

# **Identifying the Symmetrical Gaits of Horses**

or

## **What IS that horse doing?**

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### **DEFINING GAITS**

**"GAIT: 1. A Manner of moving on foot, of walking or running. 2. Any of the various foot movements of a horse, as a trot, pace, canter, or gallop." Webster's New World Dictionary**

The gaits of horses are usually defined by their foot-fall sequence, foot-fall timing, support sequence, and the weight transfer pattern from hoof to hoof.<sup>(1)</sup> Gaits are divided into two general categories, the *symmetrical gaits* in which the legs on one side of the horse mirror the motion of those on the other, and the *asymmetrical gaits* in which the motion of the legs on one side of the horse is quite different from that of the other. The *asymmetrical gaits* are the canter and gallop, gaits that are easy to recognize, have few variations, and are common to most horses. The larger and more complex category of the *symmetrical gaits* includes a wide range of sometimes difficult to differentiate movements of the horse.

Although all horses do some symmetrical gaits, the greatest variety of these gaits occurs in the "gaited" strains those horses that perform something other than a trot as their intermediate gait between the walk and the canter. The symmetrical gaits most common in gaited horses (in no particular order) are: the hard (true) trot; the fox trot; the running walk; the ordinary walk; the flat footed walk (flat walk); the stepping pace; the hard (true) pace; the true rack; and the "saddle" or stepped rack. These gaits are natural to horses all over the world, have been given different names in different languages, but remain essentially the same. Despite the different words used to describe it, the gait is the same, whether it is called a "rack" in the United States, a "trippel" in South Africa, a "tolt" in Iceland, or a "largo" in Colombia.

Within each gait there are some possible variations from the "ideal" gait. For example: a true trot is defined as a diagonal gait in which the right hind and left fore hoof leave the ground at the same moment, followed by a moment of suspension during which all four hooves are clear of the ground, followed by the simultaneous set down of the left hind and right fore hooves. However, in some horses that are very collected in their gait, the hind hoof of the diagonal pair sets down before the front, and in other horses that are "heavy on the forehand" the front hoof of the diagonal pair hits first. Sometimes the moment of suspension disappears and there may be a point in which three hooves are on the ground in this "trot." Many of these variations are impossible to see without slow motion video, so, since to the naked human eye, the horse doing them appears to be trotting, his gait is accepted as a trot. The same timing variations may occur within the other symmetrical gaits. Some horses may vary slightly from the "best" version of a gait, but as long as these variations are not obviously "off" to the naked eye, their gait is usually acceptable as falling under the general definition of that gait.

There are a number of graphic representations available that show the exact footfall, timing, or support pattern of each gait. These are useful for understanding gaits and for analysis of variations within each gait category. With each symmetrical gait mentioned here, look for an "ideal" and/or "real" graphic representation of the gait. The "ideal" graphs are those developed from the earlier model of Marey and Goubaux and Barrier by Luis De Ascasubi. The "real" graphs, which include not only set-down but lift-

off timing for each hoof, are from a 1989 paper written by Dr. Tris Roberts based on film of gaited horses provided by Col J.W. Bradbury. Dr. Roberts' system of gait representation was developed by himself, using a cyclical model, showing both set- down and lift- off of each hoof. (*See endnotes for full biographical information on these sources.*)<sup>(2)</sup>

## HOW TO LOOK AT A GAIT

While graphic representations are useful for specific gait analysis and identification, they are not

much help when a horse has just zipped by in some symmetrical gait and you are trying to figure out what he is doing. You see a horse in real time, in 3 dimensions, and unless you are in a helicopter hovering above the action, you can't see the "trail"(track) or other parts of the movement of the gait very easily. If you try to look at the whole horse as he goes by, your eye will not be fast enough to catch the timing or set down of all four hooves, and you may be confused and frustrated by all that is happening at once. Don't despair, there is a relatively simple way to tell what gait a horse is doing! The clue to gait identification with the naked eye is to break the gait down into manageable parts. Look at leg motion, listen to the beat or audible timing of the footfalls, and, finally, watch the over-all body language of the horse to define his gait.

### Breaking it down:

#### **LEGS:**

Leg movement is the easiest part of a gait to see. As a horse goes by in a gait, look at the foreleg and shoulder and the hip and thigh on the side of the horse closest to you. Watch them for a while. Do they move forward together? Do they seem to move in opposite directions? Pull back your vision and include the movement of the lower legs on the far side of the horse. Does any leg on the far side seem to move forward at the same time as one on the side toward you? Which one?

