LESSONS FROM WOODY: ON TEACHING YOUR HORSE TO CARRY HIMSELF STRAIGHT

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PREFATORY REMARKS

History of Publication

"Lessons from Woody" was first published in an edition primarily for riders and trainers in the July, 1997 issue of *Conquistador Magazine*. A version for farriers was subsequently published in the October/ November, 1997 issue of the now-defunct Western States Farriers' Association Journal, *Forgings*. After much discussion with Institute Faculty and friends, Dr. Deb produced a new series of illustrations for this work, which were first shown to the public at the Equine Affaire Expo in Columbus, Ohio in April of 1999. Incorporating these illustrations, she next produced a much improved and revised edition for

Vol. III, No. 2 of the ESI Newsletter, *The Inner Horseman*. This version was primarily edited for riders and trainers (though chiropracty and farriery were also mentioned, of course). The last printed incarnation of "Woody" has been in the December, 1999 and January, 2000 issues of *The American Farriers' Journal*, this version once again edited primarily for the use of farriers. To obtain that back issue, please call (414) 782-4480.

How "Woody" Came to Birth

I originally constructed the "Woody" model to test and clarify certain principles which pertain to orthopedics in four-legged animals. By means of

Fig. 1. Here I demonstrate using the original "Woody" model at a seminar in California in 1994. In the autumn of 1993 my friend, farrier Stuart Greenberg, helped me take my idea and blueprint and make it a three-dimensional reality in his workshop.



Woody, whether you are a farrier, chiropractor, or rider, you are going to be able to rise above the foot, the leg, and even the limb to a global concept which unites the horse's body with its feet. From now on, you will truly be shoeing – treating — or riding — the *whole* horse.

Team Approach to Horse Management and Training Success

The farrier, veterinarian-chiropractor, massage specialist, or other "support professional" is not a horse trainer, and horse owners must not call on him or her

to do what is morally and practically their own job. *It is up to the rider to straighten the horse*, not the others mentioned; yet they too must understand straightness in order to support the horse owner and see to it, for example, that the animal is trimmed and shod properly. Because I view the whole process as a team effort, not only aspects of horse training but veterinary-chiropractic and farriery are all integrated in the article below.

Fig. 3. Everything, including saddle fit, growth and wear of the hoofs, the way he relates to the bit, and the whole athletic style and potential of this animal, will be affected by his habitual "lean". In this animal it is very obvious even at a halt; in others, it can best be detected in motion. When the animal leans to his left, where do his knees, ankles, and the toes of his feet point? Which shoulder will appear to be higher and more bulging or muscular? Which haunch?



Fig. 2. Dr. Deb and student learning about crookedness by leaning. Crawling on all fours really helps people understand where the horse is coming from!





Fig. 4. If you really want to learn what's being presented here, you should build your own "Woody" model. The neck strap and the strap between the forelegs are made of rubber cut from a tire inner tube. The cord that passes through the hind limbs is an elastic "Bungee". After stringing it through the holes, pull it taut and tie a knot in it to hold the hind limbs snugly onto the body. Woody's withers are formed by a bolt or screw, and there's also a metal hinge, both of these parts to be fixed exactly on the midline of the body. Woody's ears are made of bits of leather tacked onto his head, and his eyes are large tacks. All other parts are made of scrap wood. You can build a "Woody" model to any scale. Our "No. 1" shown in the photo is built to two-foot dimensions suitable for use in a classroom or auditorium setting, but you can build a "desktop" Woody whose neck, body, and limbs measure about six inches long.

Every riding instructor ought to have one of these on hand to clarify what we mean by bending, overbending, lying on the inside or outside shoulder, falling in, anchoring the horse on the outside hind leg for maneuvers such as canter departs and pirouette/rollbacks, and the process of straightening the horse by means of the inside hind leg.

Every farrier, chiropractor, equine dentist, equine massage practitioner, saddle-fitting specialist, and veterinarian ought to have a "desktop"-sized Woody model in his or her truck, to help the client understand why and where horses develop chiropractic-type misalignments and lesions, what the difference is between "off" and outright lame, what the difference is between a lesion (the site of a wound or infection) and lameness (asymmetry of motion), why horses develop lateral bite asymmetries such as "shear mouth", why a rub may not be due to the saddle, and why horses rarely have left and right feet that look the same.

See text, which continues on the next page, for more on all these topics.

Why You Should Study this Article

The version of "Woody" that you are reading here is the version that previously appeared in *The Inner Horseman*, with a more complete set of illustrations. We make this work available to all visitors to the ESI Website because it is ESSENTIAL for horse owners to understand straightness. An understanding of the "Woody" Paradigm of Straightness allows you to:

- Understand the underlying cause for a wide array of "training" problems such as difficulty getting the horse to take one lead, stiff to one side, drifts to one side of fences, lugs on one side of bit, difficulty obtaining lightness or collection, etc.
- Understand the underlying causes of a horse's need for massage or chiropractic treatment, and also why the masseuse or chiropractor selects the particular body zone(s) for treatment that he/ she does
- Understand the origin of the classic "checkerboard" pattern often identified and treated by chiropracty and osteopathy
- Understand the underlying cause for many cases of apparent saddle mis-fit
- Understand the underlying cause for why you may be having "position trouble" in terms of one stirrup always longer, one shoulder always lower, head tilted, etc., and why and to what extent "Centered Riding" or similar methodologies will be effective for you
- Understand the underlying cause for one front hoof being bigger and flatter (or smaller and steeper) than the other.
- Understand why front-leg lameness (including navicular disease, "club" foot, chronic bruising, chronic abscessing) and hindleg problems (such as stringhalt, sore hocks or stifles, "weak" haunch) tend to be exclusively manifested, or manifested to a greater extent, in one of the pair of limbs only.

