effective at catching and fast; searching for game was not required. Actually, they are true Sighthounds.

Asian Sighthounds hunt differently. In Southern Kazakhstan both Tazy and Taigan are called hounds [in Russian the term hound (gonchaya) is applied only to Scenthounds, the Sighthound is called “borzaya”]. When about 20 years ago I heard this term applied to Sighthounds for the first time, I laughed at the Kazakhs. I thought those people did not know Russian well and called the Sighthound by the name of Scenthound incorrectly. However, as people say, every lie has a grain of truth. How is hunting done with the Tazy? Usually the Kazakh hunter saddles his horse, whistles to his lop eared companion and both take off for the steppe. I called the Tazy a companion not by accident. The Tazy is not aggressive and not a killing machine. The Tazy is a very gentle and intelligent dog and it lives not in a barn or a pen but just free of confinement. The dog follows his master everywhere, when he is busy around his yard, doing his chores, taking care of the livestock, when he goes to visit his neighbor or when he goes hunting. When hunting, both the hunter and his dog act in harmony; they inspect hunting habitats, searching for game. The Tazy has an excellent ability to find game, using both sight and scent. Once the animal is detected, the Tazy chases and catches it. The most favored kind of game of the Kazakh hunter is fox. Hares are usually ignored. The Tolai hare is small, with a poor pelt and usually it is not eaten. Fox yields excellent fur, which is used for making malakhai – the Kazakh hat, and winter coats. Wolf is another favorite hunting object. Wolf is an old enemy of the livestock owner and for a steppe nomad killing a wolf is a glorious duty. A Tazy that is capable of handling a wolf by itself is exceptionally rare. If a Tazy is aggressive enough, it can catch up with a wolf and stop it, allowing the hunter to approach close enough for a sure shot, or it can chase a wolf until exhaustion, after which the hunter can kill it with his kamcha [kamcha is a whip with a piece of metal fixed to its tip], or with a stick. In past times the Tazy was used in combination with a golden eagle; the dog chased the prey out of its hiding place into the open and the golden eagle caught it with its formidable talons. Nowadays, hunting with the golden eagle is rare and it is done only by a few enthusiasts. Thus, the Tazy combines the ability of the Scenthound, which can find game by scenting its tracks, and the Sighthound,

The Borzoi is a famous breed well known to the world. Borzoi "Kara". Photo by Irina Shlykova, Russia.

Tazy (male) Berkut, owner Andrew Kovalenko, Almaty, Kazakhstan.

which can chase with speed and courage to catch the prey. This is one reason why local hunters call their Tazys hounds rather than Sighthounds. The Tazy is a hound of high endurance, when running and it is very fast. Writers often mention (V. Sokolov et al. In Dogs of the World, Moscow, 2001) that the Tazy catches its quarry by chasing it for a long time until exhaustion. This is not quite true. Yes, the Tazy has extraordinary endurance, but also speed; it is enough to mention that the best Tazy catch such fast antelope as the Gazella subgutturosa.

One difference should be kept in mind. A sprinter's dash from ambush is one thing, but when a free running dog finds a track, for example, a fox track, or sights one from a far, gives chase and catches the prey is another thing. The latter process can take place over distance up to 4-5 km. I would also recall that in early 19th century, Borzoi blood was added to the Oriental Hound for enhancing speed. As a result, one of the fastest dogs of the past century was obtained, which was a male named Serdechny, belonging to General P. A. Ivashkin (L. P. Sabaneev. "Hunting dogs. Sighthounds and Scenthounds, Moscow, 1993). High speed is one of the most important merits of Tazy. It does not have the strength of Arnold Schwarzenegger, but is rather like Bruce Lee. The Tazy is not a particularly big dog, ranging from 15 to 20 kg, but it catches or strikes and sometimes kills its prey because of its speed. This is one reason why some become disappointed after attempting to use a Tazy in forested country. In the forest, there is good hunting for fox, badger and hare, but here conditions are different and the Tazy cannot use its favorite tricks, such as high speed and striking the prey as it often does on the open steppe. To hunt a badger, a dog needs aggressiveness and strength. This is why in Kazakhstan the Tazy is used to hunt foxes. To hunt badgers and wild boar they prefer to use Dureks, which are mixes of Tazy with a livestock protection dog or with a Laika. Of course, even among pure Tazys, there are very athletically built dogs, which can kill a badger on its own or even a wolf. Tazys are also used to hunt roe deer, maral deer and wild boar. In such cases, the Tazy's task would be to find the animal and prevent it from running until the hunter arrives and shoots it. Tazys are keen to go after hoofed prey.

Taigan. Photo by Vladimir Shakula.