If the legs on the side of the horse closest to you appear to move forward at the same time, the horse is doing a *lateral* gait. Depending on how close the timing of this movement is, the gait may be a true pace, a stepping or broken pace/sobreandando, a "stepped" saddle rack/corto/largo/tolt or a true rack. If the legs on the side of the horse toward you seem to move in opposite directions, the horse is doing a *diagonal* gait. This will be either a hard (true) trot or a fox trot/trocha/pasitrote. If the legs appear to move independently of one another, not moving forward together or paired with legs from the far side, the horse is doing a *square* gait. This may be either a walk, flat walk, or a running walk/paso llano.

#### **HOOVES AND BEATS:**

Once you have an idea which legs are moving together (lateral, diagonal or square) look more closely at the way the hooves hit and leave the ground. Even without slow motion, you can see the general characteristics of the gaits by paying attention to the footfalls. Listen to the sound of the gait as the horse moves on a hard surface. How many beats are there? How are they timed (even or uneven beat)?

#### **BODY LANGUAGE:**

After you have looked at leg movement and listened to the footfall timing, stop concentrating on the legs of the horse and look at his whole body. The bobbing of a horse's head and neck, the way his croup moves or doesn't move and the way he carries himself give more clues to the gait he is doing. Does his

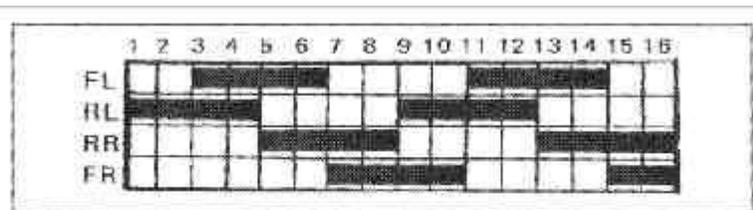
head bob up and down, or from side to side? Is his croup carried smoothly, or does it bob up and down with his gait? Is his head carried high or relatively low? All of these expressions of body language can be clues to which gait a horse is doing.

## THE "SQUARE" GAITS

In all of the square or even gaits, the horse's hooves leave the ground and set back down at distinct, even intervals. There is no obvious diagonal or lateral pairing of the motion of the legs, and the footfall beats are an even 1-2-3-4. The differences among these gaits comes from speed, a change in the type of weight shift between the transverse pairs of legs (transverse: both front, or both hind) and different "body language" in the various styles of performance of the gaits.

**The (ordinary) walk:** In a walk, the hooves lift off and contact the ground at even, separate intervals. Look at the hooves on the side of the horse closer to you as he walks. They lift separately, they do not travel forward at the same time, and they set down at separate intervals. The beat is an even 1-2-3-4.

*Footfall sequence:* In the walk, the hooves strike the ground in the following sequence: right hind, right front, left hind, left front. This sequence is the same for most of the symmetrical gaits, the variations in these gaits coming only from the timing of the set down or pick up of the hooves.



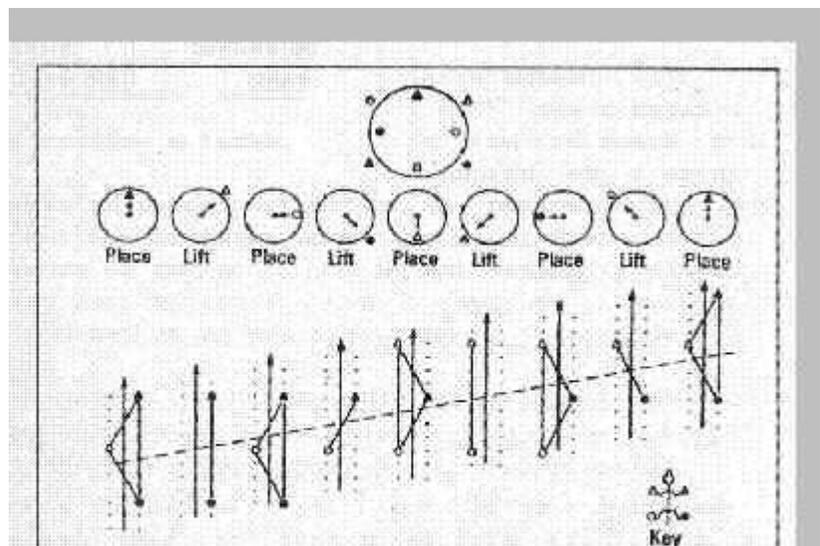
"Ideal" representation of the walk, de Aescasubi.  
FL — front left, RL — rear left, RR — rear right, FR — front right.

