

## **TRADITION & THE STATUS QUO OR SCIENCE & ADVANCE? A welfare reform in horse sport, currently denied.**

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*"Save when needless severity urges timidity to madness, the horse is naturally obedient...it is guided by touches."*

- Edward Mayhew, MRCVS 1890 (*The Illustrated Horse Doctor*).

The Latin word for mouth is *os*, the same as the word for bone. How did this come about? Michael Olmert (1996) explains that the Romans thought of the mouth as a magical part of the body, for only in the mouth were a person's bones visible. The teeth were a species of bone to them. Though the anatomical reasoning was incorrect, the Latin name remains appropriate, because this is still the one place in the body where we can see virtually naked bone. In the horse, the gum on the bars of the mouth is covered by a mucous membrane that is transparently thin. Otherwise, we are indeed looking directly at bone, for gum is modified periosteum.

During much of the time when being ridden, the horse's bit lies on bone (Figs 1 and 2). Metal and bone do not mix. I have documented over 120 problems caused by the presence of this painful foreign body (Cook 1998-2005, Cook et al. 1988, Cook et al. 2003, Cook et al. 2006). Some of the problems are potentially fatal to horse and rider, such as bolting, bucking and rearing. Others, such as the headshaking syndrome, can lead to loss of use. Bone spurs on the bars of the mouth are common, as is erosion of the premolars (Fig 3). These problems and others are daily impediments to the establishment of harmony between horse and rider. All of them represent a welfare problem for the horse, and a safety hazard for the rider.

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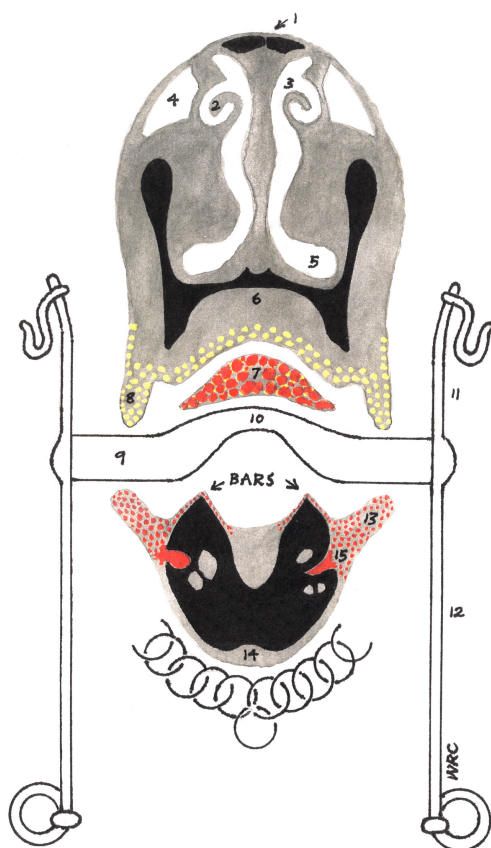


Fig 1. A transverse section of the horse's head through the bars of the mouth with a curb bit and chain in position and the tongue (7) over the bit. Even in a large wqrmblood, the mandible at this level is smaller than a mid-section through a hen's egg. Note that the bars of the mouth are knife edges, thinly covered with gum. During the course of ridden exercise, the mouthpiece of a curb bit (and/or snaffle) will apply highly focused pressure, intermittently at best, on the knife edge itself or on the bone immediately lateral to the knife edge. Unsurprisingly, bone spur formation at this site is common in bitted horses (Cook et al 2003). Bit-induced trigeminal neuralgia is also, in the author's experience, the most common cause – by far - of the headshaking syndrome.

