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A Bit on Bits

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by Andy Marcoux



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Training and Instruction for the Sport of Carriage Driving

A Little Bit on Bits

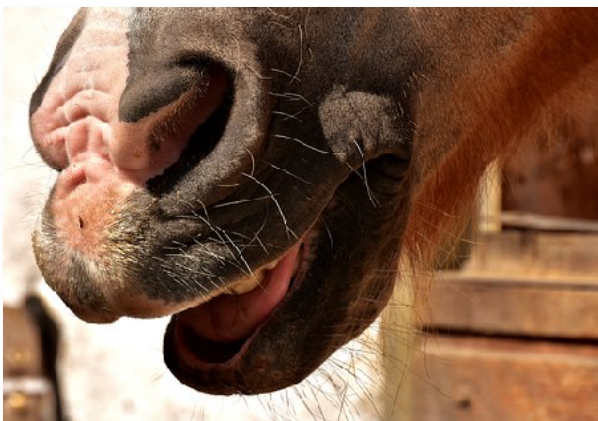
There are literally thousands of bits out there, and hundreds of applications for them. Almost every day someone comes up with a new and “better” bit. Too many lengthy dissertations explain how bits work, what is useful and what is cruel. Many experts have studied bits closely, forming logical conclusions about the science of proper biting. Then, of course, you put the bit in the horse’s mouth, and all of that goes out the window.

COMMUNICATION

Let’s start the conversation about why we use a bit on a horse at all. Communication. The bit should be a device of communication above all else. Certainly, there have been times that the bit has been used as a force of dominance over a horse. In my lifetime I’ve been told: “If you’re having trouble stopping a man or a horse, more metal will always do the job.”

Fortunately for horses, our methodology has evolved. Most of us view our horses as partners in our work, if not companions, rather than servants. Most people seek to have their horses willingly partake in the activities that we choose.

The details of how we want our horses to move are quite complex. We ask for far more than “turn left, turn right, stop”. If that were all we wanted, we could easily communicate those desires through far more general, blunt forms of communication. However, we ask our horses to “turn left, with your head and neck just here, your front legs doing this, and your back legs doing that. Don’t forget to squeeze your belly, maintain this particular rhythm, and pass within 10 centimeters of that imaginary line which you can’t see.”



For such detailed instructions, we need a receiver that is capable of translating all of those details in an instant. Thus we use the horse’s mouth for that communication. The horse’s mouth is a highly tuned, acutely perceptive instrument. A horse’s mouth can sense texture, shape, and flavor in an instant. So it makes a great platform for communicating our complex, specific requests.

Since the mouth is the receiver of choice, we are left to choose the transmitter in the form of a bit.

ANATOMY

No two horses’ mouths are the same. Some have long narrow jaws, while others have short wide jaws or any variation in between. Tongues, too, come in a variety of shapes and sizes.

They can be fat and round, wide and flat, long and thin, or any combination of the variables. Some mouths are sensitive, others are not. A horse can have a soft low pallet (roof of the mouth), or high and hard, and so on.

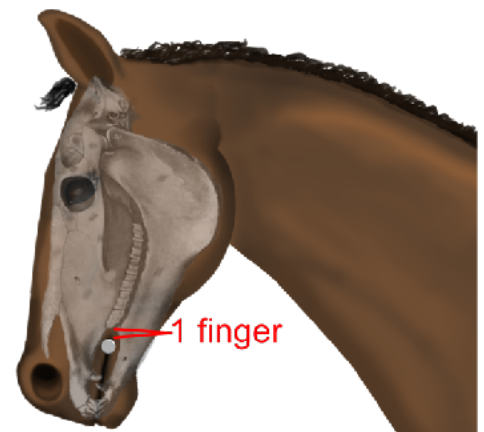
Normally teeth follow a predictable pattern, but all have their own unique variations. Some horses have canines, a.k.a. “tush” teeth, on the uppers, lowers or both. Then there are wolf teeth. These occur as the first pre-molar. There are four pre-molars, the second of which is the one we see and feel most, as it is the first tooth after the bars of the mouth.