PURPOSE OF THIS WORK

This article is about how to help your horse to carry himself straight when you're riding him. It explains why he may not be carrying himself straight now, and what you, your farrier, veterinarian, and other "support" personnel whom you employ can contribute to helping him learn to carry himself consistently straight.

This article does not present a new way to do things. It doesn't tout a "method." It hasn't been put forth in order to foster my reputation, or to cause you to become interested in the particular way I handle horses. No; what is going to happen here is something far more dangerous and far-reaching: it is going to change the way you see and the way you think as a horse owner, horse-handler, horse-shoer, horse-chiropractor, horse-veterinarian, horse-dentist, or horse alternative-care practitioner. The process starts with learning the meaning of the word **paradigm** (pronounced PAIR-a-dime).



Fig. 5. Paradigm shift: "It's a whole new world out there!"

WHAT IS A PARADIGM?

Horsemanship (in all the aspects outlined above) could certainly qualify as one of the biological sciences. Horsemanship ought to be science as much as art and technique, and it belongs in the broad category of biology just as much as do the medical and quasi-medical sciences. Horseback riding and training has greatest affinities with such fields of endeavor as gymnastics (the harmonious development of the neuro-muscular and musculo-skeletal systems), and psychology (study of the mind and emotions and their functioning). The various fields commonly employed to "support" the ridden horse (chiropracty, farriery, massage, conformation study,

"riding theory") are linked to physiotherapeutics (rehabilitation of injuries to the musculo-skeletal system), biomechanics and kinesiology (study of the golfer's swing or the runner's physical technique), and orthopedics (the science of correcting and preventing skeletal deformities and joint dysfunction).

The research and thinking which created this article started with consideration of farriery and its links to orthopedics, and I am going to use farriery here as a first example of horsemanship's relationship to science. The modern practice of farriery evolved from Roman times (the Romans invented the nailed horseshoe; they and other later cultures whose armies built or used roads made horseshoeing common by the Middle Ages). Men who belonged to Medieval farriers' guilds swore initiates to secrecy regarding basics and special techniques. These same guilds gestated the first doctors of human and animal medicine. At one time long ago, the farrier, barber, dentist, doctor, and veterinarian could be one and the same person.

During the eighteenth century, however, doctors began to take on the characteristics of scientists. In doing this, they left the farriers behind. The story of how the American Medical Association, and the American Veterinary Medical Association in imitation of it, came to possess legal and political control of all therapeutic practices in the U.S. is one that can be left to another forum. I am not talking about law here, but science: the farriers were left behind. Why?

The answer is because the field of farriery lacks a paradigm. A paradigm is a set of governing ideas or principles which has the following characteristics:

(1) It makes sense - it is logically consistent.

(2) It is necessary to daily work. In other words, without a paradigm, the farrier cannot know why to proceed, and therefore does not know how to proceed. In the absence of paradigm, the farrier can only proceed by imitating whatever authority or experience he has encountered. What this means in practice

is that he will do work that is appropriate and beneficial to a certain horse, but will also be likely to apply the same work to another horse, for which it is not appropriate and will therefore not be beneficial.

(3) It allows the farrier to make accurate predictions and to visualize outcomes, and therefore, to select the mode of treatment most appropriate for the animal at hand. There is no "one trim" that will benefit all horses!

(4) It focuses laboratory and experimental research and makes it efficient. What this means is that it makes meaningful questions easier to frame, and meaningful answers easier to obtain.

In other words, if farriery operated from a paradigm as medical science, law, or engineering do, facts would no longer be gathered or reported at random, as one-at-a-time instances. Fundamentals would no longer have to be reviewed and argued at every meeting or in every published paper. Treatment options would no longer be presented as a mere encyclopedic list (vis., Doug Butler's textbooks), but would be grouped into families related directly to problems identified and explained by the paradigm.

Empowered by a paradigm, farriers would no longer experience the "pendulum effect": swinging from one school of thought to another - this year Tony Gonzales' approach is "in," the next year Rick Redden's, the next year Jaimie Jackson or Gene Ovnicek or Bergie Bergson or Hilrud Strasser, and on and on. Many farriers are so sick of this that they have simply quit going to educational forums or meetings. What they have found is that each time they take up the approach to farriery which the currently-popular authority advocates (and all of these approaches have the power to benefit SOME horses), it "works" for some horses but not others. In the end, the farrier finds that the new approach "works" for about as many horses as the approach that he or she originally took. This is enough to make anyone throw their tools down in disgust.

The same kind of thing can also be said for horse-training – perhaps, more so. It too lacks a paradigm – it lacks any agreed-upon "set of governing ideas or principles." It too, is plagued with the random reporting of "facts" in isolation from causative context; it too is rife with conflicting "lists", "protocols", and "methods" which purport to tell riders how to be effective (but which are, in fact, usually ineffective except for the person who first wrote them down); and it too is plagued by the "pendulum effect", with not only individual "stars" from year to year, but from decade to decade different styles or schools becoming the idol of the magazine trade and each being considered – for a time – as "the one right way" to train.