Key:

Black = bone ; grey = soft tissues; red = regions supplied by the mandibular branch of the trigeminal nerve; yellow = region supplied by the maxillary branch;

1 = peak of nasal bone; 2 = ventral turbinate bone; 3 = middle nasal meatus; 4 = nasal diverticulum; 5 = ventral nasal meatus; 6 = hard palate; 7 = apex of tongue; 8 = upper lip; 9 = cannon; 10 = port; 11 = cheek piece; 12 = shank; 13 = lower lip; 14 = chin groove; 15 = mental foramen

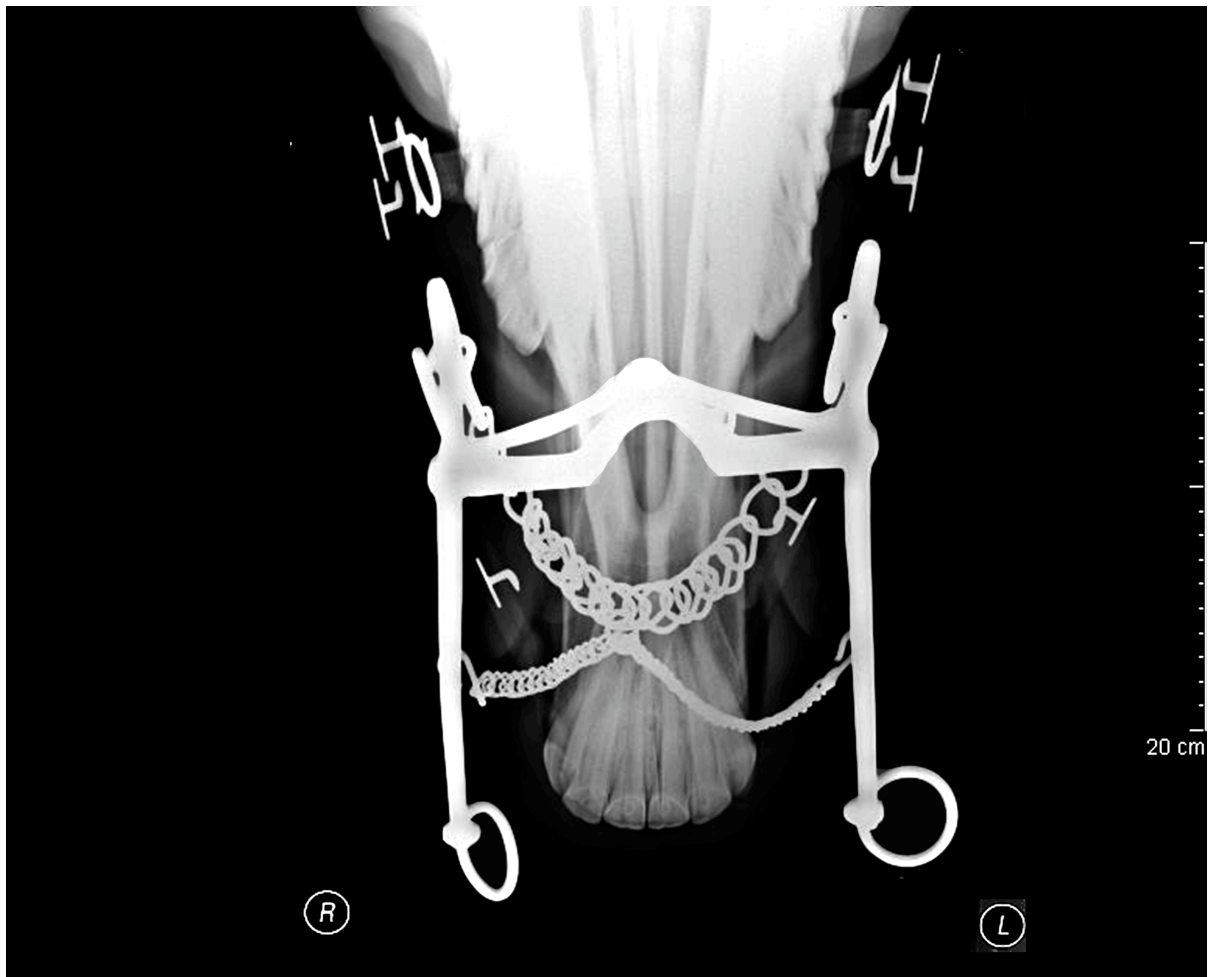


Fig 2. Dorso-ventral radiograph of a double bridle *in situ*. Two bits and a chain are mandated by the FEI for international dressage competitions and for national competitions at advanced levels.

