

Why Ride a Camel When You Can Ride a Harley-Davidson?

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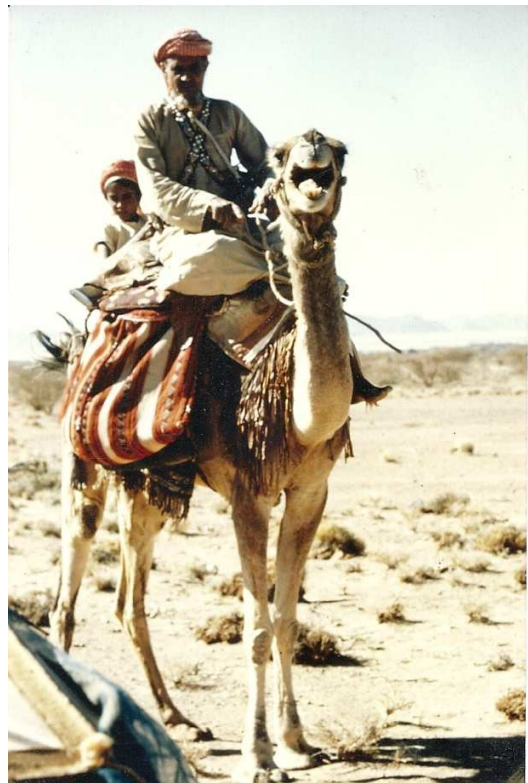
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The Saluki has occupied much of my life and thoughts from the early 1970s when I met the breed in the Middle East to the present. The internet has opened for all of us the entire world where sighthounds are bred, hunt, and are shown. And with the shrinking world comes expanding opportunities to acquire hounds purported to represent an unbroken genetic chain back to the breed beginnings....any and all ancient breeds.

Western Saluki lovers have no "bad memories" of the past in the eastern regions of the breed. As a matter of fact, what we do is *imagine* the past, live it through romantic travelogues, books, movies, we live it effortlessly and painlessly. So, of course, we can cling to it with nostalgia and to the Salukis that link us with it. This nostalgia inclines many people to believe that time actually stands still in the east.

Most Saluki lovers, however, believe the past is past....life is now, showing is now, winning is now....enjoy the spotlight now. Who cares about ragged nomads and camels? The past is dusty old books and blurry old pictures. An apt metaphor for "the now" fancier, why ride a camel when you can ride a Harley-Davidson? Why be an anachronism when you can be a fashion trend?

Yet the fascinating question remains, how is it that some families of Salukis today still look like they stepped off of a 4000 year old Tepe Gawra seal or out of a wall mural in an Egyptian Pharaoh's



Oman, 1960s, photo: W. Overstreet

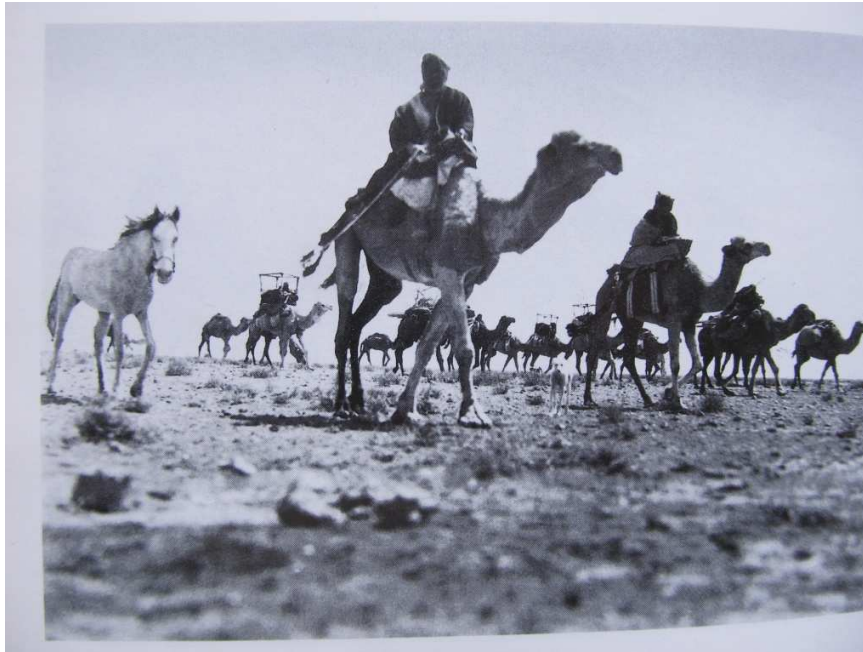
tomb or the foundation imports from the Middle East into the West, particularly England in the late 1800s early 1900s? How has this hound moved apparently unchanged, easily recognizable, through thousands of years as a hunting companion of mankind? Today there is so much interesting material available about culture and genetics, with the expanding breeding options putting so much pressure on the western registered gene pool, I thought I'd try to apply some of this academic material to help us deal with our options as Saluki fanciers.

Competition and evaluation in the purebred dog world is based mostly on subjective criteria and social relations. This is further influenced by our insatiable fascination with the novel and extreme. The old and dusty, the plain and moderate become less and less interesting, while the flashy and colorful and unusual become irresistible. Camel vs. Harley....silly question. And that Saluki on the ancient seals, in the ancient murals becomes harder and harder to recognize, harder and harder to breed, to show, to preserve.

So, let us begin with a brief look at the geography of the great belt of desert that produced our coursing hounds. We then consider the irreparable and universal changes to nomadic cultures and their changed material status and lack of nostalgia for their traditional circumstances. How these changes have impacted Salukis is explored.

We briefly consider the evolution of the dog from the wolf and the genetic profiles of dog breeds. From this research comes the discovery of ancient or basal signature breeds, breeds showing long-term continuity, genetically and zooarchaeologically. The Saluki is the only basal signature sighthound.

We speculate on how this unique genetic profile has persisted and discuss the proposition of sexual isolation or controlled breeding. We also present the danger posed by European amalgamated breeds when introduced into indigenous regions, of overwhelming the basal signature breed.



Raswan, Rualla Bedouin with led mare, note the saluki between the camels ca 1930

We return to the recorded testimony of travelers of past centuries and their perceptions of Arab values regarding their horses. We also look briefly at the values and goals of contemporary sighthound enthusiasts and brokers and the goals

of western Saluki fanciers. We conclude with a discussion of the complex decisions necessary to maintain the health and well being of our Salukis.

Part I: Cultural Roots

Before I share the cultural and genetic research material, I want to create a physical context of the world our dogs evolved in. C.V. Findley's fascinating and readable book *The Turks in World History* (2005) does just that. In the opening pages Findley describes the natural ecology of the entire region that favored the evolution of swift coursing hounds. After reading this geographical description, it becomes extremely easy to visualize coursing hounds along a continuum of structure, type, and physiology from the Sahara through Arabia to Kazakhstan and beyond.

Viewed from a satellite in space, the most striking feature on earth is "the belt of desert that stretches, nearly unbroken, from northwest Africa to China." This arid belt breaks down into a hotter, southward-lying zone to the west and a colder, northward-lying zone to the east. The hotter, southwestern region stretches from the Atlantic coasts of Morocco and Mauritania eastward to Iran, Pakistan, and northwestern India. Within the southerly zone, the term *Middle East* defines the region consisting of Southwest Asia and Egypt, with Turkey, Iran, and the Arabian peninsula at the other corners. The colder, northerly, eastern belt of the desert lies in Inner Asia, spanning historical West Turkistan

(now Turkmenistan, Uzbekistan, Tajikistan, Kazakhstan, and Kyrgyzstan), East Turkistan (China's Xinjiang province, the historic Uyghur country), and part of Mongolia. Toward the east, the northerly belt of aridity is also much more broken by mountain chains than is the southern, westerly one. (pp.9-10)

Findley refers to the land routes traversing this vast region as the equivalents of the ocean routes of exploration and ports-of-call. He mentions the Silk Road as the most legendary route, pointing out that "In reality, it was not a single route but a network of them, generally oriented east and west but with branches in all directions---towards India, Iran, or northern Eurasia" (p.14). So, now we have a general picture of the physical geography that people and hounds adapted to.

Within this vast belt of desert and steppe grasslands are hundreds and hundreds of cultural groups and all of them are undergoing pressure and change.