And there are thousands of horse owners today who have "been through" Saddle Seat or Hunt Seat or Dressage, Western Pleasure or Reining, Centered Riding or T.E.A.M., "resistance-free" training or "natural horsemanship", and have found, in the end, one thing: it didn't work. Their horse still isn't a winner. He still pulls back when he's tied, he still doesn't go to the fence right, he still doesn't change leads, he still won't get into the trailer. Or, he performs – but without joy, or tensely and sketchily, or woodenly, or intermittently. And, like the farriers, these owners, who have spent money, time, and effort in quest of the "pleasure ride" it seems that they're never going to get, have thrown their bridles down in disgust.

Things tend to work better when the people involved with them understand how they work. That's what paradigms do: create – almost force – deeper understanding of the system under study. This article

presents a paradigm applicable to all aspects of horsemanship science. Like many efforts that flow from paradigm, it contains a model. Since many people learn things better when they actually handle things, I very strongly urge you to build a "Woody" model for yourself (see photograph and blueprint included with this article). Several horsemen who have been my students - and mind you, these are not beginners but seasoned professionals - have taken more than a year to "see" how the model works and what its implications are for the daily practice of riding, training, trimming and shoeing, chiropracty or acupuncture or massage. In the end, though, you will find that nothing about what I am offering you here is very difficult. **Its very simplicity may make it seem difficult at first.**

I believe farriers, veterinarians, horseshoers, or horse trainers – anyone who claims to be a horse-industry professional – can no longer continue to pretend to





Fig. 6 (above) and Fig. 7 (left). Suppleness means range of motion at the joints. To manifest suppleness, the horse must have no "brace" anywhere in him. "Braceyness" comes from muscular stiffness, from the horse being out of position when asked to initiate a movement, and from emotional distress or mental confusion. Above: Dr. Deb and Painty Horse at a collected trot — I am properly focused and Painty is completely compliant. Left: "resistant" due to bracing. Horses cannot go straight if braced. serve the public without working from a paradigm, for it is paradigm that enables craft to mature to science and technicians to mature to healers. The paradigm I present here is essentially identical to one used in the veterinary-medical field of orthopedics – though I did not arrive at it that way, and I don't present it the way it might be taught in medical or veterinary school. So don't let the medical tie scare you. I have far more hope of teaching orthopedics to people who regularly get under, or on, horses than I do of teaching it to any white-coated paragon who confines himself to an office or laboratory and who never gets dirt under his fingernails.

In other words, in order to "get" this you and your horse ARE going to have to work with it...you are going to have to "live it." That means doing a little bit every day, until it becomes second nature.

FIRST THINGS FIRST

Straightness must not be mechanically forced, either by the application of "stack-padded" shoes, or by strong aids coming from the rider. The horse should not be straightened in order to improve his performance, but

in order to help him stand and move comfortably. This is the main objective of orthopedics in practice.

In no case should treatment be given before proper assessment (diagnosis). In this particular application, that means: no one-sided padding, shims, rails, or wedges to be used either on the feet or under the saddle unless assessment based on orthopedic principles calls for them. Because every training technique is also (in some sense) a "treatment", it likewise means: no training technique is to be applied which is solely for the purpose of getting the horse "ready" to show.

The long way is the short way. If your objective is to show your horse, nothing given here will prevent you. You will indeed apply training techniques, but they will address the horse's actual needs, rather than your competitive goals. What I am here advising you to do will build the foundation of the house. I am not troubled about the finish of this house, because I know from experience with many horses that the "two-by-fours" on which the filigree must be hung will develop and will, without fail, present themselves at the right time.

In other words, you do not need to worry whether the horse will slide-stop or change leads or go in a "frame" or carry his head properly for whatever division of competition you're hankering after, be it Western Pleasure, Dressage, or Park. You do not need to work at "developing impulsion," for impulsion does not come from physical thrusting but is instead one result of straightness. In fact, you do not even need to worry about straightening your horse! What you *do* need to concern yourself with is whether he carries himself straight.

RELATIONSHIP OF CALMNESS, SUPPLENESS, AND STRAIGHTNESS

No other physical competency is anywhere near as important as straightness. The rider's prime task is to learn to identify crookedness by feeling it and seeing it in the horse's body, and then to eliminate it by teaching the horse to move straight.

Fig. 8. Diagrams of torso and forelimb elements of horse (left) and human (right). View of horse is of the chest from the front, with the head and neck cut off; the human is bending over forward with arms extended as if to crawl. The human has collarbones (C), but the horse lacks them. Thus its breastbone is neither "braced" to the center, nor socketed to the forelimb. B = breastbone (sternum); S = shoulder blade (scapula); H = humerus (arm); FA = forearm; V = vertebra.



So: first things first. Before any horse can be straightened, he must first be calm and supple. In the absence of calmness, he not only cannot be straightened, he cannot even be properly assessed. The priority order is therefore: calm, supple, straight, forward (not, as is often given, "calm, forward, straight". I repeat: straightness must precede forwardness, and suppleness must precede straightness).