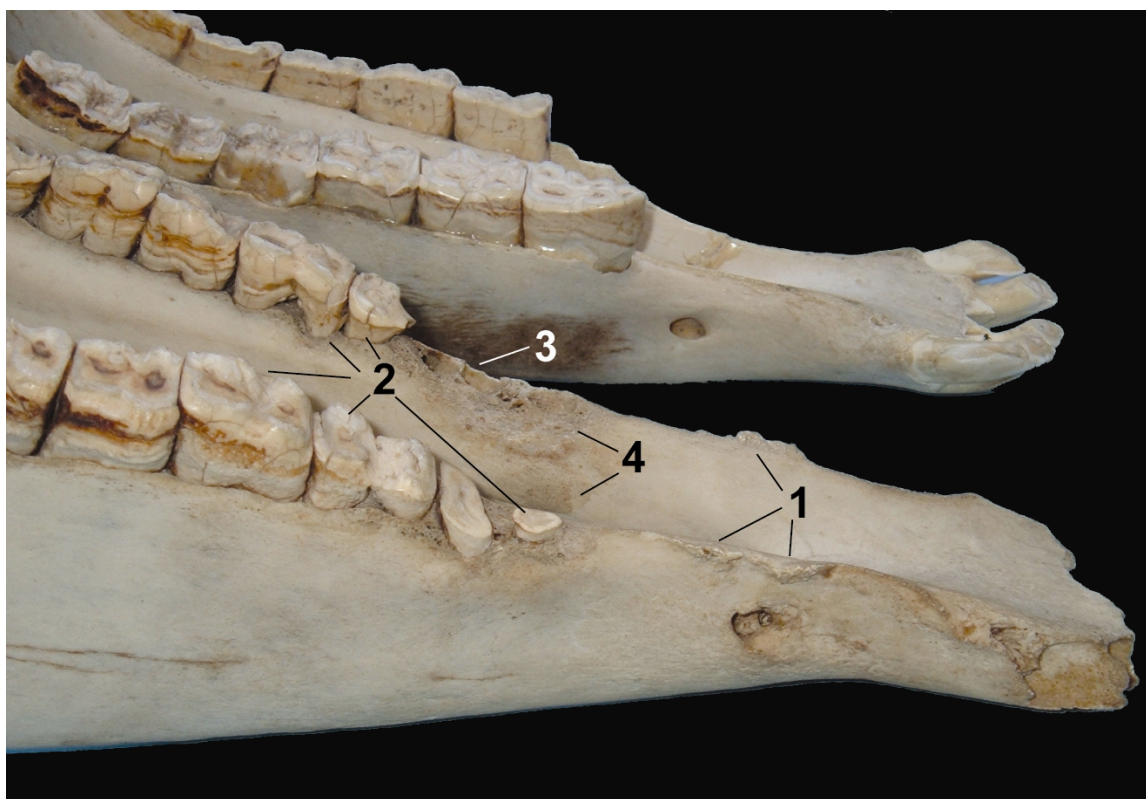


Fig 3. The jawbone closest to the camera exhibits evidence of severe bit damage to bone and teeth. Compare its features with that of the healthy jawbone in the background, in which the knife edges of the bars are smooth and the cheek teeth (premolars) are firmly rectangular.

Key:

1. Bone spurs on the bars of the mouth
2. Erosion of the first three cheek teeth on both sides of the jaw as a result of the bit being pulled backwards over the crowns of the teeth. Horsemen might blame this on the horse 'getting the bit between its teeth' but, in fact, the rider is placing it there when they apply traction on the reins and stretch the lips to twice their normal length.
3. Loss of the first cheek tooth and also the front root of the second cheek tooth
4. Extensive periostitis of the empty tooth socket, indicating that the tooth was shed during the horse's life and that the loss was not an artifact.