*Timing:* The timing of the lift off and set down of the individual hooves is even in the walk. There is no lateral or diagonal paring in this gait.

*Support sequence:* In the ordinary walk, there are two periods when three hooves are solidly in contact with the ground and two periods when only two hooves are touching the ground. The progression of support is: (tripod) both hind left front; (diagonal) right hind left front; (tripod) both front right hind; (lateral) right hind right front; (tripod) both hind right front.

*Body language:* The ordinary walk is usually characterized by a rhythmic up and down motion (nod) of the head and neck, in time with the forward motion of the shoulders. At a walk, the horse's back may appear to undulate from tail to poll, but he will carry his croup steady, with no obvious up and down bounce or bob in his tail.

**The flat footed (flat) walk:** This gait, common to many gaited horses, is similar to the ordinary walk, but with more speed and reach to the step. The

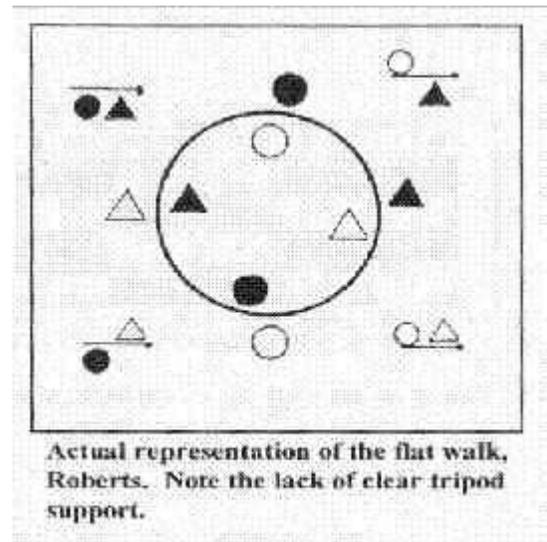


hooves lift and set down at distinct, even intervals. The beat is an even 1-2-3-4.

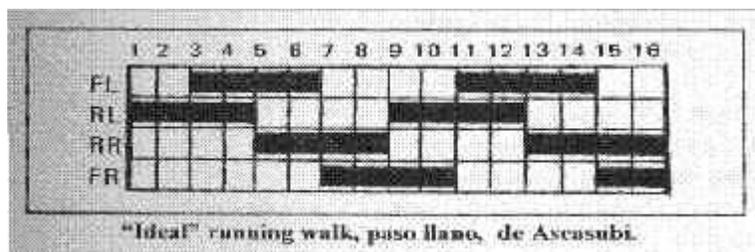
*Footfall sequence and timing:* These remain the same in the flat as they were in the ordinary walk.

*Support sequence:* This changes a little from the ordinary walk, since the transfer of weight between the transverse pairs of legs alters with the speed of the gait. In the flat walk the "landing" hoof contacts the ground just as the "lifting" hoof is leaving it, while the toe alone of the lifting hoof is still in contact with the ground. Gait analysts sometimes call this a "running" weight transfer.

*Body language:* The flat walk produces a deeper up and down nod of the head and neck, still in time with the motion of the shoulders as they reach forward, than is typical of the ordinary walk. This is accompanied by a level, driving motion of the hindquarters and croup. Again, there is no up and down bob of the tail or croup in the flat walk.



**The running walk/paso llano (in Peruvians):** A good running walk is basically the same as the flat walk, with some added speed. The hooves lift at even intervals and set down at even, separate intervals in a 1-2-3-4 beat.



The *footfall sequence and timing* in the running walk are the same as in the ordinary and flat walk.