And insofar as cultures are integrated systems, changes ripple throughout every aspect of the life of the group. My recent article, "Shifting Desert Sands...Changing Desert Breds" (CSW, Spring 2012) was mainly a reflective essay but also dealt with some of those changes for the Bedouin of Arabia and the Sinai and Negev deserts, their impact on the young



Sinai 1937 Photo: C. S. Jarvis

people of the regions and their Saluqis and how that affects us. This article is a continuation on the same theme with a focus on the findings of writers embedded within the changing cultures and some recent DNA research.

Since I am well aware of the fact that in the world of purebred dogs people believe exactly what they want to believe, sharing the observations of writers within formerly nomadic cultures will hopefully broaden our understanding of indigenous dogs today in their native regions of the world. Change has permeated even the most remote regions and people have greeted change very differently.



Sinai 1970 Photo: E. Chen

While for "comfortable" people east and west, change may be lamented, for those who lived the hardships of the past, of nomadism, much that has changed has been embraced.

The first example of the nomad reality is from D. P. Cole's classic 1975 work : *Nomad of the Nomads: the Al Murrah of the Empty Quarter*. At the end of this important book I found the Al

Murrah answer to the camel vs the Harley-Davidson question.

The Al Murrah love their camels, talk about them incessantly, and live off them throughout their lives, but they prefer to travel long distances quickly by truck and they all praise the Al Sa'ud and oil for making their life in the desert a bit more comfortable and secure than it was in the other Arabia a few decades ago. (p.139)

Cole refers to two brothers, one traditional and one modernized and observes that neither bemoans "the passing of the old days. They all look forward to change and hope for a better life" (ibid).

I had read the very same sentiment documented by R. Balgin of Almaty, Kazakhstan, in his article "The Tazys of Almaty Province, Part I" (2011). Balgin stated that in the 20th century "people of Kazakh nationality lost their entire nomadic culture which is thousands of years old" (p.19). He continued:

Naturally it is impossible to put the historical process in reverse and nobody is interested in doing so. Even the most traditionally oriented Kazakhs cannot imagine themselves outside of the settled system of modern civilized principles. None of the "hard core" Kazakhs would pursue his political interests in favor of retuning the tazy to the natural or traditional way of life side by side with a human hunter with the transition back to the difficulties of natural husbandry, barter trading and hardships of nomadic life and dependence on the vagaries of nature. (ibid)

Balgin commented that no one, not even a small group, "would give up the comfortable accommodation of modern life" for the sake of maintaining the tazy in its original place embedded within a nomadic society. The only hope for tazy

preservation at all, Balgin concluded, would be within "a format of shows and appropriate remuneration in the form of money" (ibid). He continued:

The breed irreversibly lost its original place. More precisely, it has been sacrificed by man to the new way of life. This is no longer a tendency, but rather an accomplished fact. (ibid)

Hence, Cole, writing about the nomads of the Empty Quarter of the Arabian desert and Balgin, writing about the nomads of the steppes of Central Asia echo the identical sentiment of the nomads themselves....none is interested in turning any clocks backwards! Balgin commented that life dictates other priorities and preserving the tazy is not high on the list of former nomads. I did not find any mention of Saluqis in Cole's book except for one photograph with the caption that in 1968-70, when Cole did his fieldwork, every Al Murrah tent had a least one such dog. Cole concluded that "Unlike romantic Westerners who bemoan the passing of the ancient way of life and fear that debasement and moral bankruptcy will replace the proud, aristocratic ways of the desert Arabs, the Al Murrah praise Allah for the security and peace that today characterize most tribal affairs in Arabia and for the easier life that modern economic development is making possible" (p. 24). And though Cole observed that glimpses of the past may still be seen on occasion, "the world has changed for even the most isolated nomad or villager, and they all know that the old Arabia has gone forever" (p.139).

What does this converging reality of traditional environments, the physical and cultural environments that produced our Salukis, the changed focus and orientation of the nomad people, have to do with whether *we* in the western Saluki fancy choose the camel or the Harley-Davidson? The answer has two parts. First, if the cultural context has drastically changed, we must now ask whether any of "the original" Salukis have actually survived these upheavals. Secondly, the choice has become a metaphor for how we value the past, value foundation dogs and their pedigrees, value bloodlines based on more recent eastern imports, and choose our direction for the future. *Preservation is as much about the future as it is about the past.*

One of the most interesting aspects of the situation is that change among former nomads appears to be experienced quite naturally, no nostalgia for the hard times of the past...none. For the "modern" Arabian peninsula Arabs Saluqi races

with huge monetary prizes and beauty contests have become popular. Yes, the wealthy are still able to hunt wild hare and gazelle but they do so with Saluqis of their own creation. This once rare desert hound, as well as all other sighthound breeds, is now imported into the native regions from sources worldwide and locally bred according to thoroughly cosmopolitan Arab inclinations. The Arabs view Saluqis as "their breed" and they have every right to define it and breed it as they wish. Change has vastly expanded, overwhelmed, the original desert gene pool. Cole documented that organized horse and camel racing preceded Saluqi racing.

In his recent article "Where have the Bedouin Gone? " Cole (2003) observed that beginning in the 1960s horse racing and then camel racing became popular in the cities of Arabia and the Gulf causing a search for purebred Arabian horses which "contributed to *resurrecting* these breeds from almost dying out in the region and their consequent *reintroduction* [emphasis added] as an esteemed element of Arab cultural heritage. Search for purebred race camels, and also milk camels, led elite urban men back to Bedouin camps and their herds in the steppes" (p. 256). Cole claimed that this shared interest, Bedouin and sedentary, has "fostered an elite appreciation of Bedouin as individuals and as renowned collectivities strongly tied to an Arab past and many of its cherished customs" (p. 257). Though racing was not a regular feature of groups in the past, it resonated strongly among all groups beginning in the 1960s, continuing to gain prestige today. It appears that the same *resurrection* and *reintroduction* has occurred with the Saluqi, starting in the 1990s, as happened with the horse and camel.

Another fascinating element of change for the Arabian peninsula Bedouin, as urban demand for sheep and goat meat increased, Cole (1975) wrote that

Increasingly the Saudi Arabian Bedouin hire other Bedouin from impoverished areas in Iraq, Jordan, and Syria to herd their sheep and goats while they work in urban areas and only occasionally visit their herds and families. As a result, a kind of nomadic ranching complex may be emerging in the deserts of Saudi Arabia. (p. 162)

Also important for background knowledge is the traditional relationship between the Bedouin and the wider society. Cole characterized it as one of mutual interdependence. Cole cited Bujra who wrote that "the urbanite, the villager, and the Bedouin together participated in a complex web of social, economic, political,

military, and religious relationships---many of which continue into the present, though often in drastically changed and changing form" (p. 106).

Shifting our focus to the northern steppe nomads, Balgin (2011) observed that today Kazakhstan is a multinational country and tazys are kept "by people of different ethnicities: Kazakhs, Russians, Turks, Greeks and others" (p. 21). Tazy theft and tazy trafficking are not uncommon because though no one wants to turn the clock backwards, the dogs are becoming a status symbol. However, without some material incentive to maintain the breed, the indigenous Kazakh tazy gene pool is threatened.

Taking a worldwide perspective, other impacts of changing cultural conditions on indigenous sighthound and dog breeds generally was summarized by K.N. Plakhov (2007) in his article "Cynological Conference in Almaty Kazakhstan Republic." This conference brought together a broad range of people devoted to preserving a variety of indigenous types of canines. Plakhov summarized the threats to these canines, observing that the populations of indigenous or aboriginal dogs in their countries of origin are declining rapidly for many reasons: globalization, eliminating ancient traditions, including those related to the use of dogs; increasing mixing with purebred dogs imported even in the most remote areas; wars, starvation, decline of the economy and impoverishment of the local population in certain regions; purposeful extermination of aboriginal dogs; refusal of local dog clubs to work on aboriginal breeds or a total absence of such organizations, etc. (p. 4). R. Balgin (2011) further illustrated the pressures on the Kazakh tazy, citing an ever increasing number of hunters using all-terrain vehicles and guns, hunting at night with high powered lamps, making the tazy as a hunting partner irrelevant. Balgin observed that the process of breed degradation will continue and "it is very likely that only show lines will remain as part of commercially oriented programs...the remaining tazys will lose their special characteristics and will subsequently become absorbed by the colossal number of crossbred yard dogs" (p. 20).