Happily, in the last eight years, a painless and more efficient alternative to the bit has become available, worldwide. This is a bitless bridle, the design of which represents an entirely new concept. The traditional bitless bridles such as the hackamores, bosals and sidepulls, are – like the bit - pain-based and are limited in the signals they can communicate. The new bridle's design is simple but subtle. It has a figure of eight configuration, with one loop over the nose and one over the poll. Reins attach in such a way that the straps constituting the continuation of the reins cross under the jaw (Fig 4). An appropriate generic name for the design is the cross-under bitless bridle.



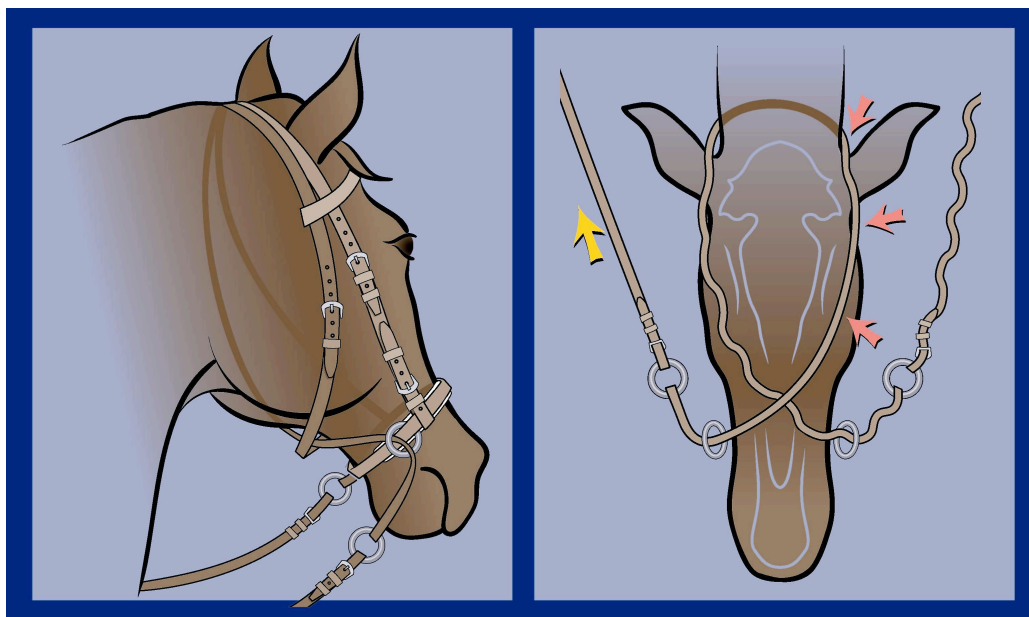


Fig 4. For steering, the cross-under bitless bridle distributes a gentle nudging type of pressure over one half of the head (red arrows). It pushes rather than pulls. For stopping, it signals a whole-head hug that horses interpret as a polite request and one to which they respond more willingly than to the pain of a bit (a common cause of bolting).

The credit for the cross-under/bitless principle goes to 'Ink' Grimsley of Colorado, who introduced it to a small circle of friends in the early 1950s for rodeo work. The first attempt to market the design was made by Allan Buck of California in 1990. I have been marketing a development of the cross-under design since 1999. As a result of the research that I have published since 1998, explaining the problems caused by the bit and their solution, the new bridle has been adopted and field-tested by over 25,000 riders. There are now many companies, worldwide, who have copied the design.

Naturally, I am pleased that this research and development has led to an advance in the welfare of the horse. I declare a conflict of interest without embarrassment because I know that I am doing more to help the horse now than at any time in the past 54 years. Over 50 authors have published independent opinions recommending the new design. These include publications in Australia (Field 2002), Holland (Calkoen 2006, Tulp 2006), Sweden (Thoresen 2002) and the USA (Bonner 1998, Barakat 1999, Jahiel 2001 a & b, 2002, & 2006, Hulle 2005). Overwhelmingly positive feedback has been received from users of the new bridle (available online at [www.bitlessbridle.com](http://www.bitlessbridle.com) and at [www.bitlessbridle.co.uk](http://www.bitlessbridle.co.uk)). As can be seen, the bridle has been used on horses of all ages, temperaments, types, and stages of schooling. Riders too of all ages, experience and skill have employed it in almost every discipline.