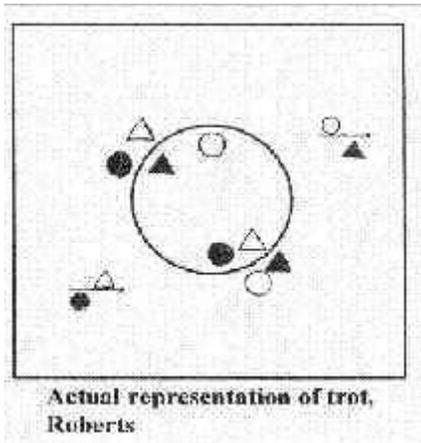
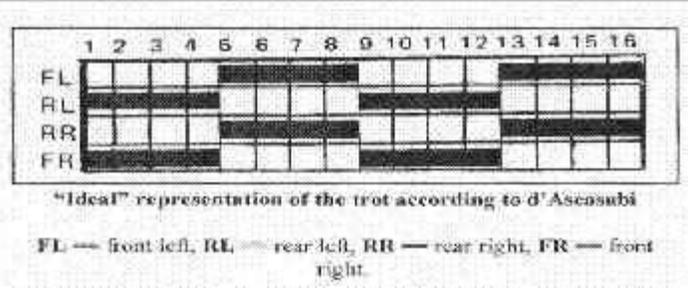
*Support sequence:* Due to increased speed, the transfer of weight between the transverse pairs of legs is not the same in the running walk as the flat walk. In a very fast running walk, there may be a moment when both front hooves are completely clear of the ground for a split second as the horse "leaps" from hoof to hoof in the gait. The transfer of weight in the hind legs remains the same as the "running" step of the flat walk. Generally the support in the running walk is the same as that of the flat walk a three hoof, two hoof progression.

*Body language:* The overall appearance of the running walk and the paso llano are different. Due to the "termino" (outward and upward rotation of the front legs from the shoulder) displayed by Peruvian horses that do this gait, there is no head nod in the paso llano. In other horses that do the running walk without termino, there is a marked up and down motion of the head and neck, although perhaps not as deep as that displayed in the flat walk. With this one difference, the body language of a horse performing a running walk is the same as one doing a flat walk a deep up and down motion of the head and neck, and level carriage of the croup, with no bobbing up and down of the tail or hindquarters.

## THE DIAGONAL GAITS

The diagonal symmetrical gaits are those in which the timing of the pick up and set down of diagonal hooves is much close in time than that of the lateral ones.

**The trot:** In this most diagonal gait, the diagonal hooves lift off and set down at the same moment. To see this, focus on a front hoof, then include the diagonal hind hoof in your field of vision. You can clearly see them lift off and hit the ground together in a true trot. The sound will be a 1-2 beat.



**Footfall sequence:** Although there may be some slight variations in the trot, in the ideal trot, the diagonal hooves (right hind, left front, alternated with left hind, right front) rise and hit the ground at the same time.

**Timing:** The diagonal hooves land at the same moment, with a long interval before the landing of the opposite pair, producing the 1-2 beat of the trot.

**Support sequence:** In the trot, one set of diagonal hooves hit the ground, then rises, there is a moment of suspension when all four hooves are clear of the ground, then the other set of diagonal hooves hit the ground.

**Body language:** In the trot the horse does not usually nod his head and neck up and down. Instead, his entire body rises and falls in the gait. His tail may sway from side to side slightly as he moves.

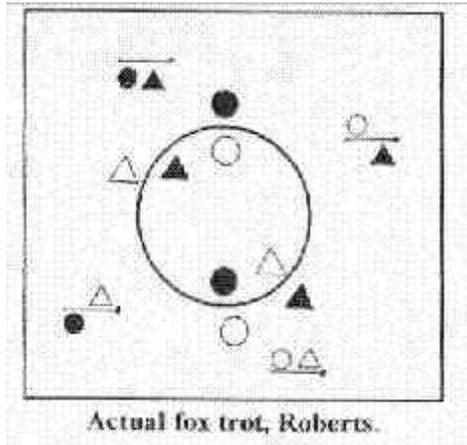
**The fox trot/ trocha (if a Paso Fino) pasitrote (if a Peruvian Paso):** In this diagonal easy gait, as in the trot, the diagonal pairs of hooves lift off and move forward together, but the fore of the pair hits the ground noticeably before the hind. To see this, focus on the front hoof, then include the diagonal hind in your field of vision. As the legs move forward together they will be just slightly out of time with one another, and the front hoof will set down just before the hind slides into place. If you look at the hooves



on the side of the horse closer to you, they will lift off and set down at a long interval, the legs appearing

to make an inverted V shape as the horse moves in the gait. The sound will be an uneven 1-2--3-4, with the beats closest together coming from the set down of the diagonal hooves. You may hear it as a ka-chunk, ka-chunk sound.