Suppleness means range of motion at the horse's joints. It must come before straightness in the course of training, because without suppleness the horse moves like a bar of iron; he cannot freely arrange the parts of his body. Helping the horse find suppleness is the rider's job. She can do it herself or employ therapists and veterinarians to help. It is very difficult to assess, trim, or shoe a stiff and crooked horse correctly because he does not use himself as nature meant for him to do; his weight is not properly distributed on all four feet. When fear is added to the mix, even a horse that would otherwise have been reasonably straight and supple will present himself as stiff and crooked.

There is a physical side to crookedness as well as a psychological side. In this article, the physical causes for crookedness (and the most effective approach to eliminating it on a physical level) are discussed first. I finish, however, by discussing the more important matter of recognizing and eliminating the psychological-emotional causes.

STRAIGHTNESS DEFINED

For years, I labored to help students understand when their horses were going crooked by describing its symptoms, as in the list which appears below. Finally, however, I came up with an actual anatomical definition of straightness:

A horse is straight when his sternum (breastbone) is centered between his elbows (and shoulder joints).

When the horse is standing still, this definition can be taken literally. When moving, the horse's torso swings between his forelimbs with each step. When a straight horse moves in a symmetrical gait (walk, trot, or ambling "gait"), the distance of the torso's swing to the right exactly equals the distance to the left, so that the right-hand swing exactly cancels the left-hand swing and the average position of the sternum is centered between the elbows.

THE SIDE EFFECTS OF CROOKEDNESS

The Woody Biomechanical Paradigm helps you to distinguish between causes and mere side-effects. If you want cure and healing, then you must not confuse causes with effects, and you must not focus treatment on mere symptoms. I could spend pages listing all the side-effects of crookedness in horses. Here's a short list of physical deformities and performance deficiencies that typically result. Where on this list does your horse appear?

- Horse has one big, flat front hoof and the other small and clubby-looking
- Central commissure of frog not pointing toward the area of breakover
- One or more hooves out of "balance"
- Dishes or flares on toes or on quarters
- Run-under heels (due to excessively heavy heel-strike, due to horse carrying itself on forehand)
- In rear view, one bulb of heel higher than the other, or sheared heels
- Horse shows one high, "overmuscled" shoulder or haunch; the other is smaller
- One shoulder or haunch carried ahead of the other, as if "rotated"
- One hip appears higher than the other, or trainer reports horse has one "weak" hind leg
- Chronic stifle "catching" or rear-end "stumbling" or "sinking"
- One front or hind foot toes straight forward, while the other toes out
- Difficult to pick up one canter lead
- Swaps lead, or swaps rear lead, when being longed
- In gaited horse, gait is unlevel or rough
- Lugs or pulls on one rein
- Seems "stiff" to one side or stiff when circling in one direction
- Dressage horse unlevel during lengthenings of stride; stiffens, raises head, and comes off bit
- Horse is "rein lame"
- Mild but persistent lameness or "offness" which thorough veterinary examination cannot precisely locate
- Hunter or jumper drifts to one side when approaching fences
- Reining horse slides with haunches going to one side
- Horse rears (or tries to lie down) when one rein is firmly pulled
- Cutting horse turns over hocks and comes back with the cow very well to one side, but seems rough or clumsy or slow and won't stay back off the cow when going the other way
- Endurance horse "prefers" rider to post on one diagonal only; when rider insists on switching to the other diagonal, horse shifts the rider back
- Saddle seems like it's always slipping to one side
- No amount of adjustment or re-padding of saddle seems to create a lasting fit
- One stirrup always seems longer, even if stirrup leathers are regularly switched to compensate for stretching from mounting
- Rider repeatedly criticized by instructor for collapsing hip (wrinkle at waist), riding with high shoulder, tilted head, or uneven legs or hands



Fig. 9. Anatomical front views of horses to show that "crookedness" is really very simple – it means leaning. View A, straight horse with sternum (breastbone) centered between the elbow and shoulder joints. View B, a crooked horse leaning five degrees to his left. Plumb bob demonstrates how center of torso shifts toward left limb in crooked horse. When horse leans, torso remains vertical, resulting in a net rotation of the torso which will also be reflected in the carriage of the head – the muzzle will tip to the horse's left while the right ear will be carried lower. 1 = rhomboideus muscle; 2 = serratus muscle; 3 = pectoral muscles; V= vertebra; R = rib; S = shoulder blade (scapula), H = arm (humerus).

THE ANATOMY OF STRAIGHTNESS

The horse's ribcage is freer to swing between his forelimbs than yours would be if you got down on all fours and crawled. This is because horses lack collarbones. Your collarbones connect your sternum to your shoulder joints, and they act as struts which brace the sternum, centering it between your shoulder-joints. The horse has no such braces. There is no bony, socketed connection in the horse between the ribcage and any part of the forelimb. The equine forelimb is held onto the ribcage - and the ribcage is in turn cradled entirely by soft tissues.

The horse's ribcage is, moreover, shaped the opposite of your own. Your ribcage is shallow from back to front (or top to bottom, if you bend over to crawl on all fours), whereas the horse's is shallow from side to side. The anterior part of the horse's ribcage is shaped similar to a canoe, with the sternum forming the prow and keel.

The scapula, or shoulder blade, glides over the ribcage with a circular motion similar to a hand cleaning a windshield. The contents of the horse's ribcage (heart, lungs, etc.) make it heavy. This weight falls into a sling composed primarily of the serratus and pectoral muscles. The fibers of these muscles originate upon the scapula and humerus (upper arm) bones of the forelimb, and extend downward and inward to the ribs and sternum. The sling or hammock-

like arrangement of these fibers is mimicked in Woody by a band cut from a rubber inner tube.