Wolf teeth in horses are like wisdom teeth in humans – some have them, some do not; some become problematical, some do not. The common practice has been to remove them whenever they occur. However, many are finding their removal to be unnecessary as long as they do not interfere with the comfort of the horse. Owners are often unaware that their horse even has them. In some cases, extracting the wolf teeth can cause more problems than simply leaving them alone.

PLACEMENT

One popular rule of thumb is that “the bit should make two or three wrinkles in the cheek.” Exactly two or three? Haven’t I heard one or two as well? The fact is, it varies from horse to horse depending on size, shape, and anatomical structure.

The important thing to understand is where the molars are in relation to the corner of the mouth. For some horses, the corner of the mouth occurs well forward of the molars. For such a horse having just one wrinkle in the cheek may not raise the bit high enough leading to the horse putting his tongue over the bit.



In other horses, the corner of the mouth occurs almost directly in line with the molars. If you were to place the bit such that there are two wrinkles in that horse's cheek the bit would be resting directly against the teeth. That would make communication through the bit difficult at best.

I usually try to place the bit about one finger’s thickness in front of the first pre-molar. Then, if the horse seems uncomfortable with that, I may move it up or down from there. Some horses just prefer to have the bit sitting just a little higher or lower in the mouth than we would expect. If it looks a little off, but it is effective, go with it. Pretty is as pretty does.

ACTION

To me, one of the more misleading discussions has to do with the “action” a bit creates in a horse’s mouth. Given the unique shape of each horse’s mouth, the same bit will rest in and act upon each horse’s mouth differently. While each bit design may have similar actions upon all horses, it can not be given an absolute. Each bit acts differently in each mouth.

One of the most popular claims seems to be that X bit lifts or raises the horse’s shoulder. Let’s consider that the average bit is about 5 1/2 inches in width, with a diameter of about 1/2 to 3/4 of an inch. We’ll give the horse an average weight of 900 pounds, though the bit maker will tell you that the size of the horse does not matter.

Given that the horse bears somewhere in the neighborhood of 60% of his weight on the forelimbs, the front end weighs about 540 pounds. Now perhaps they are saying the bit will raise 1 shoulder, so, we’re talking about lifting 270 pounds. Given some very rough, back on the envelope trigonometry, you’ll need approximately 23 pounds of force on the bit to “raise the horse’s shoulder”. That’s roughly equivalent to picking up almost 3, 1 gallon jugs of water.

This would not be an impossible task from a carriage, but of course, bits are primarily made for riding. A bit maker claiming that you can raise the weight of the object you are sitting on is just plain ignoring basic physics.

Regardless of the physics equations, the bit shouldn’t be physically manipulating the horse’s weight. It should only be used as a communication device. The movement of the bit should be influencing the horse to move his body in a manner that you desire.

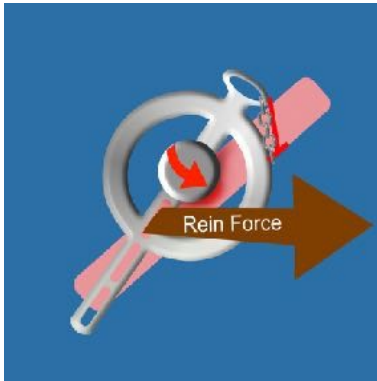
SNAFFLE OR CURB

Many people assume that a “snaffle” refers to a two piece mouth piece, jointed in the center. The more literal definition of the word snaffle might be: A bit that applies pressure in direct and equal response to rein movements without rotation or leverage. The cheek piece of the bit is buckled directly to the bridle, and the rein is buckled to the same cheek piece.



Snaffles are generally regarded as mild bits because there is very little force multiplying action. Of course, anything can be perverted into an instrument of torture. A thin twisted wire snaffle doesn’t need any force multiplying effect to be a harsh bit.

Curb bits on the other hand do have a force multiplying effect. A curb bit is a basic leverage device. The cheek piece has a purchase (sometimes called an eye) above the mouthpiece for the bridle to buckle into. Below the mouthpiece the cheek piece has shanks, or branches for the



reins to buckle to. When the rein is pulled, the bit rotates, with the mouthpiece being the center of the rotation.