*Footfall sequence:* In the fox trot, the sequence is the same as that of the walk right hind, right front, left hind left front.



*Timing:* The diagonal hooves contact the ground at much closer intervals than do the lateral ones. This gives the gait a distinctive 1-2--3-4 somewhat syncopated sound.

*Support sequence:* At a moderate speed, the support sequence of the fox trot is the same as that for a walk three hooves in contact with the ground, alternated with two in contact, first the lateral pair, than the diagonal. However, with speed, the transfer of weight between the front transverse pair off hooves changes to a "running" step, one hoof setting down as the other lifts, with only the toe of the lifting hoof in contact with the ground as the other sets down flat.

the toe of the lifting hoof in contact with the ground as the other sets down flat.

*Body language:* In a fox trot the horse may nod his head and neck up and down with the motion of his shoulders. He will also have a definite up and down motion in his croup. His hock action will appear more sharply defined than in some of the other symmetrical gaits, as he "breaks" at the hock instead of taking a long, sweeping step with his hind legs.

## THE LATERAL GAITS

The lateral gaits are those in which the hooves of the laterally paired legs (both right or both left) lift off and/or set down closer in time than those of the diagonally paired legs.

**The pace:** In this most lateral gait, the lateral (same side) hooves lift off and set down at the same moment. (Right hind, right front, alternated with left hind, left front.) To see this, focus on the hooves on the side of the horse nearer you, and you will see them lift off and set down at the same time. The sound will be a 1-2 beat, the same as the hard trot, but this time the sound will come from the set down of alternating lateral pairs of hooves.



*Footfall sequence:* In the true pace, although there may be slight

variations as there are in the trot, the lateral hooves will hit the ground at the same moment.

*Timing:* One set of lateral hooves hits at the same time, followed by a pause, then the opposite set of lateral hooves will set down. This gives the gait the same beat and sound as the trot, a definite

1-2.

*Support sequence:* In a true pace, one set of lateral hooves hits the ground and supports the horse, this is followed by a moment of suspension when all four hooves are in the air, then the other set of lateral hooves sets down to support the horse.

*Body language:* A horse in a true pace will sway his head and neck from side to side, away from each advancing foreleg. His entire body will rise and fall with the action of the gait, with a distinct rolling motion from side to side.



Sobreandando, de Ascasubi.

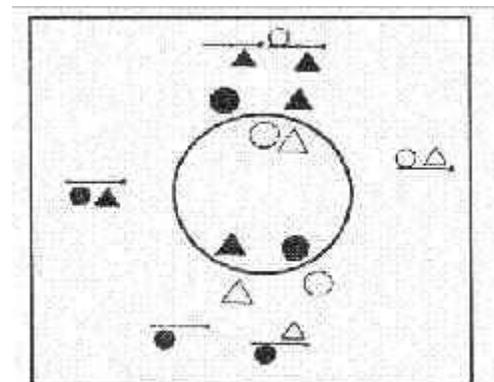
**The stepping (broken) pace (sobreandando, skeith-tolt):** In a stepping or broken pace, the lateral hooves no longer set down at the same time, although they may appear to lift off from the ground simultaneously. In this gait, the hind hoof hits the ground before the front on the same side. To see this, look at the hind hoof on the side of the horse closer to you, then

broaden your field of vision to include the front hoof on the same side. They will leave the ground at close to the same time, but not exactly together, and the hind will set down noticeably before the front. The sound will be an uneven 1-2--3-4, similar to the beat of the fox trot, but this time the two beats closest together will come from the set down of the lateral hooves. The gait can be done at several speeds, with a longer or shorter interval between the set down of the hind and front hoof on the same side.

*Footfall sequence:* In the stepping pace the sequence is the

same as that of the walk: right hind, right front, left hind, left front.

*Timing:* The lift off and set down of the lateral hooves is closer in time than the set down of the diagonal hooves. The beat is a 1-2--3-4.



*Support sequence:* The stepping pace is generally a "marched" gait in which the sequence of support is the same as the walk the transfer of weight between transverse pairs of hooves at a slow speed in this gait occurs with both hooves flat on the ground for a split second. With more speed, the transfer becomes a "running" step, with one toe in contact with the ground as the other hoof sets down, in both the hind and front transverse pairs.