T. Dubinina (2005) addressed similar issues facing the Kyrgyz sighthound, the taigan, in her article, "Living Legend of Tyan-Shan Mountains." She wrote that during most of its history the breed reproduced without much human intervention or control in geographically isolated regions. The arrival of new settlers brought

new dog breeds which began to mate with local taigans because the taigans were traditionally never confined or tethered. With the increased availability of firearms, improved transportation, industrial development, and the mass influx of new people, the taigan became less and less important as a provider for the family. Further threats occurred in the 1970-80s with a government emphasis on increasing game animals, hence free ranging taigans, along with feral dogs, were simply shot. She speculated that under such pressure, the "pure type" of taigan could only be found in the most inaccessible high mountain regions of Kyrgyzstan. So, whereas Plakhov believes that purebred or "cultured breeds" have been imported and mixed with indigenous breeds even in the most remote areas, Dubinina believes that pockets of pure indigenous blood can still be found in the most remote regions.

However, cultures and groups of people have never been truly "isolated." This is a cherished myth of dog fanciers, the belief that the breed they fancy has actually managed to exist within some kind of bubble of isolation and therefore remains *pure* and free from any kind of interaction with other breeds, distinct and frozen in its ancient and original pure form, both physically and genetically. Purebred dog fanciers cling to this idea fervently. However, how a breed is defined, east or west, has always been a cultural construct: people create descriptions (standards) and set parameters for what is or is not a particular breed. Modern genetic research has now added a "new" parameter for what is or is not a Saluki. The

metaphor of the camel vs. the Harley-Davidson is way more complex than I initially imagined. Hence a solid grasp of the cultural context of the Saluki, past and present, in indigenous regions is essential.



Shammar Bedouin, ca 1930 Photo: G. Bell

Before I leave the topic of cultures in flux, a few more situations are important to consider. First is the fact that worldwide governments have dealt in similar ways with nomad populations, hence from Morocco to Saudi Arabia to Kazakhstan and beyond people and their animals have been forced to change in similar ways. This has placed somewhat similar pressures on coursing hounds throughout these vast regions. Cole (2003) wrote that the governments in the states where nomads lived did not support the continuation of migrations.

Newly independent Arab governments and Saudi Arabia (which had not been colonized), the newly created Arab League, and various organizations of the newly created United Nations began to call for sedentarization of the Bedouin. The unquestioned, and largely un-researched, solution to the Bedouin "problem" from the 1940s through at least the 1970s was settlement and a shift from livestock to crop production. (p. 242)

Change brought disruption to the social fabric of nomad and semi-nomadic life with increasing socio-economic differentiation. In some regions privatization of land ownership and land registration policies made some Bedouin shaikhs big landowners while other members of the tribe became impoverished. In the 1950s the Bedouin of Arab state societies everywhere were at the bottom "in terms of most indicators of socioeconomic status..." (p. 241).

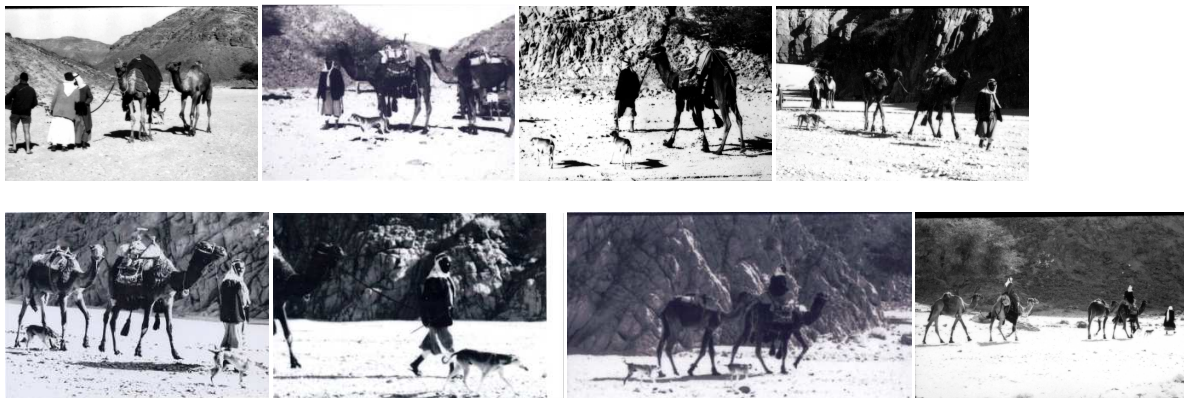
According to Cole (2003) a general extension of central state power into all territory of the state has occurred everywhere. "All non-demarcated land in desert and steppe is state property; and tribal or communal, rights to land ownership are not legally recognized (p. 251). Hence, in an economic, political, and legal sense there has occurred a "detrribalization" of the Bedouin. However, Cole proposed that among the Bedouin themselves one can see a growing sense of Bedouin-ness, of a shared identity that includes a sense of a common history and sub-culture that cuts across tribal boundaries that perhaps divided people more in the past. (p. 252)

Social ties with kinfolk, residence in areas where they can still graze some livestock, a keen interest in genealogies and poetry still characterize many Bedouin communities. Whether settled or on the range, Bedouin today have been administratively integrated into the larger society.

Since social change has been pervasive, affecting every aspect of Bedouin life, it has certainly impacted the Saluqi. The relevance of all of this will become clear. The physical and cultural context is essential to understanding the scientific

research. All Saluki lovers see our breed as unique among dogs, of ancient origins and "purebred." We intuit a "specialness" to Salukis not shared with other breeds. And it seems that this intuition has a basis in recent DNA research. Therefore, it is essential to grasp not only our romanticized notions of the past with arduous desert migrations, interactions between the desert and the sown, hunting, feasting and all that was the context of the daily life of people and hounds, but to also grasp the fact that irreversible change has occurred. Cole (2003) commented on the tendency of urban easterners and westerners alike to maintain the perspective that the Bedouin have special powers and senses or that they have remained unchanged since "time immemorial." He asserted that this simplistic attitude merely forces the Bedouin into the category of some "exotic artifact of the past" or "a romantic representative of some Other" when in fact their lives are like "ordinary, everyday people" trying to adapt to change (p. 260).

In the concluding section of this essay I will discuss how the changing perceptions of the Bedouin are enabling the Bedouin to market their "Bedouinness." In some regions today, Bedouin identity and honor, as well as the artifacts of Bedouin culture are being promoted as part of "national culture." No more plain old "desert bred" Saluqis. We now have a proliferation of "country of origin" landraces. But do we have historical, genetic continuity from the beginning? *Is the Saluqi still a Saluki?*



Part II: Ethology and Biology

In Part I the evidence of irreversible cultural change in the regions of the world where Salukis originated and can still be found was presented. In this section

we will examine some ethological and biological data that will help us to understand how Salukis came to be, first as dogs, then as an ancient breed.

All dogs are domesticated animals; they have not been wolves for anywhere from 15,000 to 150,000 years. In their fascinating book, *Dogs*, R. and L. Coppinger (2001) propose that wolves gradually became dogs by invading the ecological niche of the garbage dump. This set in motion the process that led to the evolution of dogs through natural selection. Generation after generation of tamer wolves gained access to the steady new food source. The Coppingers propose that:

Variation among the first wolves feeding in the first dumps would mean that some would have been genetically less nervous than others. The less nervous wolves would have eaten more, and turned those calories into puppies rather than using them to run away. All that was being selected for was that one trait---the ability to eat in proximity to people. (p. 60)

The single trait of flight distance set in motion the evolution from *canis lupus* to *canis familiaris*. The Coppingers stress that through natural selection wolf qualities were severely modified. "Dogs do not think like wolves, nor do they behave like them....dogs can't think like wolves, because they do not have wolf brains" (p. 67). They conclude:

The biological reality of all this is that the wolf is now a distant cousin of the dog. The canid family tree split, and wolves and dogs went along their separate branches. The wolf displays specialized adaptations to the wilderness, and the dog displays specialized adaptations to domestic life. The two canid cousins are adapted to different niches, and they are very different animals because of it. (ibid)