Official bodies such as the FEI (Federation Equestre Internationale, the international governing body for horse sport) are aware of the welfare arguments for a rule change to permit use of the cross-under bitless bridle. None have, as yet, agreed to such a change. Their reasons do not include any scientific arguments but are simply based on a wish to retain the *status quo*. For example, a national federation rejected the rule change proposal to permit the cross-under bitless bridle (CBB) for dressage on the grounds that they "*follow the lead of the FEI in formulating their rules*" and that the CBB would constitute "*a departure from the classical tradition.*" More recently, Michael Stone, the Acting Secretary General of the FEI has also rejected a request for a similar amendment. The dressage riders who tested the bridle in Switzerland reported to him that "*They believed that the double bridle is the classical and still best method for competition at International Level and consequently would not recommend a change in the rules...*"

The answers provided by officials of the FEI and national federations reveal that an inappropriate reverence for the role of tradition has become an obstacle to the introduction of welfare reform. It was not being proposed that the bit should be disallowed. Yet the requests were rejected on the grounds that the bit was considered to be '*traditional*' or '*classic*' and, therefore, by implication, immune to challenge even by supplementation. Such a defense with regard to a question of animal welfare is inappropriate. The same *status quo* argument in human affairs would support the continuance of the 'traditional' practices of bloodletting, the drowning of witches, slavery and child labor.

Tradition is not a valid reason for blocking humanitarian and scientific progress. Tradition may be acceptable over matters such as whether the Union Jack should be flown one way up or another, or whether, when making a cup of tea, one should put the tea or the milk in first. But tradition should not be invoked in deciding questions relating to the welfare of animals, the science of ethology, and the safety of a sport.

Cruelty is defined as the infliction of avoidable pain (Morton 1993, Cook et al 2006). Now that an acceptable and preferable alternative to the bit is available, the pain of a bit is avoidable. It follows that the bit method should now be reclassified as cruel (Figs 5-7). Quite apart from its inhumanity, it has also been shown that the bit is not even an efficient or safe method of communication (Cook et al. 2003). A first step in addressing this matter would be to obtain an acceptance by the FEI that a painless option is permitted. One might hope that, as the bit can be shown to be cruel, the FEI, whose objectives state their avowed intent to advance the horse's welfare, will one day disallow the bit. However, after 5000 years of bit usage, such a radical change of policy cannot be expected to occur overnight. So, for the present, it is simply requested that the CBB should coexist with the bit and at least allow riders the choice.



Fig 5. One of the many bit-induced problems that can be documented photographically. See others at [www.nevzorov-haute-ecole.com](http://www.nevzorov-haute-ecole.com)



Fig 6. Edward Mayhew's illustration from his book, "The Illustrated Horse Doctor." (1890) reminds us that abuse of the bit is nothing new. Mayhew here illustrates hyperflexion, gaping mouth, leaning on the bit and head flinging. The coachmen and the rider in the foreground are both throwing their whole body weight against the horse's mouth. The foreground rider is actually standing in his saddle, in the manner of many a modern-day exercise rider on the racetrack. Yet another rider is not keeping his eyes on the road! Five equestrians are depicted and only one of the five is blameless. Mayhew's satirical caption for his drawing reads, "*Various modes for forming that which all men speak of with admiration, as a 'good mouth.'*"





Fig 7. Illustrating the hyperflexion that has been endorsed by the FEI as an acceptable training method for competitors to use in the warm-up ring, prior to a dressage test.