*Body language:* A horse in a stepping pace may sway his entire body from side to side as he moves, will have little or no up and down motion of his head and neck, and no up and down bob of his croup.

**The "saddle" or stepped rack (gaits that fall into this category: Fino, Corto, Largo, Rocky/Mountain Pleasure Gait, Trippel, "singlefoot"):** This gait is less obviously lateral than the pace or stepping pace, and is often classified as a square gait. However, in it the lateral hooves are lifted from the ground paired in time, but set down separately, at even intervals. This makes the gait lateral in pick-up, but even in set down. To identify this gait in a moving horse, first notice that neither the lateral nor the diagonal legs seem to move forward at the same time. Then focus on the lateral hooves alone and notice that they seem to lift off somewhat close in time, but that there is a significant interval between the set down of the hind and fore of the same side. [Because of the speed and action of the gait, the set down of the hooves may sometimes be very difficult to see. Try to notice signs such as a puff of dirt as the hoof sets down to identify the placement of the hoof.] The somewhat high action of the front legs delays the set down of the front hooves, giving the gait its even quality at set down.

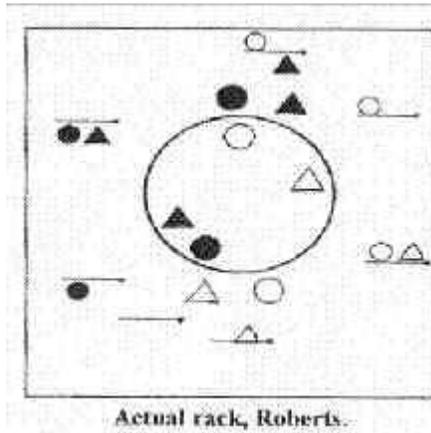
*Footfall sequence:* The sequence of footfalls in the saddle rack is the same as that of the walk right hind, right front, left hind, left front.

*Timing:* The set down of the hooves in this gait is even (or very close to even, sometimes slightly to the lateral, sometimes very slightly to the diagonal in timing) and the lift off is lateral. The right hind and right front hooves leave the ground slightly closer in time than the interval between the set down of the right front and left hind, but the interval between the set down of the right hind and right front is the same as that between right front and left hind (diagonal pairs). The sound is an even 1-2-3-4 beat. It is only the timing of the lift off that places this gait in the lateral gait category.

*Body language:* This is very important in determining this gait. A horse in a saddle rack will have no up and down head and neck motion, although his head may swing slightly from side to side with the action of his front legs, in a sort of V motion. His croup will rise and fall rapidly along with the active up and down motion of his hocks, flexing from the lumbo-sacral junction. He will take slightly shorter and less sweeping steps with his hind legs than a horse in a running walk (a gait that is often confused with the saddle rack).

**\*\*Note on gait graphs** As the de Ascasubi model does not allow for the difference in lift off and set down timing of the hooves, he does not graph this gait. The closest he comes to the saddle is the paso llano graph. The Roberts graph of this gait is actually closer to a true rack, and appears under that heading.

**The rack (hreina or pure tolt, fast largo):** A faster version of the "saddle," the rack looks virtually the same without slow motion video. The lateral hooves lift off close in time and set down evenly and separately.



*Footfall sequence:* The footfall sequence of the true rack is the same as that of the walk right hind, right front, left hind, left front.

*Timing:* The timing of the true rack is the same as that of the saddle rack, an even set down with a laterally paired lift off of the hooves. The lateral hooves leave the ground closer in time than they set down. This give the gait a 1-2-3-4 beat.

*Support sequence:* In the true rack, the transfer of weight between the transverse pairs of hooves is accomplished with a "leaping" step in which both hooves are clear of the ground for a period of time.

This is true in both the front and hind hooves. The sequence of support is, from the time of the set down of the right hind: diagonal support left front, right hind; single support, right hind hoof alone; lateral support right front, right hind; single support, right front hoof alone; diagonal support right front, left hind; single support, left hind hoof alone.

*Body language:* In the rack, the horse maintains the steady, upright, head and neck carriage of the saddle rack, and also continues the up and down motion of the croup, with active hocks. Only speed sets it apart from the saddle rack.