The curb bit gains the force multiplying effect with the aid of the curb chain or strap. The curb chain or strap is attached to, or just below the purchase of the bit. As the bit rotates, the curb chain is raised by the purchase, until the chain is pulled snug up against the horse's chin. When that happens, the bit's rotation is limited, and it begins to bear down against the horse's mouth more intensely. The change in force is not proportional, but exponential. In other words,

before the curb chain engages the horse's chin, the bit bears into the horse's mouth with about as much force as is put on the rein. When the curb chain engages the chin, the force that bit bears into the horse's mouth multiplies many times over.

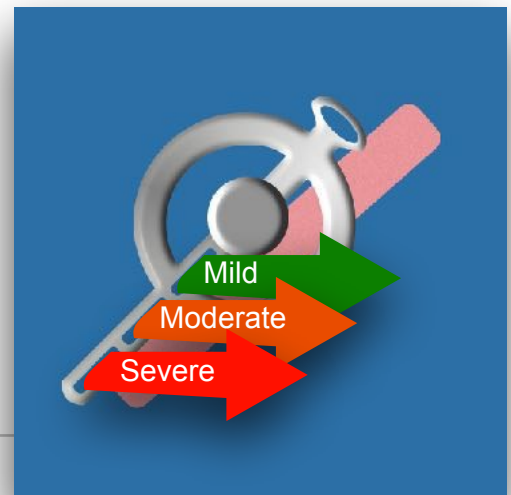
Many curb bits, such as a Liverpool, have several places on the shank that one can buckle the rein. The slots closest to the mouthpiece are the mildest in action. As the rein is buckled lower on the shank the leverage increases significantly.

HAVE IT BOTH WAYS, ALMOST...

A number of bits can be used either as a curb or a snaffle. Liverpool and butterfly bits are the most common bits in the driving community, and either can be used "on the snaffle." When the rein is buckled to the large ring of the cheek piece, (many call this plain cheek), the bit does not rotate at all, and therefore acts similarly to a snaffle.

Even if it does rotate the bit, the rotation is so mild that the curb chain does not engage.

If the rein is buckled to one of the slots or loops on the cheek piece, the bit will act as a curb bit. A nice thing about a bit that allows this variation is that the driver can choose the appropriate rein setting for the activity of the day and attitude of the horse.



POLL PRESSURE

In recent years there has been lots of discussion about poll pressure. Since we live in a time that people love time to talk in terms of absolutes, this discussion has devolved into the partisan terms of our day. One person will claim that poll pressure is absolutely necessary to make a horse lower his head, while the other will scream that any poll pressure of any kind is rampant cruelty to the horse just short of lopping his head off.

Once again, different horses will respond in different ways. You could easily observe this with a simple lead rope. If you put that rope over the poll of your horse and put some downward force upon it, you're likely to get the answer to how your horse typically responds to poll pressure. Continue the experiment on 20 horses, and you're likely to get a wide variety of responses.

Some horses will respond by lowering their head, others will raise their head against the force. The degrees of response will vary from mild compliance to violent revolt. And that isn't even the end of the story on poll pressure.

One of the reasons we enjoy horses so much is that they can be taught to respond to various types of inputs. It's quite easy to train a horse to either give to, or resist poll pressure. It really just depends on what you want the horse to associate with the action.

Last, and certainly not least, the amount of poll pressure a typical bit can exert is minimal. Most bits simply don't have enough leverage to create significant poll pressure. There are bit designs that incorporate pulley action to apply poll pressure. However, those are highly specialized bits seldom seen in most barns, and almost never seen in carriage driving.

CONTACT CONUNDRUM

There are slippery slopes to slide down on either side of contact question. We can easily attempt to solve issues of too little, or too much contact through changing bits. If you are relying solely on the bit to solve this equation, you may find that there is no end to the bits that you will have to progress through.

If the horse is too heavy on the bit, increasing the bit severity can lead to an arms race. A horse pulls on a mild bit; the driver gets tired of pulling, and switches to a stronger bit. This controls the horse's pulling for a while by creating pain. But that only lasts until the nerve endings in the mouth become deadened to the new level of pressure. Then the horse pulls again, usually harder. The driver ramps up the bit again, and the cycle continues. Before long, there is a large bit that controls the horse through pain and neither driver nor horse is happy.