When your horse goes straight, the weight and pull upon the muscle fibers forming the left side of this "thoracic sling" is exactly equal to the weight and pull upon those of the right side.

INDEPENDENT SHOULDERS

All educated, quality horsemanship seeks to ride the horse "from back to front." In order for thrustenergy to flow without inhibition from back to front through the horse's vertebral column, it is necessary



Fig. 10. Thought problems with toy trains as models for the chain of spinal vertebrae.

1. When a horse "goes on the forehand" it pulls itself forward with its forelimbs more than it drives itself forward by its hindlimbs. Imagine pulling the toy train forward from the front. What then happens to the alignment of the cars? This is an advantage to the horse. What is the great disadvantage to the horse of going on the forehand?

2. Imagine pushing the toy train forward from the rear. What happens to the spinal curves if you simply push the caboose straight forward? What happens if you both push the caboose forward and restrict the motion of the first car (i.e., if you "push the horse forward into a fixed hand")?

3. What motions will the caboose have to go through in order to drive the train forward from behind *without* collapsing the curves? What exercise mentioned in the text and photo captions here causes the rear quarters of the horse to swing to the side more than the forequarters? (See illustration concerning the "understepping" of the horse's inside hind leg).

that the bones composing this chain align themselves correctly. To ensure this, the horse's body must be positioned in movement so that both the sternum and the pubis (the center-bottom point of the horse's pelvis) trace the same track. An example from everyday life is when a train is moved forward by a locomotive positioned at the rear. The trouble for riders

comes because the horse's movement is not constrained by a track. A horse is much "squirmier" to drive forward from the rear than a train is, as anyone who has ever ground-driven a horse knows.

Driving or riding a horse is like having a trackless train composed of several cars linked together and pushed from behind by an engine. To go straight, one must imagine that there is a hose (from which paint is dripping) projecting downward from the first and last cars. The vehicle must go forward in such a way that only one stripe is produced, whether the motion is forward or backward. Lateral motion produces parallel stripes.

There are thirty-two joints in a normal horse between the poll and the dock, of which five are absolutely incapable of lateral bending. That makes a "train" with twenty-seven joints which can contribute (however much or little; the amount varies within the chain of vertebrae) to following a curving path.

THE RIGHTING REFLEX

There is a slow-motion film clip that used to be shown to high-school biology classes. It was made to demonstrate why when a cat falls out of a tree, it almost always manages to land on its feet. To make the film, they set up the cameras outside a building and then threw the cat out of a third-story window (there was a trampoline for him to land on below).

The film first shows the cat tumbling as it falls. Immediately, it twists it head to right it. This effort is the product of a "righting reflex" which depends upon input to the brain from the eyes, which scan for the

horizon-line, and from the semicircular canals or "balance organs" of the inner ears. The twist then propagates down the animal's spine as the hindquarters seek to square themselves behind the head.

The falling cat illustrates two facts of mammalian neurology which are germane to this discussion of straightness:

- 1. The hindquarters square themselves to the head, not to the shoulders.
- 2. The shoulders can work independently of the head and hindquarters.

When a quadruped is standing upon the ground, the system works the same way: it is the shoulders, which can act independently of either the head or the hindquarters, which come out of alignment. It is this anatomical peculiarity which gives horses (and cats and dogs, and most other quadrupedal mammals) the ability to lean - to go crooked. Woody was built to show this "lean." All horses, without exception, are to some degree either "left-leaning" or "right-leaning." Most horses seem to prefer to lean to the right. This creates a prominent (apparently overmuscled) right shoulder, a larger right forefoot, a tendency for the



horse to carry its head (and haunches) to the left, and greater ease in following paths that curve left. In a horse that habitually leans right, every slablike portion of its bony anatomy will reflect the rightward lean, and every tubelike portion of its bony anatomy will turn counterclockwise. To help you visualize the power of the "Woody" paradigm, consider the following scenario: let us say that someone's horse, that they rode for years and know all about, has died. They are not your client and you never saw the horse alive. Someone has cut the legs off the carcass and thrown them into the manure heap for a month, then pulled the hoof capsules off "clean." Now they bring just one front capsule to you, telling you only whether it was a left or right foot. Knowing this much, you'll be able to perform the following feat: you'll be able to tell where dishes or flares vs. the steep walls were located on the other three feet; to tell which direction the frog pointed in all four feet; which shoulder in the live animal appeared high and muscular; which side the saddle kept slipping to; which canter lead and trot diagonal the horse preferred; which limbs "winged" or "paddled" more or which knee would come higher. You'll even be able to go so far as to say where the chiropractor focused her treatments, and which side the horse preferred to chew its food on. Not bad, Sherlock!

EYE DOMINANCE

Why horses lean is a question probably as old as horsemanship. Some say they're curled to the left in the womb, others that it's due to Coriolis force, still others that it's really due to handling them always from the left. Woody helps us to understand that horses lean for a very simple reason — because it's the easiest thing for them to do.