The FEI offer no way in which riders can submit rule change proposals directly to the FEI. These have to be recommended to the FEI by the national federations. The problem with this is that an appeal to the national federations can, it seems, be relied upon to produce the sort of responses already recorded. Applicants are left 'spinning their wheels.' The logjam can only be broken by the FEI. If they were to permit the CBB this would save an enormous amount of frustrating work and wasted time for the national federations but, more importantly, it would save the horse from much avoidable pain and suffering.

The definition of cruelty has been hammered out over the years after much discussion. Nevertheless, there will be some in the horse world who would question its applicability to the horse's bit. They might argue that the bit is no more cruel than a cutthroat razor is dangerous and that it depends on how the bit is used. When used by a master horseman with the hands of a neurosurgeon and a seat that is infallibly independent, I might concede that a bit could be used without inflicting pain. But how many such masters are there and how long did they have to practice before they gained that mastery? It is rather like the tongue-in-cheek recommendation that no one should be allowed to play the violin that has not mastered it. So returning to the razor analogy,

how would it be if everyone from teenagers upwards were bound by law to shave exclusively with a cutthroat razor, even though a safety razor had been invented?

The *status quo* argument ignores the fact that situations change. New knowledge and the availability of new methods results in a change of *status*. By continuing to mandate the exclusive use of the bit, the FEI are no longer in compliance with four of the "five freedoms" recommended by current welfare guidelines. Similarly, they are no longer in compliance with nine out of ten line items of the FEI's own code of conduct.

Horses are made nervous and are frightened by having painful metal rods placed in their sensitive mouths. When one or more reins are attached to one or more rods, this makes it far too easy for riders, albeit unintentionally, to apply highly focused pressures to the hard and soft tissues of the mouth. As the mouthpieces of bits are circular and the bars of the mouth are knife edges, the pounds per square inch of pressure that the bit can apply in moments of crisis, when a rider loses her balance and inadvertently throws her whole weight against the horse's mouth, must be horrendous. A pilot study of rein tensions gives a hint of the numbers involved (Clayton et 2005) but a photograph tells the story (Fig 5). If waivers of the rules were ever allowed for a physically handicapped horse, as they already are for a physically handicapped rider, every bitted horse would qualify.

A bit is not an indispensable piece of equipment, without which dressage is impossible. William Cavendish, the Duke of Newcastle, made this point over 250 years ago, when he declared that he could 'dress' a horse with a scarf around its neck. He added, "*It is not a piece of iron can make a horse knowing, for if it were the bitt makers would be the best horsemen.*" (Cavendish 1743). As the Duke of Newcastle is one of the pioneers of what is now revered as the classical tradition, we do well to recall his opinion that the bit is not even a necessary part of the tradition. He could 'dress' a horse without a bridle, let alone a bit. And so too can modern masters such as Alexander Nevzorov in Russia (see [www.nevzorov-haute-ecole.com](http://www.nevzorov-haute-ecole.com)). Dressage horses do not have to be 'on the bit.' All they have to be is 'on the aids' and the aids can, as Nevzorov proves, be as little as a cordo around the neck. Nevzorov can 'dress' a horse without a cordo and without even being in the saddle! The bit is a Bronze Age invention. The FEI and national federations should rejoice that an acceptable alternative to this primitive and barbaric device is now available.

In their rules and regulations, the FEI admit that many a horse is 'mouth shy.' It warns its inspectors to be careful when checking the equipment after a competition. This is surely a tacit acknowledgment that the officials are aware of the reason why so many horses are 'touchy' about their mouths?

Webster's dictionary defines 'tradition' as "*the delivery of opinions, doctrines, practices, rites and customs from generation to generation by oral communication.*" Civilization has surely advanced a little since it was dependent on oral communication. There is the matter of the written word to consider and scientific evidence. Tradition has '*the effect of an unwritten law*' and that is where it should stay. It has no place in written rules and regulations which, to be valid, need to be constantly revised and brought up to date in



the face of new knowledge. The bit has not been handed down to us by divine revelation. It was the invention of primitive man in 3000 BC. Do we really need to be forced to observe such a prehistoric custom?