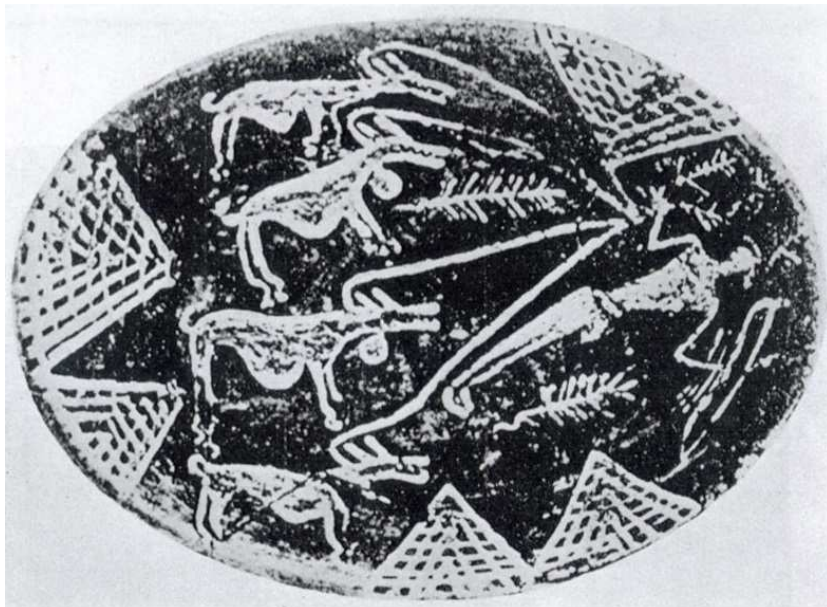
Since all dogs are associated with human cultures, how humans live, travel or migrate, trade, make war and peace affect canine populations. Who people "associate with" determines who their dogs associate with. And this is as true today in the internet age as it was 15,000 years ago when the first dog was buried with its owner, or in the 5th century BCE when Phoenicians, who considered dogs sacred, created a dog cemetery next to a palace in the ancient seaport city of Ashkelon on the Mediterranean Coast of Israel.



5th century BCE Phoenician hunting dog

These cultural facts are now being traced through the genetic make-up of our dogs. Since people seem almost as fascinated by the genetic history of dogs as they are with human history, there is a growing scientific focus on canine origins and the evolution of "breeds." In this section we will look at a few studies and their implications for our Salukis.

Though the Coppingers propose that behaviorally dogs and wolves are very different canids, and though there is tremendous phenotypic variation between wolves and dogs and dogs themselves, dogs and wolves retain very similar genomes. Numerous studies have attempted to locate the exact point of domestication and how many wolves contributed to the foundation populations of dogs. Whether there were four main female wolf contributors or more male and female wolves involved, Leonard, Vila, and Wayne (2006) state that "hybridization between wolves and dogs was likely an important influence on the diversity of the dog MHC [major histocompatibility complex]" (p. 104). They propose that there was probably "extensive backcrossing with male wolves early in the history of dog domestication..." (ibid).



Petroglyph, Tassili-n-Ajer, Algeria, possibly 10,000 years old

Current research by B. M. vonHoldt et. al. (2010) suggests that regardless of the precise numbers of original wolf contributors, grey wolves from the Middle East are the dominant source of genetic diversity for dogs. VonHoldt et. al. proposed that the primary centers for dog origination are the

Middle East and China using the archaeological record or mtDNA diversity, however the most SNP sharing for the majority of dog breeds is with Middle Eastern wolves. A few breeds shared more haplotypes with Chinese wolves. On the subject of origin, the researchers concluded that

These data implicate the Middle East as a primary source of genetic variation in the dog, with partial secondary sources of variation from Europe and east Asia. (p. 900)

Leonard et. al (op.cit.) suggest that despite genetic similarities between wolves and dogs, reiterating the Coppingers, they agree that there are great behavioral and morphological differences. Leonard et. al. propose that "changes in gene regulation rather than mutation in structural genes may account for some of these behavioral differences" (p. 105). As the Coppingers proposed, tameness, diminished flight instinct, eventually resulting in docile behavior, appears to have led to the morphological traits typical of dogs. There is clearly an epigenetic component to dog evolution. The Coppingers go so far as to state that "behavior is always epigenetic--above the genes--an interaction between the genes and the developmental environment" (p.114). They describe the whole nature-versus-nurture controversy as passé: "nature cannot ever be separated from nurture."

On the origin of breeds and a specific genetic profile for a breed, Leonard et. al. state:

Studies based on mtDNA found no correlation between mtDNA haplotype and breed....The lack of differentiation between breeds for mtDNA markers is surprising, given the morphological uniformity within breed compared to the large differences between breeds, and suggests that modern breeds have a recent origin from a well mixed and genetically diverse population. However, this conclusion conflicts with historical evidence suggesting an ancient and restricted geographic origin for some dog breeds. (p. 108)

We will return to this critical observation about ancient and historical evidence for "some dog breeds." Here it is only important to understand that there appear to be genetically identifiable differences between ancient and modern breeds, the Saluki being an ancient breed. Referring to recognizable and common breeds of European origin, they are so closely related that a recent origin for all of these breeds is suggested "and that they share a common recent ancestry from a diverse population of dogs. This result is consistent with the historical evidence which suggests that

most European breeds originated in the past few hundred years" (Leonard et.al., p. 110). This means, simply, that differences for those breeds are in phenotype rather than genotype.

Concluding their discussion on the evolution of the dog from the wolf, Leonard et.al. recommend that future research must include a wider variety of populations of dogs, such as indigenous dogs. They comment that "such native populations may contain unique diversity that provides insights into the pattern and process of domestication and will document the vast reservoir of genetic diversity that could be tapped to rescue breeds with disease problems" (p.111). This is precisely the sentiment of those of us who have looked to the indigenous Eastern Saluki as a repository of both history and health. And this is precisely why the ongoing changes in all formerly culturally cohesive regions is a source of such great concern to modern Saluki breeders.

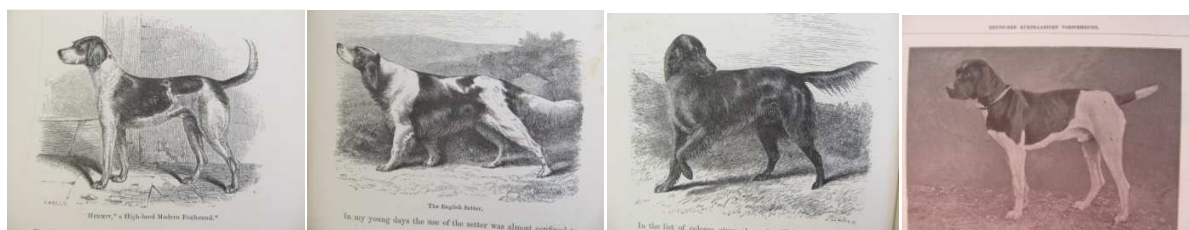
Since our focus is not on the common breeds of European origin but on the ancient breed, Saluki, it is essential that the process that created or formed our breed be well understood. It was not sexual isolation that created Salukis, though because they have clearly been valued as companions in the hunt for thousands of years, their reproduction must certainly have been, in some environments more than others, somewhat controlled, unlike the ubiquitous pariah dogs. As I discussed in "Shifting Desert Sands, Changing Desert Breeds," the Saluki is the result of a cyclical process of inbreeding and outbreeding and that process worked on the genes for millennium to give us the wonderful, versatile hound we have today.

Knowledge of transhumance migrations, as well as the historical upheavals in Central Asia and the Middle East, the well established trade around the entire Mediterranean extending into China, India, Iran and all of Europe...all of this is the essential compliment to genetic research and necessary information to create the "big picture" Saluki world. In addition, in all indigenous environments dogs had work to do and this work, in the geographic region where they performed their jobs and lived, formed them: *form follows function*. This is how western people were able to pluck individual "prototypical" dogs out of their native regions and assign them the status of breeds. According to the Coppingers,

The modern trend is to ascribe breed status to the dogs of different ethnic groups, or national areas....Within new national boundaries or regions, hobbyists develop rationales (and controversies) about which are the real, the pure, the original breeds. (p.125)

A breed, any breed, all breeds, based on my understanding of the interaction between culture, the needs of people for particular types of dogs to do particular kinds of work, permeable boundaries (open borders), this created *a continuum* of overlapping types. Focusing on Saluki type dogs, in conjunction with the chase, as the temperature increased structure became lighter, legs longer, bodies shorter and metabolism evolved to cope with running in high temperatures. However, nomadic hunters and later livestock herders moved from hot, dry desert regions to damper, colder steppe regions and the Salukis had to be able to cope with these changing conditions. In the geographic range that was historically considered indigenous for Salukis, there was certainly physical variation.