Speaking in terms of physics, there are three "stable" positions in anything that can lean away from a center point — for example, Woody or a playground teeter-totter. Two of these positions — all the way to the right, or all the way to the left — are most stable. A third position — balanced exactly in the middle — is also stable, once it is achieved. It is the slopes that connect the central position to the end



Fig. 12. In this photo (courtesy Kim Bolewine), Harry Whitney encourages a Thoroughbred mare to "look and go." She will use both eyes, and her body will align with her eyes. Harry's own expression shows intense focus – and so there are two "birdies" out in front of the horse – Harry's and the mare's. They fly together. This creates straightness, and it is this, and not physical power, that is the root of impulsion.

positions which are unstable. Your horse works the same way: it's very easy for him to allow his chest to slide either to the right or to the left. He can also be very comfortable — expending little effort — if he goes straight, which means balancing exactly in the middle. What most horses under saddle do, however, is try to hold themselves at some point that is halfway between balanced in the center and slopped all the way off to one side. This is what it means to move "out of balance," and it causes strain, muscle-soreness, hoof and limb deformities, and lameness.

As we have already said, all horses are either "left-leaning" or "right-leaning." I suggest that the choice of left or right is largely due to eye-dominance — the preference which horses have to scan objects first, and longer, with one eye. Eye-dominance is the direct result of brain anatomy and development, and this development occurs as one of the earliest phases of fetal life. So there is really no hope of eliminating any horse's tendency to lean. This is why straightness must not be mechanically forced with training devices or shims. However, it is well within the rider's

power to cause the horse to become functionally ambidextrous, just as a right-handed person can learn to throw a lasso or a baseball with his left hand.

Moreover, horses like to go straight; after a certain point, when they are consistently well-ridden, they will perpetuate the habit themselves. They only need human help to "get out of a rut." The farrier must function in the same way — with orthopedic insight.

Eye dominance manifests itself as strongly as it does in horses partly because of the way they focus their eyes. The human eye has muscles which act to "squash" the lens and the whole eyeball, lengthening the distance from the lens at the front of the eyeball to the retina, or image-receiving screen, at the back. Shifting from far to near focus in humans means activating the "squashing" muscles.



Fig. 13. A, straight horse in top view. B, simple form of crookedness; shoulders shifted to right; head and hindquarters align with and balance each other. Neither pulling on the right rein, nor driving the left haunch, will correct this pattern. C, commonest pattern of crookedness: shoulders shifted to right; head and haunches aligned with each other and squared to direction of travel. Stippling demonstrates the classic "checkerboard" pattern of osteopathy and chiropracty. Affected areas (red): D = dentition (teeth); TM = temporo-mandibular joint (jaw joint); P = poll joint area; N = base of neck area; S = behind the withers or saddle area; L = loin area behind cantle; H = hip and upper haunch area; HS = hock and stifle joints.

Horses have the same muscles, but they are vestigial and nonfunctional. Instead, they use their long, flexible neck like a boom to achieve mechanical focus. In other words, to focus his eyes, your horse simply moves his head. Peoples' eyeballs are mounted on the front of the skull, and there's a large overlap between the scan of the right and left eyes. Horses' eyeballs are mounted on the sides of the skull and have minimal visual overlap. Horses therefore tend to scan objects first with one eye, and then — perhaps with the other. Just as horses rarely bother to focus on close-up objects with which they are familiar — your horse doesn't crane his neck upward when you approach him, for example, because he finds it sufficient to identify you by sound, smell, and touch — they also commonly don't bother to scan things with both eyes.

Horses that lean to the right may lead with the right eye, or may try to square the head and both eyes to the direction of travel. A horse that leans to the right, however, will very rarely lead with the left eye, and will object strongly (due to pains in his neck) if the rider forces him to do so. Eye-dominance can be lessened and the degree of straightness in the

horse increased both directly, by working to call the attention of the non-dominant eye, and indirectly, by addressing the horse's pattern of leaning.

PATTERNS OF COMPENSATION

Woody demonstrates only the simplest pattern of physical compensation for eye-dominance. This pattern is not common in the lighter breeds of horse, manifesting only when an animal of phlegmatic temperament doesn't mind approaching things with one eye leading and the other trailing, always out of focus and always deficient in "life." this pattern results in the grossest asymmetries in foot and shoulder development, the grossest lugging on one side of the bit, and a strong tendency to drift or even crab or stagger obliquely sideways. At the opposite extreme lies so-called "rein lameness": slight but chronic asymmetry in movement. This results from the interaction of the horse's leaning with hands which are trying to "fix" an asymmetrical feel by continuously pulling (holding) the animal's head "straight." No horse can be straightened by manipulation of either the head or of the feet.



Fig. 14. The horse's body is a three-dimensional object and conforms to all the laws of physics and geometry that pertain to other three-dimensional objects. The names of the horse's dimensions are as follows:

- A, the "master dimension" or dimension of leaning.
- B, the second dimension or dimension of rotation.
- C, the minor dimension or dimension of rounding up.

An important applicable law of geometry tells us that: When any two faces of a cube are out of plumb, the third face must also be out of plumb. Therefore, if the horse is leaning and rotating its head, it will never be able to go straight in the third dimension (i.e., it will never freely offer to "round up", which is the first degree of collection).

When any two faces of a cube are plumb and square, the third face must also be plumb and square. Therefore, if the horse is straight in the master dimension and straight in the second dimension, it will automatically offer to "round up."

This is one of the great revelations: it takes very little to obtain collection, once the animal has been shown to carry itself straight in the master and second dimensions. Trying to "cram" a crooked horse round results in cranky, imitation collection!

