Titled:

Geometry or Physics….

When it comes to shoeing…..

What do you use???

By Martin D. Kenny CJF

My wife tells me I am way too blunt……..**SO**……if you are easily offended, please skip this article and go on to the next one. There are others that you will enjoy reading in this issue, I am certain!

I have been shoeing for a very long time (35 years) and have only truly understood the hoof (as all farriers should) for the past few years. At first it was disturbing to come to the realization after all those years thinking I knew what I was doing, that I really had no idea at all what I was doing.

But then after looking around and evaluating the farrier industry as a whole; I began to feel less disturbed. You see, I came to believe that the problem was not that I had been amiss at mastering the craft, but instead that *my profession was amiss at not understanding* the very thing that they deal with (hoof capsule) in a manner that should have been.

If the industry had truly understood the hoof capsule as was needed, many of the problems that the equine industry is plagued with would not be at the epidemic proportions that all of us see daily. I am speaking about; hoof capsules that fail to withstand the rigors of daily life (white line disease, chipping and cracking walls, seedy toes, flat soles, long toes, low heels, flared walls, etc…). These things have been around for centuries. Why had we not figured out how to correct them? We were simply ignorant to the facts!

Not only that; but I feel that many of the issues that the vet industry deals with are a direct result of the farrier industry's inability to correctly deal with the hoof capsule as it should. (Evidence of that would be in the need for joint injections; at earlier and earlier ages.)

I carry the AFA #178, so I can speak about this openly (bluntly?) as an “old timer”! Back when the AFA seemed to be destined to head toward licensing, I was terribly concerned. I mean, what would be the standard for that license? I can assure you that I see just as many hoof capsule failures amongst the AFA, CJF farriers (of which I have been one for over 20 years) as those not certified at all. While it is true that the “better” farriers can **deal** with these issues better than those not so far up the ladder; I felt that we needed to stop *dealing with things* and learn how to avoid them and in so doing; know how to reverse the issues that we see daily. Needless to say, I was relieved when the AFA had stopped pushing toward licensing at this point.

Of course, change is always slow coming in any industry. But the farrier industry has had difficulty changing (or admitting a need for change) due to many things, but I wish to look closely at ourselves, as we ARE THE MAIN THING.

When comparing ourselves to other fields making the relative same amount of profit in a year; we are a poorly educated group of individuals. We are quite bluntly, IGNORANT; now before you get all offended about that statement; look at the definition of the word! Ignorant: *“lacking knowledge or information as to a particular subject or fact*”. Note that I did not call us STUPID. That definition is; *“lacking ordinary quickness and keenness of mind”.* No, I would say that the average farrier is far from stupid, but that we are *ignorant*. Look at the definition of ignorant again; especially the last word! We think we have knowledge but most of what we profess is simply hear say handed down over the years. **Fact is in short supply** in this profession.

So first off, we have to know what we are talking about and always remember that words mean something. Let us look at the definitions of many of the words we use daily as well as some words that we should be using!

Balance

Noun: a state of equilibrium. When you say a hoof is balanced, do you mean it is in a state of equilibrium or do you mean that it simply sits under the leg evenly. The later may mean it is in a state of equilibrium, but then again it may not!

Is the dealing with shoeing of the hoof an exercise in adapting to a static structure or a dynamic structure? Lets look at the definitions of both.

Static: Definition: **motionless:** not moving or changing, or fixed in position

• **adjective 1** lacking movement, action, or change. **2** Physics concerned with bodies at rest or forces in equilibrium. Often contrasted with DYNAMIC.

Is the foot a STATIC structure? Does it lack movement within itself? Certainly NOT, but many of the ways we address it would make you think so. We put the foot in a vice with many things; Heart Bars, Casting Materials, Sole Packs, Clips in many places, etc…..

Dynamic: Definition: physics **changing over time:** describes any system that changes over time.

Now look at this definition. You will see that the hoof is definitely a dynamic structure. It not only changes over time naturally, but in the short span of time as well. Many of those

short time changes are a direct result of what we as farriers do to influence its ability to withstand the forces we place upon it.

Did you realize that the foot was PLASTIC???????? I don't mean because of all those things we have been using to reinforce it with either.

PLASTIC:

1.physics **able to have shape permanently changed:** able to be bent, stretched, squeezed, or pulled out so that the resulting change of shape is permanent.
2. biology **adapting to conditions:** capable of adapting to conditions during growth or development (this is an important facet of the hoof; isn't it?)

3.Capable of being molded, formed, or modeled.