The Taigan is very similar to the Tazy in appearance, but it has a long, well developed coat. This dog evolved in high altitude mountain conditions and it has other hunting skills. One statement is often repeated from one book to another: "The Taigan is used to hunt fox, corsak, badger and wild cat. It works well on hoofed prey. A pair of big, strong Taigans accustomed to hunt together can stop a wolf" (N. A. Markov. Hunting Dogs. Ashkent, 1993). All these animals are hunted with Taigans. However, the main or ideal animal hunted with the Tazy is fox and the main or ideal animal hunted with the Taigan is markhor goat. Markhor goat (teke) is the favorite game of hunters in the mountainous parts of Kazakhstan and Kyrgyzstan. This goat occurs in great numbers everywhere in the mountains and at the present time its populations are still high enough for hunting for sport. In the mountain regions, the meat of markhor goat is a common food on the tables of the local people. Besides its longer coat than that of the Tazy, the Taigan has a coarser body structure; it is more aggressive, far-sighted, independent and persistent. It moves fast over difficult mountain terrain. The Taigan chases markhor goat or deer aggressively to a cliff, where it is turns the prey at bay until hunter arrives.

I will tell one story, as an example, about hunting in Kyrgyzstan, when a record male of markhor goat with horns 155 cm long was taken. A foreign hunter with a local guide could not find the right

trophy during a whole week. On the last day of hunting a pair of Taigans, a male and a female, found and chased towards the hunters a very big male markhor goat. The hunter shot, but missed and the goat run away chased by the dogs. It turned darker and it was time to go back to the base. Once at home, both the hunter and the guide frustrated with the unsuccessful hunt had a lot to drink. About two hours later, they heard dogs barking from afar. At first, they did not pay much attention to this. In the meantime, the barking persisted. The guide asked his wife to go and take a look at what the dogs were barking at. When she returned, she said that the dogs had turned a markhor goat at bay at about 300 m from the house. The hunters grabbed their guns, rushed towards the dogs and saw their desired trophy standing on the cliff where it was easy to shoot. It was the biggest markhor goat with horns of record size. Needless to say the hunters were happy because of the good job done by the Taigans. Among Taigans, there are some dogs, which not only find, chase and turn hoofed mammals at bay, but also catch and kill them. The Taigan has powerful jaws. I already wrote about my female named Kunduz, which took a hold at the back of the head of an injured northern lynx. Kunduz did not let it go even when the lynx sank its terrible claws in the dog's head. Even when the lynx was shot, it took several minutes to convince the dog to release its grip. Another relatively small Taigan, about 15 kg, caught a seven-year-old wolf and stopped it at the bottom of gorge by biting its thighs. The dog started fighting the wolf until the hunter came up and shot it. Without the hunter, the wolf would have killed the dog, but the courage and aggressiveness of this Taigan female deserves respect. When hunting with a Taigan, the hunter rides on horseback on mountain paths while the Taigan runs loose. When the dog finds prey, the hunter approaches it on foot, often he walks on paths inaccessible to the horse. The Taigan is a superb hunting dog in mountain landscapes.

LIST OF MEMBERS
Of Primitive Aboriginal Dogs Society

Irina M. Shlykova
Borzoy
Russia
Dog kennel «The Russian Wind», Leningrad province. Preservation of the Old Russian type of the Borzoi. Breeding for open field coursing ability.
hunting@sbor.ru

Dmitriy E. Dubrovsky
Samoyed
Russia
Hiking, hunting, dogs.
dubrovsky@pacc.ru

Konstantin N. Plakhov
Tazi
Kazakhstan
Hunting Dog Kennel, Institute of Zoology, Republic of Kazakhstan. Teriology, zoogeography, ethology, preservation of wild animals and wildlife biology.
elchor@nursat.kz

Anna S. Plakhova
Tazi
Kazakhstan
Military Institute, Republic Kazakhstan. Veterinary medicine, dogs, inheritance of coat color.
elchor@nursat.kz

Lubov B. Melnikova
East European Shepherd
Russia
Academy of Security and Law, Moscow province. Physiology, ethology, animal psychology, genetics of behavior.

Andrey V. Kovalenko
Borzoi, Laikas
Kazakhstan
Institute of Zoology, Republic of Kazakhstan
Zoology, ornithology, falconry, cynology, aboriginal and hunting dogs.
akoval@nursat.kz

Marina G. Kuzina, secretary of PADS
Northern aboriginal dogs
Russia, Moscow
Russian Agricultural External State University, Genetics Department, Moscow province. Preservation of aboriginal dogs of the north, dog behavior, population genetics, phenetics and biometry.
logoveg@mail.ru

Vladimir E. Beregovoy, curator PADS
West-Seberian Laika and Saluki
USA
Retired Zoologist, Virginia, USA
English-Russian and Russian-English translation, Newsletter PADS, West Siberian Laika, Saluki, Tazy and aboriginal dogs of the world.
aliska@ntelos.net

K.O.R.A. Roelofs
Samoyed
The Netherlands
Kennel «Koraal», Samoyeds and cynology
kroelofs@tiscali.nl

Ingvild Espielen
Samoyed, taygan, norvegian aboriginal dogs
Norvegian
Preservation of the original type of the Samoyed since 1910
ingvild.espelien@oya.vgs.no

Pieter Keijzer
Samoyed
The Netherlands
Database of Dutch Samoyeds
dotunga@chello.nl