Top views of the horse (diagrammatic, Fig. 13) show the most common pattern of physical compensation. To achieve it, the horse begins by leaning (for example) to the right. He is not, however, comfortable leading with one eye, so he squares his head to the direction of travel. Due to the righting reflex, his pelvis then squares itself to the head. This results in an S-bend which throws several "kinks" into the horse's spine. If allowed to travel this way, the inner aspect of each spinal curvelet will soon be the site of chronic low-grade muscular contraction or "guarding." The pattern produced is the classic "checkerboard" addressed by both Osteopathy and Chiropracty.

Occasionally one finds even more complicated patterns of compensation, especially in the barns of dressage competitors schooled to the idea that in order to "round up," the horse must be driven forward



Fig. 15. Judy McHerron on her Warmblood colt lopes after Chris Hiller on her Quarter Horse gelding. Note the calm expression on the face of the gray "packing" the tarp, and the expression of eager curiosity written all over the Warmblood's body. As a result of the fact that his "birdie" is out in front of him, the Warmblood moves calm, straight, "round", and forward. Notice how squarely this enables Judy to sit. That's the right order, and this is the "deep" way. It's also the happy and fun way.

into a fixed hand. Beginning from ether of the above patterns, this policy will double or even treble the spinal kinks. I have worked with dressage horses in which every laterally mobile intervertebral joint was kinked and in which every peri-vertebral muscle segment was hyper-reactive and sore.

This merely serves to point up the danger in taking one dressage adage literally - that the horse must go "calm, forward, straight." This order cannot and must not be followed.

Though many have tried, no one has ever made a horse straight by driving it forward. The task of "making" a horse straight is like trying to drive a trackless train forward from the rear. If the train's cars are initially out of alignment, no amount of pushing it forward will ever remove the kinks! Before it can move straight — that is, efficiently — the cars first have to be properly aligned; and to be able to be aligned, they have to be separately moveable (the joints between them have to be supple). The proper order of training therefore is: calm, supple, straight, strong, forward (impulsive).



Fig. 16. This is one of the most necessary lessons for any horse to learn: how to step under its navel with its inside (right) hind leg in response to indications from the inside (right) rein and the rider's right leg. The Thoroughbred that Harry is riding in the photo on the left is about to do just that. Notice – by the horse's eyes which are still looking to its left — that this very "green" horse has not yet fully resolved upon compliance. At the moment when its "birdie flies to the inside of the turn," the animal will look to the right and release the right hind leg and plant it under its navel. This is how things are likely to look at the very beginning of training.

Please compare this to the eighteenth-century engraving to the right, which shows master-horseman François Robichon de LaGuérinière coaching a student riding a horse in shoulder-in. That horse, too, will (on the next step), bring its inside (right) hind leg under its navel. Notice that this very "finished" horse looks to the right, complying calmly with its rider's wishes. The rider is neither shoving nor "shaping" the horse, and neither rein is taut. The horse has learned how to carry itself as well as its rider. LaGuérinière defines the under-stepping of the inside hind leg as "engagement of the hindquarters" rather than emphasizing, as most modern schools do, the forward-stepping of the hind legs. Stepping under the horse's navel is the "master's way" to help a horse use its haunches equally and to carry itself straight. Straightness is not only the prerequisite, but the essence of shoulder-in. (Photo courtesy Kim Bolewine).

HOW TO TEACH A CROOKED HORSE TO CARRY HIMSELF STRAIGHT

I am now going to convey to you one of the most basic "secrets" of horse training, one which, however, very few people have ever clearly understood. From my experience teaching many students, I will tell you that you may not understand it at first, not even from playing with Woody. Most peoples' best shot at grasping this is to imitate a horse and get down on all fours and crawl, and I encourage you to do just that after reading this material. Since you have collarbones, here's an operating rule so that your



Fig. 17: Harry Whitney with a Quarter Horse filly. He is slapping his right leg to help call the horse's birdie to the right.

Horses do not necessarily know, when they first embark on their life as saddle horses, how to balance and carry a rider with ease. They have to be taught how to do this, and it is the rider who must know how, and specifically what, to teach them. This photo shows Harry Whitney teaching a 3YO QH filly how to plant and "work off of" its outside hind leg. Notice that this involves showing the animal where to look, as well as which limbs to weight and how its body should be curved. This is the beginning of true neck reining -- and it's only the third time the filly had been ridden (Photo courtesy Kim Bolewine).

imitation of the horse will be as good as possible: when you lean, keep your shoulders parallel to the floor. Don't dip down on one side; keep your back flat and the line of your shoulders horizontal.

There are two techniques. This is the elementary one: obviously, if the horse is inclined to lean to the right, if he runs into something uncomfortable when he gets there - such as a light tap with the bight of the reins or the rider's boot tapping him at the girth - he will immediately move back toward center. This method is direct: the lean is felt and manifested through the shoulders; it is to the shoulder area that aids are directed. The advantage of this method is that it is easy for almost any rider to do effectively. Riders can use it to improve their "feel" for crookedness. The disadvantages are that doing very much of it is liable to irritate the animal, and also that even after "correction" the horse will always, within a few strides, drift back into his old pattern. This maneuver is therefore merely a class exercise. It doesn't cure, because despite the horse's peculiar shoulder anatomy and concomitant tendency to lean through the shoulders, the cause of the problem does not reside anywhere in the forequarter. Leaning is caused by asymmetrical use of the hindquarters!

