

SPEEDLINES



THE TAIL FEMALE LINE AND INBREEDING

by Larry Thornton

The study of the tail female line is an ongoing part of pedigree research. The tail female line is that bottom line on a bracket pedigree. It starts with the horse's dam and flows along that bottom line ending with the taproot mare, which is the foundation of that tail female line.

When I pull up a pedigree, the first thing I do is look at the sire and the dam to see what is behind them as a preliminary investigation. But then, I quickly go to the tail female line to see who the taproot mare is in that line. When I do this, I often find some very common names that seem to appear on a regular basis. I find this set of common mares to have a special place and influence on the breed.

When we find these mares, it makes us wonder what the genetic explanation is for their ongoing influence. Of course, these mares are an elite group, often with great race records. This would tell us that they are good individuals to begin with and that they were bred to the better sires. Some of them, however, are noted only as broodmares that proved to be good producers - their daughters were bred to good sires, and the line carried on down through the years to produce good horses.

A genetic explanation for the continuing influence of the taproot mare would have to include the role of the mitochondria and the mitochondrial DNA. The mitochondrial DNA is the genetic road map as to how the

mitochondria functions. The mitochondria is where we develop our energy to function as individuals. This makes the mitochondria and its DNA important because of such things as the efficiency of the mitochondria to produce the energy.

The mitochondria functions outside the cell nucleus and is not inherited in the same way the nuclear DNA is passed on. The nuclear DNA is the genetic information that controls the genetic makeup of the individual. This is the genetic information carried in the egg and sperm that comes together to form the individual.

The mitochondrial DNA is passed from the mother to her offspring outside the

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2-Time Champion Your First Moon (above) traces her tail female line to her taproot mare Do Good, a foundation mare for the Vessels Stallion Farm.

nuclear DNA. The mitochondrial DNA is passed down generation after generation through the tail female line. This is a tie that binds the taproot mare with the foals in her line.

Mitochondrial DNA can change as it is passed to the next generation, but there are sections of it that stay intact. These groups, or series of genes, are known as haplotypes and they stay pretty much together generation after generation. These haplotypes are the genes that identify what female family an individual comes from. We don't know all the genetic reasons why the taproot mare influences the pedigree, but we must think that more research will someday answer those questions.

I have found something in many tail female lines that is very interesting. Sometime along the tail female line we can find inbreeding as a part of that line, especially close to the appearance of the taproot mare. Inbreeding is the mating of closely related individuals. We inbred to set type, and this is the basis for the formation of a breed. Thus, inbreeding lends credentials to the tail female line and to the taproot mare

being the foundation of the pedigree. Not all taproot mares will show this close inbreeding. But, we find it in some very significant tail female lines. Let's look at a couple of today's prominent mares that show inbreeding in their tail female line.

YOUR FIRST MOON

Your First Moon, a 1999 mare sired by First Down Dash, was bred by the Vessels Stallion Farm and her current owner is Ramon R. Vega of Pharr, Texas. This mare was a noted runner and stakes winner of \$750,726, earning the 2001 Champion Two Year Old and Champion Two-Year-Old Filly titles. At two, she won the 2001 Los Alamitos Million Futurity-G1 and the 2001 Governor's Cup Futurity-RG1. She is the dam of 15 foals with 13 starters and 10 ROM, including four stakes winners and one stakes placed runner. Her foals have earned \$2,171,415.

Moonset, the leading money winner out of Your First Moon, is sired by Separatist. Moonset set a racing record at three by winning four Los Alamitos derbies: the El Primero Del Ano Derby-G3, Governor's

Your First Moon is the dam of many notable runners, including . . .



4-time Champion Moonset.



3-time New Track Record setter Moonin the Eagle.



Stakes winner/stakes sire Jess My Moon.



Stakes winner Stray Cat, the only Quarter Horse foal out of leading Thoroughbred sire Storm Cat, entered stud bringing a unique contribution of genetics to the breeder.



2016 All American Futurity-G1 second-placed The Marfa Lights.



A genetic explanation for the influence of the taproot mare must include the role of mitochondrial DNA, which is passed from the mother to her offspring and which is the genetic road map as to how the mitochondria functions. The mitochondria is where we develop our energy to function and is important to the efficiency of energy production.