During the seasonal migrations came traditional types of contacts, hence migratory herders and settled villagers met periodically to "do business," developing a mutual interdependence. And their dogs surely met, as well. From antiquity until the end of the great migrations, there were infusions of herding dog blood into the Saluki gene pool and Saluki blood into the herding dog gene pool. Salukis needed more courage and sheep dogs needed more speed. In addition, the indigenous Saluki lands were crisscrossed for centuries upon centuries by warriors, traders, travelers...the ancient Greeks with their scent hounds, the Romans with their *vertragis* (progenitors of the greyhound), and eventually European Crusaders, Turks, colonials and modern military occupiers who brought with them a vast array of setters, pointers, spaniels, foxhounds and gun dogs of every size, shape and color. B. Duggan in *Saluki* (2009) described hunt packs used by British military personnel stationed from Egypt to Syria in the early 1900s as "consisting of 'long dogs' (Salukis, Greyhounds, and sighthound crosses), pointers, foxhounds, and terriers. These mixed or bobbery packs would be used to hunt whatever presented itself for the chase..." (p.120).



Sexual isolation was probably next to impossible in such environments, hence crosses of all sorts must have resulted, either random or purposeful, and those that survived and proved to be good workers were probably fed and put to work. These dogs certainly interacted with local dog populations everywhere with the same outcome: useful dogs were cared for. When troops moved on, some dogs were left behind.

Different selective pressures will shape dogs in different ways. The Coppingers (op.cit.) point out that all regional populations of dogs are subject to "periodic population catastrophes. Periodic epidemics are the rule in animal populations, not the exception" (p. 88). Hence epidemics of parvovirus, rabies, distemper, mange can reduce an entire regional population. This leads the Coppingers to propose that no natural breed of dog is very old. They suggest that

No breed can be ancient in the sense of an unchanging gene sequence. Even within our modern breeds, the gene frequencies are constantly changing, sometimes due to natural selection, sometimes due to artificial selection, and sometimes due to chance events. (p. 89)

The Coppingers reject the idea that any breed is ancient in the sense that it has been sexually isolated for centuries.

Since seasonal migration was an essential element in the process that created "the original Saluki," before we focus on some recent genetic research, a description of the great livestock migrations over centuries and centuries will give us "a feel" for the emergence of the livestock guarding breeds as well as our Salukis. These great biannual migrations involved millions of sheep, millions of livestock guardian dogs, and thousands of shepherds. Nomadic Bedouin had thousands of sheep, goats, camels, and horses. No one has estimated how many guard dogs and how many Salukis might have accompanied them, but there must have been significant numbers of both. And since all migrations have parallels, the Coppingers' description is applicable.

On every trip [migration] their dogs are capable of breeding with local dogs along the way. When they get to the high country they breed with shepherd dogs from other regions and other countries. Pups born in high pastures are sold or given to friends from other faraway places. A single dog's genes thus can be spread along the trail and then, through the puppies, be transported to regions the parent dogs have never visited. And all

of this can happen in a matter of months. In a single year, a single dog's genes can move thousands of miles. (p. 128)

The transhumance moved back and forth "over three continents in a thousand-mile-wide band from the western Mediterranean to somewhere in the Himalayas" leading to a mixing and remixing of dog populations for at least the past 4000 years. Migrations were arduous, natural selection relentless, hence mortality rates were high. Coppingers concluded that under such circumstances, "natural selection, human support, and culling produce regionally distinct dogs even though no one is actually breeding dogs" (p. 141).

Against this backdrop we will look at some recent genetic research. Previously cited, the research of vonHoldt et.al. (2010) not only addresses the origins of domestic dogs, but it explores the actual antiquity or modernity of breeds of dogs that are today recognized by the American Kennel Club. Blood samples were collected from 912 domestic dogs at AKC sanctioned dog shows, specialty events, breed clubs, and veterinary clinics. "Three-to-twelve dogs from each breed from each of 81 AKC recognized breeds and four semi-domestic lineages (Africanus, Canaan dog, dingo, and New Guinea singing dog) were used in the analysis"(p. 903). In their various analyses they found that dog breeds varied greatly in their genetic distance from wolves, with recent admixture in only a few breeds.

...most of these breeds (Basenji, Afghan hound, Samoyed, Saluki, Canaan dog, New Guinea singing dog, Dingo, Chow Chow, Chinese Shar Pei, Akita, Alaskan malamute, Siberian husky, and American Eskimo dog) are highly divergent from other breeds.... These highly divergent breeds have been identified previously and termed "ancient" breeds (as opposed to modern) because, consistent with their high levels of divergence, historical information suggests most have ancient origins (>500 years ago). (p. 898)

The researchers refer to previous studies having defined three well-supported groups of highly divergent, ancient breeds: an Asian group, a Middle Eastern group, and a northern group. The Afghan hound and the Saluki are in the Middle Eastern group along with the Basenji, which appears to be one of the most ancient of dog breeds.



Mummified Saluki from a Pharaoh's tomb, possibly 4,000 years old in Cairo museum

As they explored how the process of domestication selected for specific phenotypes, they found that the genetic structure of dogs can be examined on three fundamental levels resulting from distinct evolutionary processes. For genetic analysis all dogs were assigned to a breed of origin which reflected "the limited number of founders, inbreeding and small effective population size characteristic of many

breeds." (p. 901). On the next level of analysis breeds could be grouped based on form and function reflecting "the tendency of dog breeders to develop new breeds by crossing individuals within specific functional and phenotypic groups to enhance abilities such as retrieving and herding, or further develop specific morphological traits" (ibid). They comment on the fact that once a discrete mutation is fixed in a breed "it can readily be crossed into unrelated lineages and thus enhance the process of phenotypic diversification" (ibid). The final genetic structure level examined provided distinct results which are of great interest and importance to Saluki fanciers.

Last, we identify divergent lineages of dogs distinct from those breeds that radiated during the nineteenth century and that probably derive from ancient geographically indigenous breeds. This finding mirrors recent genetic discoveries in sheep and cattle and suggests that some canine lineages may have persisted from antiquity or have more recently admixed with wolves. (p. 901)

The recent admixture with wolves is deemed improbable for most ancient breeds other than the divergent northern breeds. As already mentioned, Salukis are among the ancient breeds separated from other canids. Hence, scientific research "suggests that some canine lineages may have persisted from antiquity," precisely what all Saluki fanciers have believed to be the case, and now it appears that the DNA is supporting what we all see in the ancient images and artifacts---Salukis are indeed a most ancient of hounds.

This conclusion is further supported by the research of Larson et. al. (2012). The Larson study involved 1,375 dogs (representing 35 breeds) and 19 wolves and additionally combined their data with previously published data enabling them to contrast "the genetic signatures of 121 breeds with a worldwide archaeological assessment of the earliest dog remains" (p.1).

On the actual origin of the domestic dog, Larson et.al. conclude that "despite the volume of new data, the estimates of when, where, and how many times dogs were domesticated remains disconcertingly imprecise" (p.2). What has been identified, however, is

several genetically divergent dog breeds in well-supported basal positions on phylogenetic trees. This early branching pattern has been used to designate these breeds as "ancient." To avoid conflating genetic differentiation with presumed ancient heritage, we will instead refer to these lineages as "basal." (ibid)

The researchers compared classes or groups of dogs, which appear to have prehistoric roots and appear to be the basis for the development of distinct forms of dogs. They stress that modern breeding practices involving closed bloodlines and breed standards

only emerged in the 19th century, and claims for antiquity (a long-term continuity) of modern breeds are based upon little or no historical or empirical evidence. In fact, recent historical records clearly demonstrate that most modern breeds experienced significant population fluctuations within the past 100 y. (ibid)

To test the assigned status of ancient or basal breed, both the genetic and zooarchaeological evidence was examined. The Larson et.al. study identified six breeds as basal: the Akita, Basenji, Eurasier, Finnish Spitz, Saluki, and Shar-Pei. Combining their results with two previous studies, the number of basal breeds increased to 16, with some questions about a few. They make the intriguing statement: "Despite the long history of human selection for specific dog forms, there is a major disconnect between truly ancient dogs and modern breeds" (p. 3).

Larson et. al. explain this statement by examining the histories of "reconstructed" breeds such as the Irish Wolfhound and other breeds that either vanished completely or suffered significant bottlenecks such as the English mastiff, Sussex spaniel, Manchester terrier, Bernese Mountain dog, and Italian greyhound,

to mention a few. All of these breeds were recreated by crossing numerous other breeds. They point out that

Interestingly, the recent genetic homogenization has occurred despite the increase in phenotypic disparity as breeders have simultaneously closed breeding lines and selected for extreme morphological traits. (ibid)

The history of the basal breeds the Finnish Spitz and the Shiba Inu is mentioned because these breeds suffered from a drastic reduction in numbers yet, despite being reconstructed, they retained their basal breed signature. The Shiba Inu was reconstructed after WW II. In the case of the Finnish Spitz, non-crossed dogs were collected from remote villages beginning in the late 1800s and bred from. The fact that the Finnish Spitz retains the basal genetic signature demonstrates that in the late 1800-early-1900s there remained some identifiable non-crossed individuals.