Sarah de Monchy
Samoyed
The Netherlands
Dutch club of Samoyeds.
Aboriginal Samoyeds
s.monchy@planet.nl

Eris Koops and Mrs. Coby Koops-Rees
Samoyed and other sled dogs
The Netherlands
Dutch Club of Samoyeds

Translated parts of the books of historic polar expeditions, preserving vitality of Samoyeds.
c.jrees0@freeler.nl

Alie Bartol
Samoyed
The Netherlands
Breeding and training of sledding Samoyeds, travels with dogs.
marian.bartol@wanadoo.nl

William Fantozzi
Karelian Bear Dog, Laikas
USA
Bill@karelianbeardog.us

Alessio Ottogalli
Laikas (REL)
Italy
lotar10agct@hotmail.com

Daniela Castellani
Laikas (REL)
Italy
lotar10agct@hotmail.com

Gregory Alan Newell
Samoyed
USA
Editing English Language documents.
gnewell@samoyed.org

Denize Newell
Samoyeds, Alaskan Malamutes, and Siberian Husky breeds
USA
Samoyed Club of America, Northern California Samoyed Fanciers, Bay Area Siberian Husky Club, Northern California Alaskan Malamute Association. I've been an executive secretary for 20 years. My experience includes writing and editing professional documents, planning large meetings and events, etc.
deni@expeditionsamoyeds.org

Don and Mary Cranford
West Siberian Laika
USA
thecranfords@cox-internet.com

Sir Terence Clark
Saluki, Tazi, Taigan, Afgan (bakhmul)
UK
Sirterenceclark@aol.com

Vadim D. Rechkin
Laikas
Russia
rechkinvd@rambler.ru

Stephen Bodio
Tazi, Taigan, Laikas
USA
ebodio@gilanet.com

Sabine van Wel
Yakut laika, Samoyed
Germany
yakutianhusky@gmx.com

Tatjana S. Dubinina
Taigan
Russia
dubininm@mail.ru

Tatyana V. Desyatova, secretary of PADS
East-Siberian Laika
Russia
irklaika@gmail.com

Przemyslaw Loesch
Laikas
Poland
p_loesch@poczta.onet.pl

Lada V. Ponomareva
Borzoy, Oriental hounds
Russia

Borislav Momchilov Kralev
Laikas и other primitive and aboriginal dogs
Bulgaria
kralevborko@yahoo.com

Margory and David Goodenought
Samoyed
USA
cothpicnsams@earthlink.ru

Amelia Price
Laikas, Samoyed
USA
arprice@optonline.net

Dr. Gertrude W. Hinsch
Saluki

USA
ghinsch@tampabay.rr.com

Vitaly (Zaur) Bagiev
Caucasian Mountain Dog
Russia
abagiev@gmail.com

Cat Urbigkit
Sheep guarding dogs
USA
catu2@mac.com

Eugene Zelenik
Central Asian Ovcharka
USA
EZelenyk@yahoo.com

Sue Hamilton
Canadian Eskimo Dog
USA
quimmiq@snet.net

Gwen Ross
Dog sledding and sleddogs of Chukotka
USA
cgr-37@hotmail.com

Jutta Rübesam
Afghan Hounds, Saluki, Tazi
Germany
Saika.ruebesam@freenet.de

Tyrone Brown
Aboriginal hunting dogs
Netherlands
Treedog41@yahoo.com

Kenneth Zveerink
Eastern sighthounds
USA
omahasnakes@gmail.com

Ms. Heather Fener
Aborigenal Dogs of Europe and India
США
hfener@aol.com

Anna Frumina
Central Asian Ovcharka
USA
Afru@yandex.ru

Gail G. Goodman
Saluki
USA
midbarslq@juno.com

Gunilla Jansson
Dogs in general and aboriginal dogs
Sweden
mapptass@privat.ufors.se

Inkeri and Petri Kangasvuo
Sleddogs, Siberian Hasky
Finland
samans@saunalahti.fi
petri.kangavuo@pp.inet.fi

Anna K. Mikhalskaya
Hounds
Russia
zvanka@yandex.ru

Andrew D. Poyarkov
Hounds
Russia
poyarkov@yandex.ru

Shiri Hoshen
Saluki
USA
shoshen@earthlink.net

Ken Mac Rury
Inuit Dog
Canada
kenmacrury@gmail.com

Lane Bellman
Saluki, Taigan
USA
lanebell.1@juno.com

Franco Milani
Laikas (WEL)
Italy
milani.franco@gmail.com

Brandy Parsons
Sleddogs, Siberian Husky, Lajki
USA
parsons_brandy@yahoo.com

Arianna Spada
Laikas (WEL)
Italy

K u z i n a M a r i n a 115407, Russia, Moscow, Zatonnay str., 2-1-112;
+10-(499)-618-6370; Web site: http://www.pads.ru; E-mail:logoveg@mail.ru
D e s y a t o v a T a t y a n a E-mail:chaga10@mail.ru

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All questions, suggestions and comments will be accepted with gratitude. E-mail them or send them as snail mail to: Marina G. Kuzina mail box 12, Moscow, 115407 RUSSIA