## DIFFERENCES IN STYLE

Although the basic footfalls and timing of the various gaits may remain the same, different types of horses perform them in very different ways. These elements of style involve length of step, height of step, head and neck carriage, and speed. While each breed has developed its own stylistic requirements of the symmetrical gaits, all have in common the standard that the gait be even, (not higher or longer stepping on one leg than another) straight (no hock wringing, or paddling, dishing or winging \*) and consistent (no changing cadence or timing from one gait to another unless requested.) Here are a few of the different breed styles in gaits.

**Paso Fino:** Although there are also specialists in the fox trot (Trocha horses) and the trot (trote gallope horses) in the breed, Paso Fino horses in the US most often perform a variation of the saddle rack. In Fino fino horses, the gait is prized if it is very quick, with high, short steps. Horses are shown over a sounding board to exhibit the even staccato beats of their gait. Fino horses do not overstep their front track with the hind hoof of the same side, and in most cases do not "track up" hind to front. The ability to perform the gait in even cadence while virtually standing still, with high, even action in the front and hind legs is considered a mark of an outstanding fino horse. Not all Paso Fino horses can perform in a fino gait. Most are exhibited in performance or pleasure divisions at the corto and largo, as well in a show, even ordinary walk. The corto is performed with no overstep, with short steps, but not as tight or slow in forward motion as the fino. In the largo horses may overstep their front track by a short distance, and their speed may match that of other horses that perform the saddle rack. Paso Fino horses travel with an upright, steady head and neck carriage, with no up and down motion of the head and neck. They also

carry a tight, low tail, reflecting the tight, short steps of the hind legs. Some of them may exhibit a little *termino*\* but this is not a sought-after characteristic in the Paso Fino as it is in the Peruvian Paso.

**Peruvian Paso:** There are two schools of thought on the exhibition of the Peruvian Paso horse. The more traditional school exhibits the horse at either the *paso llano* or the *sobreandando*, places great emphasis on the fluid motion of the horse in his gait, the degree of advance or overstep of the hind hoof over the front on the same side, the even height of the *termino* of the front legs (high outward rotating motion of the front legs, starting in the shoulder of the horse) and the "thread" or ability of the horse to maintain his gait at both very slow and faster speeds. A fluid, smooth, low moving horse, with moderate head carriage (not as high as that seen in many Paso Fino horses) is considered most desirable by this group. The "American" school exhibits the Peruvian Paso at the ordinary walk, and then calls for a *paso llano* as a "slow gait" and the *sobreandando* as a faster gait. Advance is not so highly prized, although a longer step than that shown by the Paso Fino is desired, and some overstep is desired. Speed and higher action tend to be rewarded. **\*Note on Termino:** Termino is not the same thing as winging or paddling. It is an elevated outward rotation of the entire front leg which starts in the shoulder and is an expression of the muscle use in the back and shoulders of horses in the Peruvian breed. It is a prized attribute of the Peruvian horse.

**Rocky Mountain Horses/Kentucky Mountain Horses/Mountain Pleasure Horses:** These horses perform a saddle rack but for them speed and a long step are important. The gaits of these horses in the show ring have recently evolved into the "trail" walk (an ordinary, 4 beat slow walk) the "show" walk (sometimes a flat walk, often a slow saddle rack or stepping pace) and the "pleasure gait" which is indeed a saddle rack, done with some speed often approaching a true rack in some shows. The horses move with longer steps than the Paso Finos, while performing essentially the same gait. They tend to overstep their front track with their hind hoof on the same side by several inches to well over a foot. Their knee and hock action is, according to their rules, moderate and not high, but with recent showing trends, higher action has become more frequent.

**Tennessee Walking Horses:** There are basically two types of Walking Horses, those that are shown in "stacks" of pads and heavy shoes, and those that are shown flat shod, in either heavy (Plantation) or lighter (Lite shod) shoes. These horses are all expected to show a flat walk and a running walk, with the running walk being a faster, more long striding version of the flat walk. The true running walk is most likely to be seen in the flat shod, "lite shod" pleasure divisions. The emphasis in this breed is on the ability of the horse to take long steps with his hind legs, high steps with his front, and overstep his front track with his hind hoof on the same side by a considerably margin. Most maintain a relatively high head and neck carriage, and are expected to nod the head and neck up and down in time with the running walk gait. Although high action in the front legs is very important in the padded divisions, in the flat shod horses it is also valued and has been increasingly emphasized. The degree of overstep and head nod are valued in these horses.