Larson et. al. also comment on the fact that all basal breeds have geographic origins in the Old World except the Alaskan malamute and suggest that this is likely due to the introduction of European breeds some 500 years ago and these breeds "overwhelmed the native lineages." They also comment, as did vonHoldt et.al (op.cit.), on the fact that "numerous widely geographically distributed dog populations share identical mutations responsible for specific phenotypes" and that it is unlikely that these mutations arose multiple times independently but rather imply "a significant degree of gene flow between breeds."

Returning to the genetic distinctiveness of basal signature breeds, genetic distinctiveness alone was not adequate for this classification. In contrast to the flow of mutations, Larson et. al. claim that "a lack of gene flow, or at least a lack of introgression with breeds that do not possess basal signatures" characterize the 14 [retained] basal dog lineages. These lineages, they claim, were either geographically or culturally isolated "from the primary center of dog breeding in Europe that began in the 19th century" (p. 5). They refer to these isolated dog populations as island populations, either physically or metaphorically, claiming that they retained their genetic integrity by avoiding amalgamation into the larger group of dogs that had lost its genetic distinctiveness.

Larson et. al conclude that the ever shrinking world, with dogs now present in every human habitable environment, will only further reduce the number of differentiated, isolated dog populations. They state that historically

Each time a lineage that had been evolving in isolation came into contact with introduced dogs, the resulting descendent admixture blurred the genetic signature, making it more difficult to deduce their origins before assimilation. (p.5)

They point out that basal dog lineages retain their distinctiveness mostly due to lack of admixture with amalgamated breeds from a wide variety of geographic regions and not because they more closely approximate the first domestic dogs. They reiterate that "no Central European breeds retain an ancient signature despite the ~ 15,000 y history of domestic dogs" (ibid).

The final study that we'll look at briefly, A.R. Boyko et. al. (2009) also had as its goal to pinpoint the site of the first domestication of the dog. This study analyzed mtDNA, microsatellite, and SNP markers from 318 village dogs from sites in Egypt, Uganda, and Namibia. In addition they analyzed Puerto Rican street dogs, known mixed-breed dogs from the United States, "and several hundred dogs from 126 breeds, including 129 dogs from five African and Middle Eastern breeds to determine the degree of non-native admixture in African village dogs" (p. 13904). Five African or near-African breeds, noted with their supposed region of origin, were included among the 126 breeds: Afghan hounds (Sinai, Egypt); Basenjis (Congo); Pharaoh hounds (near Mediterranean); Rhodesian Ridgebacks (Zimbabwe); and Salukis (Iraq). They stress that "the distinction between indigenous and non-native dogs is important because indigenous, but not non-native village dogs, are likely to contain genetic variants that are not found in any of today's >400 recognized dogs breeds" (p. 13903). They actually found that heterozygosity was low in all of the breed dogs and high in all of the village dog populations except two isolated groups.

In trying to ascertain closeness of village dogs to founding populations for each of the five presumed African or Middle Eastern ancestry breeds they "differentiated three breed groups--Basenjis, Salukis/Afghan hounds, and Rhodesian Ridgebacks/Pharaoh hounds--while village dogs were clustered closer to the origin"(p. 13905). They found that

Notably the village dog cluster still exhibited geographical structuring with Egyptian village dogs lying closest to the Saluki/Afghan hound cluster, indigenous Namibian and Ugandan dogs lying closest to the Basenji cluster, and breed-admixed Namibian and American dogs lying closest to the Rhodesian Ridgeback/Pharaoh hound cluster. (ibid)

A finding of great relevance to the Saluki with its long history of migrations is that with regard to the African village dogs, in all but two locations, "the lack of consistent levels of admixture within regions suggests that non-indigenous dog genes are quickly removed from village dog populations, or that admixture with non-indigenous dogs is a very recent phenomenon in these areas" (p. 13906). They also discovered that dispersal barriers, which could be physical or cultural, greatly affected population structure. Subjected to various levels of analysis, the results consistently showed that "Salukis, Afghan hounds, and Basenjis cluster with ancient, non-European breeds, while Pharaoh hounds and Rhodesian Ridgebacks do not" (p. 13907). Boyko et. al. concluded that

Indigenous dog populations can be largely eliminated, as in Puerto Rico and central Namibia, by European colonization, and it is unclear the degree to which other populations will be able to maintain their genetic identity and persist in the face of modernity. (ibid)

This concludes the brief look at recent scientific research of interest and relevance to our breed: the "original" Saluki, the "pedigreed" Western Saluki, and the "modern" Middle Eastern Saluki today.

Part III: Discussion

As Saluki lovers, whether our interest is in competition or the companionship of an "ancient" pet, a hound that we see reflecting a long-term continuity "from the beginning" of *canis familiaris* to the present, we need to understand the drastic cultural changes that have occurred in the lands and environments where the Saluki is indigenous and how these changes impact the entry of the *modern* eastern bred Saluki into what appears to be the "*ancient*" gene pool of the *modern* western Saluki! As I noted in "Shifting Desert Sands," the vast majority of pictorial and anecdotal written history of the Saluki is to be found in the west; ironically, we may now wonder whether this is true for the genetic history of Salukis as well. This is the direct result of the drastic changes in the

indigenous regions and the total disruption in *the process* that made the Saluki a breed distinct from other dogs from time immemorial. The process was "frozen" in the west in the late 1800 early 1900s with kennel club recognition of the breed and the beginning of registration and the stud book. The DNA research cited here was done using samples from western registered Salukis.

In the future the topic of phenotypic diversity in indigenous breeds can be explored in depth because it is highly relevant to the idea of "the original" Saluki. If heterozygosity is to be maintained so must the variation of types within the breed. This diversity is noted by researchers embedded in the lands where particular types of coursing hounds are traditionally found. This variation was typical everywhere that purpose-bred indigenous dog populations existed and was noted in the writings of the early English breed historian, the Honorable Florence Amherst. Referring to northern coursing hounds, T. Dubinina (2011) contrasts the attitudes of the traditional Kyrgyz hunters towards taigans with the attitudes of modern cynologists. She states that

Kyrgyz sighthounds in their home country are diverse phenotypically. Depending on the landscape and climate, hunters of different regions of Kyrgyzstan traditionally prefer a certain type of taigan. (p. 7)

She mentions valley, mountain, and a great diversity of intermediate types noting that this has been the case for thousands of years. She refers to K.N. Plakhov who noted that "it is a specific feature of the aboriginal breed that it is hard to fit it into a single standard type; even littermate puppies may be very different in appearance" (p. 10). Dubinina observed that the indigenous taigan has "become really threatened since recent attempts to reshape it to fit into a straight-jacket of the European model of breed standard and to deny existing types" (p.8).

This echoes precisely the sentiment expressed by Saudi Arabian Sheikh Saud Al-Sowayel in an interview with E. Kissinger appearing in the *Saluki Quarterly* in 1979. Sheikh Al-Sowayel responded to a question about a Saluki breed standard: "Whose definitions? The Arab's definitions are not standardized. The definitions are basically unfair; it's unfair to specify by standard. There is no real advantage to this....Desireable characteristics vary from person to person....the rules of the game (standard) are not really what Salukis are about" (pp. 40-44).

What Dubinina (2011) described for the Kyrgyz taigan has already occurred in the traditional indigenous environments of the Saluki. Part I presented the great changes that have impacted the formerly nomadic Bedouin cultures and the Middle East generally. Focusing on eastern Saluki owners, as knowledge of western attitudes, ideals and dogs of all breeds has increased, so the impact of both western values and European/American bred dogs has increased dramatically. We all know of Saluki breeders who sold dogs to Middle Eastern people. Such sales have been documented since the 1950s, at least, to Bahrain and the Gulf region. Not long ago Iran was a cosmopolitan, western oriented country; Lebanon was a holiday destination for much of Europe; Syria was a country where Scandinavian employees of oil companies were based, some of them bringing their Salukis and whippets with them; a great influx of refugees from the Soviet-block countries arrived in Israel with their purebred dogs of all breeds; and Arab diplomats and students acquired Salukis and other breeds of dogs from numerous western countries and brought them home. The indigenous regions of the Saluki have experienced, particularly over the past 50 years, a great influx of foreign dog breeds.