John Maynard Keynes was right when he said that *"The difficulty lies, not in the new ideas, but in escaping the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds...like the clinging roots of an old juniper."*

One very persistent and incorrect old idea is that the bit controls a horse. Let me quote here the opinion on this of Dr. Jessica Jahiel (2002). Jahiel's doctorate is in the history of science. But she is also an expert horseman, lecturer, a certified instructor in dressage and eventing by the American Riding Instructor Association, author of many books on all aspects of horsemanship, and the founder of a treasure house of information through her independent (and free) online Question and Answer Newsletter.

*"By giving up the use of the bit, you don't sacrifice any control but you DO make it less likely that the horse will bolt, buck, or bite because of mouth pain. One of the great myths of horseback riding is that the bit stops the horse. The bit does NOT stop the horse. A bit can hurt a horse, frighten a horse, cut through its tongue, or otherwise damage the horse. A bit can be used to signal a horse, crudely and harshly or gently and lightly, depending on the skill of the rider. But no bit ever stopped a horse. All the bit can do is to tell the horse that you would like it to stop ... and you can say this WITHOUT a bit."*

The same author (2001a) wrote *"...the [CBB] makes it clear to any rider that the real purpose of a bridle (and bit) should be to tip the horse's nose softly in a particular direction, and that the rest of the rider's wishes (stop, go forward, backward, or sideways, change gaits etc) should be communicated by seat and legs."*

The horse world is a strange world and embodies curious contradictions. Though tradition has a stranglehold on certain practices through regulations and seems able to overlay the adoption of new practices based on real knowledge, at the same time, a quite opposite and unregulated situation thrives whereby gimmicks and myths based on pseudoscience are instantly adopted without question. The deplorable fashion for hyperflexion training in the dressage world is a regrettable example of the readiness with which untested and harmful practices are accepted (Fig 7). This particular fashion has even been endorsed by the FEI. Yet the practice of warming up a horse prior to a dressage test by using two bits and a chain to force its chin into its chest conflicts with the physiological needs of an athlete. For example: -

- Horses cannot breathe properly with their throats constricted by hyperflexion. Such horses are being partially asphyxiated (Cook 1981)
- The airway obstruction is sufficient to cause the lungs to bleed (Cook 1988, 1999b, Cook et al. 2003).
- By taking cruel advantage of the leverage provided by a double bridle, this bizarre position of the head at exercise places unacceptable pressure on the sensitive mouth. The pain is likely to be excruciating and accounts for the profuse sweating of these unfortunate horses. The pressure is likely, in the long term, to

- trigger bone spur formation on the bars of the mouth, leading to trigeminal neuralgia and the headshaking syndrome (Cook et al. 2003)
- Bit pain also triggers movement of the root of the tongue and elevation of the soft palate that further obstructs the airway. Unsurprisingly, the degree of suffocation is sufficient to precipitate inspiratory stridor (Cook 1981, 1999a, 2002, & 2005)
  - Freedom of the neck is essential to achieving balance. A horse in hyperflexion cannot balance and is straining the whole of its musculoskeletal system, particularly the spine. (Cook et al. 2003)
  - Hyperflexion renders a horse incapable of seeing where it is going
  - All of the above cause pain and fear incompatible with both welfare and athletic performance. The practice could be prevented by use of the CBB.

In view of the apparent ease with which black magic and mumbo-jumbo gets accepted in the horse world it is difficult to understand why scientific knowledge, that has been field-tested for nearly a decade and found to be valid, should be resisted. Perhaps after 5000 years of bit usage we should not be surprised to discover resistance to change. Perhaps there are some conflicts of interest that are responsible for the logjam over rule changes, in which case these need to be recognized and addressed. Perhaps it is simply fear of the unknown, in which case education is the answer. Ignorance is a serious handicap for humans just as bits are a cruel handicap for horses.

