

THE FUNDAMENTALS *of* CANINE LOCOMOTION

BY WILLIAM GIVEN



Dogs come in many different sizes, from the towering Irish Wolfhound all the way down to the diminutive Chihuahua. Construction, weight and natural balance all differ. Most breeds are slightly longer than tall. Some are square and a few are long in body but have short legs. Some breeds are noticeably front-heavy, with very few being heavier at the rear end. Regardless of breed, all of these dogs have to be able to impress the judge by transporting their fame in a straight line when moved, and with their back parallel to the ground.

It should not be assumed that simply because a dog is of favorable conformation it must be a good mover. In theory, a well-constructed dog that presents the beautiful picture of balance when stacked should be able to move easily and with little effort. Even when his neck, shoulders, back and four limbs are all that could be desired, he can still be found lacking when being gaited. However, this is not always the case. A great many dogs may meet some very specific requirements of the most demanding standards until they are asked to move.

All must move their front legs, hind legs and all four feet in a rhythmic sequence which may be made even more difficult given the specific elements of their construction. The front feet must keep pace with the hind feet, and the rear with the fore whether the dog has legs of a more reasonable length and stand relatively close, or whether the legs are short and the front feet are placed so very far in front of the hind feet.

Let us take a quick look at two breeds of German origin, which have both benefited greatly from the efforts of breeders in Great Britain and the United States to refine them. First, we will examine the Boxer. His height from the withers to the ground equals the length of his body. His limbs are so very well-proportioned that when he moves at a brisk pace, his hind feet advance to a point on the ground very close to where the front feet had just been.

Next we will critique the Dachshund. He is very long in body and very short on leg. The result is that his reach and drive must therefore be short. One should not confuse short with restricted. The hind feet will always fall a considerable distance abaft those of the front feet.

Provided that a Dachshund possesses a well-inclined shoulder, the front feet will tend to take a longer stride and the hind feet, being somewhat more limited with respect to movement, may experience some difficulty in keeping pace. To do so, the hind legs have to move forward a shorter distance, and a little faster than the front legs in order to achieve and maintain an even pace.

This disrupts the natural flow of movement and causes a cadence of footfalls very different from that left by a dog of a more common canine build. Normal speed and slow motion video readily reveal the variation in the breeds' pattern of footprints and it is really quite interesting. A balanced gait is one in which there exists strict harmony between the two halves of the body, resulting in perfect coordination between movement of the fore and hind legs, with the proper length of every stride enabling each foot to make contact with the ground at the precise moment.

The initiation and continuation of correct canine movement is dependent upon a properly inclined shoulder permitting upright head carriage, without which the muscles advancing the front legs could not be engaged to full advantage. A dog which is properly balanced moves light and swiftly in contrast to one which is poorly constructed and whose movement is heavy and uncoordinated.

In some cases, this may be due to an inequality in the natural length of the stride, both fore and aft. It could even be the result of something which has been introduced as a side-effect of selective breeding but would in no way emerge in a member of the *canis lupus* family living in the wild. A failure to achieve and maintain hind leg synchronization may also be due to struggles

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with spinal flexation. Most dog show judges like to be able to see the pads of both the front and hind feet when the dog is going away. This is considered a sign that the hocks and knees are being properly flexed. “The thrust of correct movement is seen when the rear pads are clearly exposed during rear extension.” This is a quote from the Dachshund standard, and there are very similar comments in the standards for other breeds.

Just as the scapula should be set at an inclined angle, so should the pelvis. In the hindquarters, the pelvis serves a similar purpose of the scapula in the forequarters. Instead of being erect, it should be set at an angle of about thirty degrees with the ground. It should be well-covered by the muscles of the rear end and followed down the limb by a muscular second thigh, a true canine need which is often overlooked. It is the muscles of this region which propel the greater portion of the weight of the dog’s body. The hind feet should always be sufficiently large with thick pads as it is through the pads that the power is applied to the ground.