4. tending to build up tissues to restore a lost part.
5. Easily influenced; impressionable.

Now take a hard look at all of those definitions and you will begin to understand the abilities of the hoof capsule in terms of being plastic. We are constantly changing the hoof with everything we do to it. The question is; are we doing so positively or negatively? Look closely at line #2 above. That is the biological term for plastic and one we must take most heed to. What conditions are we generating in the hoof capsule that negatively affect the adaptation of the hoof capsule? What conditions are we generating that positively effect the adaptation of the hoof capsule?

So knowing the above definitions, how do we proceed from here? What should be our parameters for addressing the hoof capsule? Let's look at some more definitions. (I hated this stuff in school; maybe if I had paid attention I would have been further ahead today.. I would have been less ignorant!)

Geometry

1.The branch of mathematics that deals with points, lines, planes, and figures, and examines their properties, measurement, and mutual relations in space.

2.The way the parts of a particular object fit together:

3.The study of properties of given elements that remain invariant under specified transformations.

Now take a hard look at those definitions for Geometry. More times than not; when we say a foot is balanced, we are actually talking about geometry. This approach makes us THINK that if x= 1/3 then y= 2/3 (Duckett's Dot and others?) and if all that is under control while at the same time if T angle= angle of H while X and Y are as they should be; nothing else matters.

Here is the real kicker; NO WHERE in any medical dictionary does the word geometry show up! PERIOD! Geometry has no place in medicine and so I assume that would be true in the horse. Now don't get me wrong, there are some great examples of geometric situations in anatomy, but those are the beauties of the structure; not the basis of it!

You see, (with a geometrical approach) we simply look (for an example) at a lateral view of a foot and say, OK we can see that the toe is too long and the heels are too low. So lets cut off toe and add heel (use wedge pads, glue on something or what ever else). That is simply a geometrical approach. Geometry says to alter the hoof capsule appearance you simply remove toe and add heel. Then we look at the sole view and say well the amount of foot ahead of the apex of frog is in correct proportion to the amount of foot behind the apex; so why don't things always look so good with the foot?

Another example of using the geometrical approach is by adding heel length to the shoe when the heels appear to be "under-run" (Either by adding a longer shoe or an egg

bar shoe). ***Geometrical*** *approach says that this will add "support" to the foot, simply by adding more length to the base.* But then we should be inquisitive enough to wonder, "What is that additional steel actually supporting, I mean it's not attached to anything in which it will support?"

When looking at this example with an eye for ***physics****, you can readily see that this addition of steel will not only fail to support ANYTHING, but it will actually change the physical aspects of the way that MATTER will react to ENERGY.* This is exactly why over time the extension needs to be lengthened again and then again, until we see a complete breakdown of the overall structure and we have to add artificial support such as heart bars, sole packs etc. The physics simply do not support this approach to correcting a low heel or long toe. So lets look at PHYSICS!

physics

1.The science of nature, that branch of science which treats of the laws and properties of matter, and the forces acting upon it; especially, that department of natural science which treats of the causes (as gravitation etc) that modify the general properties of bodies.

2. A science that deals with matter and energy and their interactions.

Those definitions are directly from The On-line Medical Dictionary (Webster's). Now go back and compare that to the definition of geometry and you will see that we must approach the hoof via physics and not geometry. So let us look further at physics and we will begin to truly understand (be less ignorant) about the horses' hoof.

Now this approach makes us UNDERSTAND that ***matter*** can and will be altered by ***energy*** and the ***interaction*** of those two must be considered in order to achieve a stable and strong structure (hoof capsule). Once we understand the *relationship to "energy" to that of "matter"*, then we can see consistent, desirable results in our work on horses feet.

When we look back up at the definition for balance, we see that it states balance is *placing things in a state of equilibrium*. So what does equilibrium mean?

Equilibrium; A condition in which all acting influences are canceled by others (influences), resulting in a stable, balanced, or unchanging system.

Look closely at this definition. If we have achieved a state of true equilibrium, we will no longer see shearing forces in the hoof capsule and no longer see such things as flares; because all influences will be cancelled by other influences. In other words. "***For every action there is an equal and opposite reaction"***

But there are various states of equilibrium as well. Let's look at those.

Static Equilibrium; (physics) any system in which the sum of the forces, and torque, on each particle of the system is zero. A paperweight on a desk would be in static equilibrium. (Refer back to static definition above)

Well, that certainly does not serve our purpose well. Yet when we simply look for <u>*balance*</u> as we traditionally do…. Isn't that (static) the type of equilibrium we talk about?