## REFERENCES

- Barakat, Christine (1999). "A Bitless Bridle for the 21<sup>st</sup> Century." *Equus* 270, April
- Bonner, John (1998). Changing Tack; horses may prefer bridles with a bit missing. *New Scientist*. 4 July, p16.
- Calkoen, Madeleine (2006): "Bitloos". *Mensport*. June/July pp22-26
- Cavendish, W (1743). The New Method of Dressing Horses. John Brindley, printer and bookseller, New Bond Street, London
- Clayton, H.M, Singleton, W.H, Lanovaz, J.L, and Cloud, G.L. (2005). Strain gauge measurement of rein tension during riding: a pilot study. *Equine and Comparative Exercise Physiology*, 2 (3) 203-205
- Cook, W.R (1981). Some observations on form and function of the equine upper airway in health and disease, Part I: The pharynx. *Proceedings of the 27<sup>th</sup> Annual Convention of the American Association of Equine Practitioners*, p. 355-392, Nov.-Dec
- Cook, W.R (1998). Use of the bit in horses. *Veterinary Record*. 142, 16
- Cook, W.R (1999a). Pathophysiology of Bit Control in the Horse. *Journal Equine Veterinary Science* 19: 196-204
- Cook, W.R. (1999b): The ear, the nose, and the lie in the throat. In "Guardians of the Horse: Past, Present and Future." Ed: Rosedale,P.D., Greet, T.R.C., Harris, P.A., Green, R.E., and Hall, S.. British Equine Veterinary Association and Romney Publications, pp 175-182.
- Cook, W.R 2000). A solution to respiratory and other problems caused by the bit. *Pferdeheilkunde*, 16, 333-351
- Cook, W.R (2002). Bit-induced asphyxia in the horse: Elevation and dorsal displacement of the soft palate at exercise. *Journal of Equine Veterinary Science*, 22, 7-14
- Cook, W.R (2003). Bit-Induced Pain; a cause of fear, flight, fight and facial neuralgia in the horse. *Pferdeheilkunde*, 19, 1-8
- Cook, W.R (2005). Treatment for dorsal displacement of the soft palate in horses. *Veterinary Record*, December 3, 157, 752
- Cook, W.R., Williams, R.M., Kirker-Head, C.A. and Verbridge, D.J. (1988): Upper airway obstruction (partial asphyxia) as the possible cause of exercise induced pulmonary hemorrhage in the horse: an hypothesis. *Journal of Equine Veterinary Science*, 8:11-26
- Cook, W.R. and Strasser, H (2003). "Metal in the Mouth: The Abusive Effects of Bitted Bridles." Sabine Kells, Qualicum Beach, BC Canada
- Cook, W.R, Strasser, H, and De Beukelaer, E.R.J.M (2006). "Compliance with physiology as the foundation for animal welfare guidelines: Exemplified by the rehabilitation of the horse's foot & mouth." In press, *Animal Welfare*
- Field, Ruth (2002). "Going Bitless – Witless or Wise? *Hoofbeats, Australia*. October
- Jahiel, Jessica, (2001a) "What is this new Bitless bridle?" Online at [www.horsecity.com](http://www.horsecity.com)
- Jahiel, Jessica (2001b). "Going Bitless." *Equestrian Retailer*. November, p32-50
- Jahiel, Jessica (2002) Online at [www.horse-sense.org/archives/20020527182538.phtml](http://www.horse-sense.org/archives/20020527182538.phtml)
- Jahiel, Jessica (2006). "Trail Bridles & Bits." *The Trail Rider* May/June, p68-79
- Hulle, Kathleen (2005). "Bitless Bridle Offers Pain-Free Communication" *Holistic Horse* Vol. 11 Issue #43, September, p11

Morton, D.B. (1983). Is unnecessary suffering avoidable? *Veterinary Record*, 133, 304

Olmert, M. (1996). *Milton's teeth and Ovid's Umbrella: Curiouser and curiouser adventures in history*. Simon & Schuster, London. .

Thoresen, Annica Nygren. (2002). "Om anda hastar kunde skrika som grisar." *Swedish Veterinary Journal*, Number 14

Tulp, Marjan and van Daalen, Tess (2006). Een beter bit – versus – beter geen bit. *Bit* #. 131, April pp 16-19