The method that addresses the hindquarters is called "the master's way," and it does cure. Proceed as follows:

If the horse is leaning to the right, find the time in the stride when the horse's right hind foot is all the way back - the instant before it's going to be picked up. Just as the foot begins to swing forward, stimulate it to change its flight path from where it would have landed (to the right of the ribcage) to a point directly under the animal's navel. The total differential in position will not likely be more than six inches; usually it's more like two or three. Light aids are all that are required, although timing them correctly helps.











Fig. 19. Classic examples of crookedness in motion. The rider in this Saddle Seat "Arabian English Pleasure" class struggled to keep her mount near the rail. The horse leans on his inside forelimb, and his spine is either bent "wrongside out" (first-dimensional crookedness) or he is tipping his head (second dimensional crookedness). The rider does not realize that the horse feels a "force field" coming out of the fence, and nothing has been done to help him get over his tendency to bow his body away from this. The rider's own lack of control over her position also contributes to the problem. She needs to quit trying to drag the horse to the fence with her hands, and realize that her inside leg is ineffective - but I am not suggesting that the leg "turn into an iron pole around which the horse bends." No forceful aids or big bit will ever really be needed on an animal as beautifully made and as sensitive and kind as this Arabian is.

When the horse's right foot lands under the navel and begins to bear weight, it will cause the animal to have to rearrange its whole body and its whole balance around that leg. This is what the eighteenth-century master of haute ècole, Robichon de LaGuérinière, termed "engagement of the hindquarters." It is a movement small and lateral, not one that emphasizes (as the modern school does) the back-to-front motion.

Once again, in order to clearly understand the master's way, you'll have to get down on all fours. Without attempting to do anything "unnatural" with either of your legs, crawl forward while leaning right. Notice how you tend to drift to the right. Now, still leaning right, crawl forward while, each time it swings forward, you place your right knee under your navel. What happens through your shoulders? In the "master's way," the hindquarters are used to correct the forequarters, thus eliminating the "lean" and all of its side-effects throughout the body.

AND NOW ... THE DEEPER WAY

The whole of the above discussion relates only to the horse's physique. But there is something that governs the whole of the physique at once, and that is the horse's interior life: spirit, emotions, and thinking.

To call the horse's attention – what my students call its "birdie" – is to control the horse. When a horse's "birdie" flies to the right, every physical part of its



Fig. 20. Without realizing it, most people ride their horse slightly crooked (View B) all the time, especially when in a fenced area or arena. Horses B and C are leaning to the inside of the curve, because they place their inside hind leg to the left of the position that would cause them to carry themselves upright (and hence straight) on the curve. The axial body (eyes, ears, head, neck, shoulders, ribcage, loins, croup, and tail) of horse A conforms to the desired track. By definition this horse is straight. When viewed from the front, he will be upright. When his axial body "shapes up" in this way, the path of his sternum and pubis will trace the desired curve. It is important to realize that no figure exists before the horse "draws" it with sternum and pubis.



Fig. 21. A picture of unity in horse and horseman rendered by Jean-Louis Sauvat. Nuno Oliveira, the rider, calls the horse's attention into the turn. When the horse's "birdie flies in", all parts of its body shape up to meet his intention, and the animal carries itself straight. Oliveira's own comments: *"One must feel everything that is happening on the inner side of the horse, from the inside hind leg to the inside of the jaw."* (From Oliveira and Sauvat, "Horse and Rider: Annotated Sketches." To obtain a copy of this marvelous work, write Editions Belin, 6 bix, rue Gabriel Laumain – 75010 Paris, or call Robin Bledsoe, equestrian bookseller, (617) 576-3634. body prepares to curve right. This includes first, its eyes and ears, then its head (the head "twirls" to the right), its hind limbs (the right hind leg will track under its navel without the rider having to ask it to), its ribcage (it will freely arc to match the direction of travel), and its hooves (even they will turn and point where the horse intends to go).

The most fundamental way to help a horse to go straight is to get it interested in what is out in front of it – to induce its "birdie" to fly a certain distance ahead of it. Dragging an "interesting" object, such as a tire or a tarp, ahead of a crooked, restive, or fractious horse, so long as the object is so manipulated as not to scare the animal, will induce it to follow. The same may be said for following cattle. It is as if the horse's "birdie" flies out from him and lands upon the tarp or the calf; after that, the animal is almost compelled to follow.

And when he follows, no matter how physically crooked he had been only moments before, he will carry himself sufficiently straight.

Anyone who thinks that addressing the physique is enough has missed 90% of the lesson that the horse is attempting to give.

This article was written in order to clarify what the physical body does in the standing and moving horse. In order to be a good rider, trainer, horse owner, veterinarian, animal chiropractor, farrier, or other "horse professional", you need to understand the Woody Biomechanical Paradigm. But the more important story—and far the deeper therapeutic approach – is to learn to perceive and work with what is going on *inside* the animal. For this, I suggest you review "The Birdie Book" or at least the summary of Birdie Theory posted and regularly discussed in the Equine Studies Institute online Q/A Horsemanship Forum (www.EquineStudies.org).

For more information concerning the links between straightness and its physical "child", collection, please see "True Collection", also posted here in the ESI Knowledge Base.

Thank you for your attention.