Sinai 1987, 3 generations of Tarabin Bedouin Salukis , possibly the end of a lineage. Photo: D. Goodman

During this same period, along with the vanishing Bedouin went their accumulated-over-centuries cultural knowledge and traditions of the desert, livestock, and Saluki breeding. This has been replaced by a generally western oriented approach to assessing purity of blood as well as conformation, the formation of kennel clubs and hosting dog shows throughout the Middle East, including Turkey. European breed-authorities are invited to judge the shows using breed standards written by westerners and afterwards are often invited to visit kennels and further evaluate the local Saluqis. The expert's comments are repeated when these "new" Middle Eastern Saluki fanciers assess their own and western Salukis, even those of direct Bedouin descent. The western show-bred Saluki appears to have become the new eastern ideal. Hence, everywhere there is a narrowing of the definition of what a "purebred" Saluki looks like, ironically often discarding vestiges of old nomadic breeding as primitive and therefore, not purebred.

A brief analogy to the Arabian horse of the Bedouin is relevant here. It certainly turns the clock of our imaginations back in time. *Asil Arabians: the Noble Arabian Horse* compiled by the Asil Club, G. Olms, 1993 is full of the romance of the desert, the Bedouin, and the impressions of western travellers from the 1700s on. The book is divided into topics such as "Pedigree, Truthfulness, Fanaticism for Purity of Blood" where we find the 1772 comments of Niebuhr: "It is well known that the Arabians attach great importance to their horses." He observed that the Arabians differentiate between horses of unknown descent and the "Koechlani or Koehejle" which are physically robust, capable of "living from the wind." Niebuhr

commented that "they are neither beautiful nor large, but they are light-footed and are venerated so highly by the Arabians not for their outward appearance, but for their virtues and their race." He comments that pedigrees do not exist for hundreds of years but "they can nevertheless be quite sure of their descent because their mares are always covered in the presence of witnesses---Arabian witnesses, that is" (p. 46).

Extrapolating further from horse to hound, Ammon (1834) cites a traveller before him who noted that "As a matter of fact the Arabs attach little importance to conformation but a great deal to pure descent because this guarantees outstanding qualities" (p. 46). Ammon goes on to comment that

It is even said that the foal of a mare of different race by an Arabian sire is always more attractive-looking than those of pure blood, but the Arabs are not interested in such produce if they are not pure descent....They have learnt by experience that the more pure and unmixed the stock is from which the horse is bred the more surely and completely the horse will show the qualities originally peculiar to this stock and the more certain it will be that he himself will reproduce these qualities. (ibid)

How remarkable that these legendary Arab horsemen did not confuse physical beauty with purity of descent. And these esteemed horses were subjected to the very same hardships of selection as were the Salukis. Wenzler (1977) states that "The Arabian horse with his much praised virtues, is a phenomenon of nature." He refers to an environment lacking in natural resources, the "wanderings" of people and livestock in search of food and water in a "murderous climate," claiming that these hardships were the most stringent test for survival.

No mercy is given in this struggle for life. Only the hardiest and the very best remained to pass on their inheritance. Thus, their hereditary disposition was purified and in addition condensed by very close inbreeding within individual strains which were often diminished by war. The Asil Arabian horse has developed in isolation secluded from the outside world. But this very seclusion has given him his prepotency and made him the regenerating force for all other horse breeds. (p. 84)

Finally a caution, serving horse and hound breeders alike. F.B. Klynstra (1978) warned that

Remember: to breed only for beauty, to pander to aesthetics or even mere head-hunters, does not only risk degeneration---it enforces it. Breeding with just one objective in mind

has always been accompanied by degeneration of the neglected factors. This applies to all breeding, not just horse breeding. (p. 714)



Raswan 1930s

This same exact sentiment was expressed by the late Daniel Belkin, evolutionary biologist and Saluki enthusiast, in his oft quoted seminar given in June, 1993, at the Saluki Club of America specialty. Dan opened his talk with these words:

I want you to leave here with this idea: *The things you cannot see are more important than things you can.* There are many things about Salukis that a judge can't see and can't feel, and functionally, those things are more important than the visible and palpable ones.

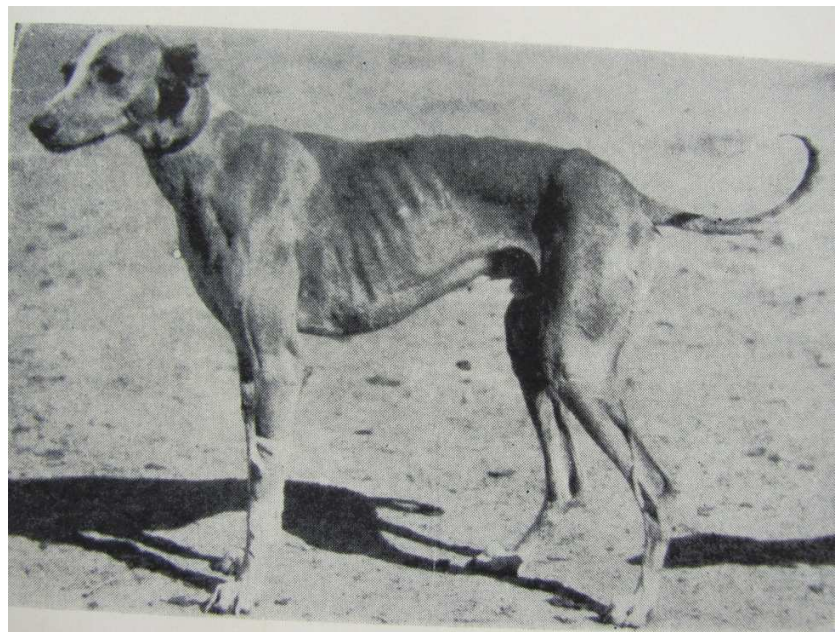
Dan used the description of the Saluki's eye from the breed standard as his first illustration, stressing that the functioning eye is extremely complex. He talked about vision on various levels and concluded that

If all we are interested in is having beautiful, dark, almond-shaped eyes, that's fine, because our Salukis won't need them for anything but being pretty, but if we want them to retain something of what Salukis were originally bred for, then somehow or other we have to select for visual acuity. That's harder to do.

So, on all levels, beginning with the process that created "the original" Saluki, through the changing cultural values and options in the indigenous regions,

to our own selection of breeding bloodlines that will retain the basal breed signature and at the same time produce a vibrant, functional, versatile, healthy Saluki....it seems that this is harder than ever to accomplish. Science has now affirmed our intuition, expressed so eloquently by the 10th century Iraqi poet Abu Nuwas, that our Salukis are not only fine hounds with no equal, but they are also genetically distinct, ancient, a continuity of DNA from antiquity to the present. Our task is to maintain this unique legacy.

Are we wise enough to see past the beautiful and preserve the precious and diverse gene pool that we have inherited through centuries of testing the Saluki in the crucible of the desert? This gene pool includes the last Saluki vestiges of the nomadic cultures contributing to western Saluki pedigrees through the 1980s.



Rualla Bedouin Saluki 1929 Photo: W.R. Brown

These last "desert bred" imports are invaluable for their closeness to "the original" lineages. Most of these later imports, many looking like littermates to western foundation stock, were never used, and those that were survive in today's pedigrees through alarmingly few descendants. Yet, what we have may be all that remains of that arduous journey from the beginning, through millions of miles of migrations over hundreds of centuries. Imagine riding that camel....will that camel carry us into a healthy and diverse future with our Salukis?

Part IV: Conclusion

Scientific research has discovered that the Saluki is a basal signature breed. DNA and zooarchaeological evidence places the Saluki in this small group of ancient breeds. According to Larson et. al. (2012) the Saluki (grouped with the Afghan hound) is the only sighthound to retain the basal breed signature. Though the Greyhound, Pharaoh Hound, Borzoi, Ibizan Hound, Irish Wolfhound, and Italian Greyhound are European breeds with deep histories, they do not sit in basal positions on phylogenetic trees. The Whippet has a known recent history of being a modern composite breed. The proposed reason for the unique status of basal signature breed is cultural, physical, or sexual isolation.



Saudi Arabia Photo: H. al Sharif

The Saluki has always been a valuable and esteemed hound. This is clear from the ancient images and the 10th century Arab hunting poetry that described not only the temperamental and physical characteristics of Salukis in beautiful detail, but its almost mythical prowess as a coursing hound, chasing the quarry beyond the stars to bring it down. In addition, various proverbs and sayings, make it clear that the Saluki along with the war mare, was a true "daughter of the tent."