The front legs should be set neither too close together nor too far apart. When a dog’s sternum is wide and the chest heavily muscled, as is in most working Sporting dogs and some Hounds, the elbows exhibit a tendency to be held wide apart and there may develop a propensity for the toes to turn in. The Boxer standard addresses this issue saying, “Viewed from the front, the shoulders should remain trim and the elbows not flare out.” It is important that the front pasterns should retain their width from below the knee down, and be firm, upright and capable of bearing weight without permitting the feet to sprawl. The standards are pretty specific for the type of foot required in every breed.

For centuries, man has labored to produce the perfect dog through selective breeding. A well-constructed dog, meeting the demands of its standard still may not be the best worker and many of the best Sporting dogs shown in the ring today would never stand up to a long day afield searching for and retrieving birds. The perfection of a dog’s form does not guarantee perfection of movement, nor does it ensure any improvement in stamina.

We must all accept the fact, regretfully, that we are all in the dog game as breeders and fanciers, desiring to produce a dog which meets the demands of a written standard, but surprisingly, only in a very few cases are we actually trying to produce a dog fully capable of doing the work for which the breed was originally developed. It follows therefore, that all the breeder and fancier can do is join actively in the drafting of a standard, or in the revision of an old one, for our individual breed. It is here that we may make every effort to omit those breed characteristics that contribute materially to unsoundness or cause even the smallest amount of deterioration within the breed, and aim at producing a dog which fulfils the requirements of its own particular written standard of excellence.

So far as stamina is concerned, no existing breed standard declares that any member of the breed must be capable of traveling a given distance in a specified amount of time. It seems that all we can ask for in the show ring is that an exhibit must be capable of walking in a straight line to the far end of the ring and back to the judge, and that it shall conform with the basic specifications of the breed standard with respect to size and shape. Oh, and let

us also not forget that it must be temperamentally sound enough to refrain from biting the judge before said judge has completed his or her assessment and made their awards.

The only breed, if I am not mistaken, asked to do more than the minimum in the show ring is the German Shepherd Dog. He is expected to exhibit his ability to move, the standard demands it. If he fails, “Faults of gait, whether from front, rear or side, are to be considered very serious faults,” this comes from the last line of the standard’s section on movement. Furthermore, there is an entire paragraph about temperament and approachability.

The German Shepherd Dog of today varies markedly from the GSD of thirty-five years ago when I first entered the world of purebred dogs. The relative proportions of the GSD’s body, both fore and aft, are noticeably different, especially in the degree of the rear leg angulation. Angulation simply refers to the relationship that bones have to one another. In man’s desire to breed dogs of great beauty, there is always the danger that he may introduce characteristics which may ultimately prove to be disastrous in a breed.

The forequarters and the rear-end must cooperate in the propulsion of the dog’s body, and it is a mistake to imagine that by increasing the angulation of the hind legs a breeder can create increased power of the drive operating through the hind limbs. In every breed, it is critical that both ends of the body, front and back, retain the correct proportions with the center of gravity relatively consistent in each member of the breed. For years now, excessive angulation has been gradually introduced into more and more breeds and unless breeders call a halt to the trend now, I fear it will take a great many years to reverse the damage.

The best evidence as to the validity of my premise can be seen in the Greyhound. A comparison of the physiology of the Greyhound seen in the show ring today and on the race track easily illustrates that the show Greyhound of today has an increased amount of angulation with a lengthened lower thigh. The racing greyhound is straighter in both hock and stifle, and the result is that he covers less ground with each stride. However, in a head to head race, the racing greyhound vastly out-performs the over-angulated Greyhound because there is so much less wasted energy.

The Principle of the Conservation of Energy clearly suggests that the current angulation in the show greyhound is incorrect. Even though today’s show greyhound could likely never live up to his original purpose, the angulation seemingly remains because it gives a very appealing appearance to the Greyhound’s outline. Here seems a great place to ask the question, “why is there absolutely no mention of gait in the Greyhound’s breed standard?” Odd, you would think, but there are other standards that do not address movement.

We cannot look at a dog’s gait in a quest for aesthetic achievement but, rather, as proof the dog is both athletically fit and mechanically functional. It is difficult for judges and breeders to fully comprehend each and every component of correct canine construction. It is for this reason that judges and breeders must make a thorough assessment of a dog’s movement. Movement is the physical expression of how all of the pieces come together and function as a whole.