Dynamic Equilibrium: a state of balance achieved by two (or more) forces in motion. (Refer back to dynamic definition above)

Now that is a simple definition that serves our subject very well. Think about just how many forces that the hoof capsule must endure with every step not to mention along with the changes in surface and work levels that they are asked to perform! Yes, here you have the definition of what we are out to achieve…….

Dynamic Equilibrium>>>>>>>>>>>>>>In terms of shoeing horses it would be;

<u>*a state of balance achieved by two (or more) forces in motion in which we develop a condition whereby all acting influences are canceled by others (influences), resulting in a stable, balanced, or unchanging system.*</u>

<u>Do that and you will no longer see feet failing, and the owners and vets will see far less lameness issues.</u>

As Dr. Moyer stated at the 2006 IHCS “Much of what we think we know about shoeing is simply observations and hear-say with very little actual research to back up what we do in shoeing.”

To that end. I have spent countess hours doing that which Dr. Moyer so properly stated *has not been done*. I have actually researched many things in the past 10+ years and have reams of data to back up that which I profess to know and understand. I now understand the PHYSICS of the horses hoof in a manner that allows me to place it in a state of **Dynamic Equilibrium.** While there is still a tremendous amount of things that I still need know and desire to research further, I feel that for the first time, I am able to address the foot in an educated manner (no longer ignorant) instead of relying on hand me down thoughts based on observations and not scientific fact. The disturbing part of what I learned is that much of what I had handed to me and then proceeded to hand on to others was profoundly incorrect.

So the bottom line is this…. What holds back the ability of any of us to help horses adequately is a lack of understanding (IGNORANCE) of that which we profess to KNOW. That is not to say that any one of the three arms of the equine industry (owner, farrier and vet) is any less or more guilty than any of the other; it is simply meant to face the facts as they truly are. That is never an easy thing to do!

A vet that I ran into recently offered the following dialog. I found it wonderful that he was secure enough in himself to be able to admit; ***“However, because I am not under a horse daily, I don't feel as confident to discuss my thoughts with those that spend their life dedicated to the horse hoof.”*** I rarely find that attitude in the vet community and when I do discover an individual with that attitude; I find that developing a relationship with that specific vet provides a tremendous opportunity to assist horse owners.

Another statement that he made was, ***"I question a lot of things - even those rules "set in stone." I especially question the new things such as white line disease. I have always doubted that one. I am a believer in the irrefutable laws of physics which explains just about everything in life (and God made the laws! - sorry for the editorial)."*** I could not agree with him more no matter what! (On both points; physics and God)

But I have learned (and hope to teach others) to look at the hoof capsule as a *dynamic structure*. Now that I have learned to use an **approach of physics instead of geometry** I have seen dramatic changes in the overall health of the feet I work on daily and even more exciting, I have found tremendous satisfaction in restoring the hoof capsule that has gone astray; with a success rate only dreamed of before. More gratifying than that is that the farriers that I have taught to use this approach are seeing the same dramatic effects as well!

In writing this, my only hope is that it will give you some insight as to what my feeble brain is thinking. If you come to the 2008 IHCS and take the opportunity to sit in on one (or hopefully both) of my talks there; you may need to understand the where I am coming from when at times I appear to think, "I know it all" as I am inclined to do when it comes to issues of the foot***. But as one person once told me (I thought he was arrogant at the time… but now I understand exactly what he was trying to tell me.. hey I admit it I am slow at times). He said, "When you know half as much about this as I do, then and only then can we and will***

we have an intelligent discussion. Until that time I am the authority on the matter at hand!"

THINK ABOUT IT!!!!!!!!!!!!!!!!!!!!

Martin D. Kenny lives in Carthage NC and owns The Hoof Redevelopment Center. His website is www.thehoofcenter.com . He has shod horses over many location across the U.S. and has developed a specific protocol; for addressing any horse's foot in a manner that is specific for that specific foot at that specific time. He has taught others to use his protocol and they are reporting results similar to Martin's. He is available to provide clinics for organizations that are looking to move their groups "outside the box" and challenge their perceived knowledge base. He may be reached via his website or at (910) 947-9476 for further information about clinics.
Martin will be speaking at the general session of the IHCS on _____ at _____o'clock The title of that talk will be ***"Shoeing for a stronger hoof....A new angle".*** Then he will share more information in a class on _____ at o'clock titled ***"Symmetrical Shoeing Protocol, (SHP)… What it is and what it isn't."*** You will not want to miss either session!