**Missouri Fox Trotter:** The Fox Trotter has also undergone some "evolution" in the show ring. Years ago these horses were expected to "cap" or exactly track their front hooves with their hind in the fox trot gait. Current style is for them to overstep by a fair amount in the fox trot. They perform a flat walk, similar to that done by the Tennessee Walking Horse, with some overstep and a deep head nod. In the fox trot they also nod their heads and necks, while maintaining a moderate head position. A long, low reach with the front legs is desirable in the fox trot, with no high knee action. For a Fox Trotter, the high head and high action of other breeds is undesirable in the show ring.

**Racking Horses:** This generic category consists of horses that perform a "style" rack or a "speed" rack. In most instances these horses do not exhibit exaggerated high action, and do not overstep as much as a horse in a running walk, although they do overstep their front tracks. The "style" rack is often a saddle rack, while the speed rack is a very fast, low action, version of the true rack. These horses are judged on action and correctness in the "style" classes, but on their speed and ability to maintain the rack without breaking to some other gait in the speed classes. They are shown at a "show walk" and two speeds of rack, slow and fast. In practice, the "show walk" is usually a slow saddle rack.

**Icelandic Horses:** These small, hardy horses are either 4 or 5 gaited. The 5 gaited ones are the only horses that are routinely ridden and shown in a fast, racing, hard pace. Their other gaits are: an ordinary, four beat, reaching walk; a fast, extended, reaching trot; a fast three beat canter; and a fast, reaching, even four beat tolt or rack. They may be asked for a slow tolt and a fast tolt. Icelandics may have high action in the tolt, but are not generally exhibited at a high knee action horse.

**Saddlebreds (American Saddle Horses):** These are the oldest established North American gaited riding breed. As such, they have been shown longer and developed a particular style earlier than some of the other breeds. They are exhibited either as 3 gaited (walk, trot, canter) or 5 gaited horses. At one time the 5 gaited horses were expected to show at either a fox trot, running walk, or stepping pace as their "slow gait." More recently, however, the slow gait had evolved into either a stepping pace or a very slow saddle type rack. It is performed with high knee and hock action, a high head and neck carriage, and some overstep of the front by the hind hoof on the same side. The walk, which at one time was a fast, animated flat walk, has become a diagonal, "primp walk" which is much closer to a trot as a gait than it is to the even four beat walk. The trot of these horses is high and quick, with high knee and hock action, unlike the longer, lower trot of the Icelandic. The rack of the Saddlebred is not as fast as that of the speed rackers, but it is quite fast, again done with high knee and hock action and a very upright head and neck carriage. Overstep is not valued as highly as high, even action and speed in this breed.

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All of these breeds have different tack and attire standards for the show ring, as well as different types of classes for exhibition. The gaits, however, remain constant under the clothing and stylistic differences required in each breed. Look for the movement of the legs, listen to the hoof beats and watch the body language of the horse. You will soon learn to tell what all those gaited horses are really doing.

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1. Several systems of gait analysis were developed in France on the 1880's and 1890's based on early photographs of horses in movement. Some of them were:

Etienne Jules Marey. *Des allures du cheval par la methode graphique*. Paris, Academie des sciences, 1887.

Armand Goubaux and Gustave Barrier. *The Exterior of the Horse*. Philadelphia, Pennsylvania: J.B. Lipincott, 1891.

Lenoble du Teil. *Etude sure la locomotion de l'homme et des quadrupedes en general*. Paris, 1877.

Perhaps the most famous of these early studies, however, was doing in the US. An edition of this work may still be available in a library near you. It is:

Eadweard Muybridge. *Animals in Motion*. New York: Dover Publications, Inc. 1757

1.

2. The "dromographs" reproduced here come from:

*Luis de Ascasubi. El caballo de paso y su equitacion, Lima: Association Nacional de Criadores y Proprietarios de Caballos Peruanos de Paso, 1968.*

*The "actual" graphs were from:*

*Tris Roberts, Basic Skills of Horse Riding. London: J.A. Allen, 1985*

----- *Gait variances in the horse, unpublished paper based on film provided by Col. J.W. Bradbury and*

*Lee Ziegler.*

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