It was *a process*, however, that created the Saluki and not some encapsulated isolation. The Saluki that emerged from that process persisted in indigenous

environments certainly through the early 1980s when several "tribal" imports reached the west. However, as the decades have passed, so the process in the indigenous regions has been irreparably disrupted and the concern is that the basal signature, the genetic identity of *the original* Saluki, has been swallowed up into that of amalgamated European breeds and only *the modern* eastern Saluqi remains.

Since the Saluki has been the companion and helper of nomadic tribal people for centuries, there has always been migration, interaction between tribes, and interaction between the nomad and the sedentary populations. Trade to the far reaches of the earth and back has characterized the entire region of the breed. History records thousands of years of war, colonization, and cross-cultural interaction between ruling elites from various regions from Egypt to the steppes of central Asia. The rulers and warriors and their subjects were all hunters and all of them hunted with Salukis.



Since the Saluki has always been a "valuable" hound, its reproduction has also, at least to some extent, been controlled. The ancient Egyptian images of dogs often show them wearing collars. The collar is a means of control and dogs are pictured being walked on leashes. Ancient kings were reported to have kennels of hundreds of hunting dogs and huntsmen certainly monitored breeding. The 10th century Arabic hunting poetry repeatedly refers to straining at the lead. The Bedouin Salukis of the Sinai and Negev were seen belted around the loin, possibly a type of restraint. There is even an intriguing biblical reference to this practice in Proverbs 30: 29-31: "There are those who step in a good manner, four who walk stately: the lion, hero among animals, who turns away from nothing; that which is girded in the loins; the goat; and the king with an escort of soldiers." It is proposed that the reference is to the Saluki, girded in the loins. There is also modern reference to closing the vulva with wire or a safety pin. Iraqi Kurds put heavy coats

covering the entire back of a bitch and mention of keeping bitches in covered holes in the ground during estrus are all means to control reproduction.



Sinai 1970 Photo: M. Von Grevenbroek

Hence, since, from the beginning the people with whom the Saluki has continually been associated were mobile, migratory, the Saluki was not physically isolated, though to some extent it was sexually isolated due to its great value. However, Boyko et.al. (op.cit.) stated that even if a basal signature breed had an admixture of a European breed, the admixture, or non-indigenous dog genes were quickly removed from the basal breed gene pool through the natural pressures of the environment. The genetic signature remained appropriate for the geographic region.

In other words, it is absolutely impossible and not at all feasible for Salukis that throughout history there were no admixtures of other breeds; some admixtures were probably also basal signature breeds, like the livestock guarding dogs, others probably of European origin breeds brought by traders or colonials. *But as long as the process of migration, the interaction of the desert and the sown, and the re-entry into the desert was the rhythm of life for the nomadic hunter and hound, the*

Saluki remained "pure." This process, the cultural rhythm and the filter of natural selection, has disintegrated and the universal infusion of large numbers of European breeds into the indigenous regions of the Saluki makes it, ironically, questionable whether the eastern population of Salukis today still retains the basal genetic signature.

The irony is that by freezing the eastern gene pool with closed stud books, the western Saluki became isolated! And basal signature breeds, counterintuitively, have greater heterozygosity than modern breeds. Boyko et.al. (op.cit.) also pointed out, with regard to village dogs, that populations could vary. There could be village dogs that descended from non-native dogs, dogs of intermediate ancestry, and indigenous dogs. *It is the true indigenous dogs that have the genetic variants not found in the European breeds.* We can extend this finding to Salukis and say that it is the true basal signature Saluki that has the genetic variants or heterozygosity that at least in part must account for our breed's physical variation and relative good health.

Today, according to Cole (2003), throughout the former regions of nomadic pastoralism, there is a growing concern with Bedouin heritage. Not only has Bedouin heritage become a field of study, but "Bedouin theme parks, camel races, museum exhibits, poetry recitals, and television talk-shows sustain continuation of Bedouin identity and honor it as part of national heritage" (p. 259). Objects from Bedouin material culture are being collected widely throughout the Arab world, some entering museum collections where for older Bedouin they may bring back fond memories but for younger Bedouin and their sedentary compatriots "they are almost as foreign as they are to the foreigner" (p.257).

In some places, like the area of Petra in Jordan, tourism has "commoditized the image of the Bedouin." The expectations of tourists now, to some extent, define Bedouin identity. This seems to be what is happening with the Saluki in some regions, as well. We do see throughout the Middle East an increased interest in the Saluki. The Arabian Saluki Center "theme park" in the Gulf and the associated proliferation of rescue groups in Europe, Canada, and the USA attest to an ever increasing number of Salukis in the east. Since the nomadic Bedouin are no more, the origin of these endless rescues is a puzzle. Luckily, ever ready "rescuers" have

stepped in to help these cast-aways, some in tragic condition. Sad, so sad, for such a wonderful, noble, and once rare hound.



Tarabin Bedouin Sinai, 1970. Photo: E. Chen

Finally, because it is relevant and I believe an analogy can be made with the current brokering of Salukis, T. Dubinina (2011) makes an amusing observation about taigans in their native land. She relates that traditionally a good dog is never shown to strangers, hence outsiders see only a few taigans at shows or mixes running loose in villages and assume that the breed is endangered.

Thus, the myth about the disappearing breed receives a boost and this benefits the commercial interests of its creators. However strange it may be and despite the so called *catastrophic situation with the breed*, puppies out of the *last purebred* taigans will always be offered for sale. (p. 9)

This seems to parallel the reports we receive from modern travelers and tourists and Saluki brokers. In some regions there are so many Saluqis they need to be "rescued" while in other regions we are told that the breed is vanishing. Nevertheless, as is the case with the taigan, a good broker can always secure a *pure* Saluqi from great hunting lines in an array of attractive and exotic colors....for the right price.

So, there you have it. The basal signature, ancient Saluki resides in the west, the product, ironically, of freezing the gene pool of the originals in closed studbooks adding only carefully evaluated (known history) post-foundation infusions of Middle Eastern imports. Salukis remain more heterozygous than the >400 European dog breeds. But this heterozygosity cannot promise good health "forever." Eventually, because our Salukis are no longer subjected to the relentless

and unforgiving process of natural selection, our breed will degenerate. What is of critical importance to understand, though it is counterintuitive, is that by "outcrossing" or cross-breeding we are actually reducing heterozygosity rather than maintaining it IF we outcross to a non-basal signature dog. In addition, the process that once removed non-native genes from the population is now compressed into as few as four generations when once it was four decades or four centuries. Hence, a longdog (Saluki x sighthound cross) may have first generation performance hybrid vigor, but the Saluki gene pool has actually been reduced. We also now know that the oft repeated statement "if it looks like a Saluki and runs like a Saluki it's a Saluki" is false.



Zeke with Charlotte, a quiet moment, Winter 2012. Photo: G. Goodman

Modern Saluqi breeding in the Middle East seems to remain, to a great extent, controlled, however the purpose of the breed has changed in many regions

and the cultural construct, the classification of what is or is not a Saluqi, also varies from person to person, place to place and varies from the western definition of purebred Saluki. So, are there basal signature Salukis still to be found in indigenous regions? In some regions no, it is impossible. In other regions there certainly may be, but again, there is irony. The only access western fanciers have to these hounds, the products of the process, is through western-oriented brokers. Their goal is to sell dogs not preserve the original. The original, often primitive type, will be ignored due to lack of knowledge and understanding of "history" and the western demand for only the elegant and exotic. After all, who wants to ride a camel when they can ride a shiny classy colorful Harley-Davidson motorcycle?

So, it appears to me that the way to enhance western pedigree Saluki diversity, to maintain its heterozygosity, must come from wider utilization of our eastern imports of past decades because they still benefitted from *the process* that created *the original*. There were imports into Europe and the USA through the 1980s. There ARE diverse pedigrees in all western Saluki populations. It is my impression that for the most part, these genetic treasures were ignored when imported and the bloodlines incorporating them remain marginal. This lack of interest is a greater mistake today than ever before because there may be no replacements.

Where once we had a trustworthy source to revitalize our bloodlines, irreversible cultural changes in the indigenous regions have completely changed the equation. Once there was little concern over "history unknown;" now it seems that *history is the essence*! And YOU, Saluki lovers, must assess the validity of that history....past and present. We now know that our western Salukis are unique, inside and out, from their DNA to their deep faithful farseeing eyes. The future of our breed depends on your choices.

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