Ironically I often take the reins of these horses in my hands and do something that takes no skill at all. I let the horse's mouth go. If the horse has not decided that there is a direct correlation between bit pressure and speed (or lack of it), he usually drops his head in relief and goes anywhere he is asked with pleasure.



The other side of the slope is in softness. A driver starts with a mild bit, and the horse doesn't have the confidence to carry that bit forward. As the driver becomes gentler, the horse becomes ever more acutely aware of the movements of that driver's hand. The driver goes to a milder bit, which serves the purpose for a while until the horse becomes used to it. In time the horse lightens up to the milder bit, hanging behind that bit, losing a good amount of steering and impulsion all the while. Soon the horse is in a rubber or plastic "bit-like" device that the driver can hardly touch. The horse and driver are in no better a position for clear communication than the ones above who are in an arms race.

While the right bit has a significant role to play in establishing contact, it can not replace good training and technique. If you find yourself in either of the above-described circumstances, look to exercises that focus on quality of contact, rather than a new bit.

DRIVING, RIDING, JUMPING

Of course, one of the questions I get all the time is about "driving bits". In the past, this is where the cart was quite literally put before the horse. You can find texts that list quite specifically which bit should be used of which carriage.

Many of these standards were born of practicality. However, as time marched on, the practical choices of bits, began to track with particular carriage forms. Soon enough, carriages of "formal types" began to warrant "formal bits", while carriages of the "sporting class" were seen to warrant "sporting bits". Finally, fashion trumped function.

To the horse, there is no such thing as a "driving" bit. The horse recognizes the bit, as I've detailed, as a communication device. He doesn't know if the difference between a Liverpool and Buxton. He knows this bit feels right, and that bit feels wrong.

In modern carriage driving, there are very few rules regarding bits. The rulebook mainly specifies that the bit should not be cruel in nature, that's about it.

In pleasure driving shows, fashion still does play a role. Liverpool bits are seen as "formal" while butterfly and snaffles are seen as "informal." However, if your horse goes terribly in a bit that "matches the carriage", the horse is going to perform poorly, and won't be considered among the top in his class.

If you use the bit the horse performs the best in, the horse may be considered for a higher placing based on his way of going. Then it is up to the judge to decide if the choice of bit detracts significantly enough from the turnout to warrant a lower placing among equally performing turnouts.

In combined driving, the driver's choice of equipment has almost no effect on scores. There are a small number of judges who still judge the turnout on the most traditional scale. In that case, a judge may conceivably deduct one or two points from the presentation score.

At the end of the day, turnout accounts for a tiny percentage of the dressage score. That dressage score is just one of three scores combined for the total score, making the total effect the bit choice (from a turnout prospective) on the score even less significant.

Having a bit that your horse doesn't like on the other hand will effect all of the horse's movements in the dressage test. It may also adversely effect your accuracy on the cross country and cones courses. In the end, the right bit for your horse will lead to a better performance, and a better performance will give you a better score.

SELECTING THE RIGHT BIT

In the end, bit choice comes down to personal preferences. I find that horses are as randomly unpredictable in their bit preferences as we humans are in our choice of underwear or cats are in their choices of favorite places to sleep.

Some horses hate a fixed mouthpiece, while others will tolerate nothing other than the solid feel that a fixed bit provides. There are plenty of horses that prefer different bits for different jobs. I even see horses that love one bit for a period of time and then decide they hate it. Months later, the horse no longer likes the replacement bit, and you are back in the first bit again. The point is, find a bit that suits your horse and place it in his mouth where you get the best results. Don't go to one extreme (too harsh) or the other (too soft).

Generally, trainers find certain bits that they use more than others. But beware of those who swear by just one specific bit or another. Sometimes their loyalty to a particular bit type (or manufacturer) may cloud their ability to see what is really best for the horse. All too often, the trainer blames the horse or the reinsmanship for problems that might be caused by an uncomfortable bit.

In truth, "A tool is only as good as its operator," or more to the point, to quote the bit maker, Lorimer, "For every twenty bits I make, nineteen are made for men's heads, and one for the horse's."