

Selected Excerpts Discussing Inbreeding and Linebreeding in Arabian Horses

The fact that pure breeding over long periods was impossible without inbreeding has its explanation in the fanatic insistence of the Bedouin on the purity of the blood...In spite of their utmost refinement Arabian horses are at the same time notorious for their persistent disposition, which is mainly due to the following reasons: Inbreeding and selection have not only removed bad characteristics from the heredity...but have almost led to inbreeding resistance. Without inbreeding the pure bred Arabian would not have become what it is today. Most of the outstanding breeding qualities of this race are the consequence of inbreeding. Because of the special conditions under which the horses were raised, inbreeding did not only do no harm, but also led to a homozygosity of characteristics and a consolidation of the breed which is unknown to any other thoroughbred race...so that the Arabian reproduces his characteristics, i.e. his virtues more faithfully and effectively than any other race.

H. Seydel, quoted in *Asil Arabians VI*, Olms Verlag, Hildesheim, 2007

Breeding Arabians is not so different genetically speaking from raising other breeds of horses, or for that matter, pure-bred cattle or dogs. Every breed has certain strains with predominant qualities and characteristics, which breeders seek to unite in a single individual. Whenever a perfect (distinctive) specimen was created, incest-breeding was adapted to fix the type. The man of the desert arrived at the same means for establishing distinctive types within certain strains as the civilized man in the creation of modern breeds.

C.R. Raswan, *The Raswan Index*. William Byrd Press, Richmond, Virginia, 1969

INBREEDING IS NECESSARY:

The word inbreeding embraces the mating of father to daughter, brother to sister and son to mother – **only three relationships**. However, inbreeding is also referred by breeders as the mating of animals more closely related than the average of the breed. If like begets like, which is the beginning theory of breeding, it is truest where the relationship is closest.

Many people can tell quickly by glancing at a horse...who bred it or whose type it is, because certain breeders have developed a specific type which is easily recognizable. Usually this has been accomplished through some form of inbreeding.

LINEBREEDING:

The word linebreeding does not encompass nearly the broad coverage for which it is commonly used. It is breeding within the family so that the relationship of the dam and sire is not more distant than second cousins, or great great grandparents. Linebreeding is also referred to as a form of inbreeding in which the blood of particular individuals is concentrated in the herd without an attempt to rapidly inbreed.

The basic rule of all geneticists, scientists and successful animal breeders is that the best breeding results are obtained by breeding close relatives to each other.

Judith Forbis. *Authentic Arabian Bloodstock*. Ansata Publications, Mena, Arkansas. 1990

Let us summarize. Inbreeding leads to the more frequent recurrence of parental allele combinations in children. Line breeding results in the reduction of the number of alleles (per gene locus) in a breeding group, which increases the frequency of the remaining alleles and thus the recurrence of allele combinations of parents in their children. All this leads to a higher genetically determined similarity between the generations. Now it is clear that a top animal is a top animal because it is rare. Why does a breeder spend one million dollars for a particular stallion? Because he knows the animal has something the others lack. Top animals always have rare alleles, especial on the highest level of the genom hierarchy. That's why these breeding methods are so very important.

It's not merely a question of displacing average values, as the quantitative geneticists imply. We breed individual animals, not average values. Hence, the point is to reproduce the hereditary make-up of top animals in their offspring, and this is only possible by inbreeding and line breeding – that's the consequence. Now you understand why the most magnificent horse of all time – the Arabian – reveals so much inbreeding in its pedigrees.

F. Bakels. *The Asil Arabian in the Light of the New Genetic Knowledge*. Olms Verlag, Hildesheim, 1980