

# The Bedouin Bridle Rediscovered: A Welfare, Safety and Performance Enhancer

by Fridtjof Hanson and Robert Cook

“One of the troubles of our age is that habits of thought cannot change as quickly as techniques with the result that as skill increases, wisdom fails.” – Bertrand Russell

## Part 1: Serendipity by Robert Cook

In 1985, during a working week in Kuwait, I was introduced to a small group of tribesmen in the desert who had with them one horse. Without explanation, they asked me to examine their head-shy horse’s mouth. Deserts have no corners, and there was no place in which to back the horse’s quarters, but I did what I could. I found nothing abnormal and said so, but this did not lead to any follow-up questions. The horsemen seemed satisfied and, to my surprise, I was presented with a beautifully hand-crafted halter

(Figs. 1-4). Nearly 20 years passed before I fully appreciated the significance of this gift. At the time, I simply took the halter home and hung it in my study as a souvenir of an interesting week.

Time passed and, in 1997, my research focus shifted from developing a nerve conduction test for paralysis of the horse’s voice box (“Roaring”) to asking myself the question, “What does a bit do to a horse?” Development of the crossunder bitless bridle followed and this, in turn, led me to an interest in the history of bitless bridles. As a result, it dawned on me that what I had assumed to be “just a halter” for handling a horse from the ground was, for all its simplicity, a fully-fledged bitless bridle. The Kuwait “halter”

was the bridle that, for centuries, Bedouin horsemen had used in their tribal raids; a bridle they trusted with their lives. In Lady Wentworth’s book, *The Authentic Arabian Horse*, the author quotes what her mother, Lady Anne Blunt, had written in 1879 about this “halter”: “The Bedouin never uses a bit or bridle of any sort except for war, but instead uses a halter with a fine chain passing round the nose. With this he controls his mare easily and effectively.”

In January 2013, I met Dr. Fridtjof Hanson, a retired cardiovascular surgeon and life-

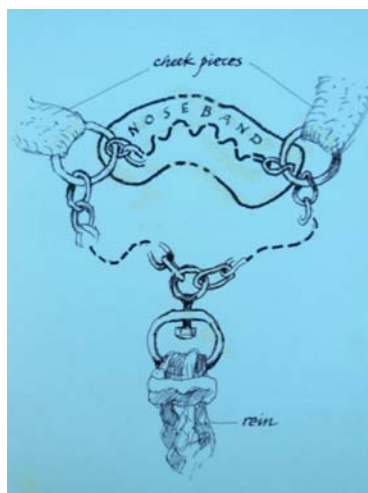


Figure 3: “Y” shaped “plumb bob” connecting noseband and rope rein.



Figure 4: Headstall, rope rein and centimeter scale.

long horseman from New Zealand. Hanson had started to use my crossunder bitless bridle for endurance racing in 2012 and, during our meeting, shared with me some ideas he had about the bridle’s design, based on his experience. Subsequently, through lengthy, long-distance telephone calls and regular email exchanges we have continued our brainstorming sessions about bitless riding. In 2014, Hanson undertook to train one of his horses in the crossunder bridle for a pilot research project at Massey University Veterinary School in New Zealand. The project, now completed and awaiting publication, was designed to test, using exercise endoscopy (Fig. 5), the hypothesis that soft palate instability in the horse, “bleeding” and sudden death are caused by the bit breaking the lip seal and eliminating what I believe should be a vacuum in the mouth at exercise (Cook, 2014 and 2015).

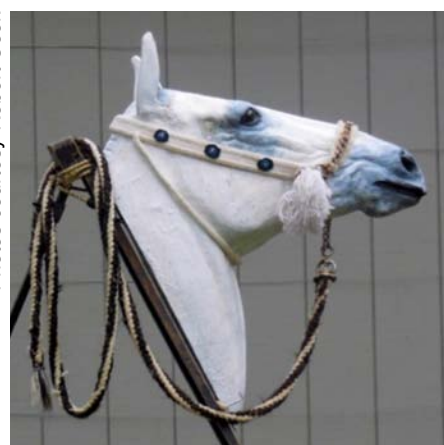


Figure 1: The Kuwait “halter.”



Figure 2: Felt noseband and link chain connection to a single rein. The chain is lightly attached to the felt with thread sutures. The horse’s chin is pressure-free, and pressure on the bridge of the nose is limited to the weight of the rein.

The Bedouin bridle rein signal, given with a mere vibration of a loose rein, invoked proprioceptive receptors in the skin of the horse's nose and no pain or pressure receptors.



Figure 5a: Hanson attaching an audio-recorder to the exercise video-endoscope.



Figure 5b: Hanson in the saddle testing the Bedouin noseband.

During a year of intensive bitless training of one horse, in preparation for the project – the protocol for which required him to gallop his horse, both bitted and bitless – Hanson made a number of important discoveries about the advantages of bitless communication in general and respiratory advantages in particular. His previous experience with a “puller” led him, late in the year, to explore the use of the crossunder bridle in conjunction with a weighted rein. In discussions about weighted reins, a topic with which I was unfamiliar, I realized that the Bedouin bridle I had been given in Kuwait used a weighted rein. Accordingly, I gave the bridle to him to try and he received it at the end of December, 2014.

On seeing the bridle, Hanson immediately recognized its principle (the same as the crossunder but with the added advantage of a weighted rein) and used it for the very first time in a 40k (25 mile) endurance race. Surprisingly, the bridle that I thought likely to have

**Figure 5a:** Hanson attaching an audio-recorder to the Massey University exercise video-endoscope. The recorder lies inside the black bag suspended on each side from the junction of brow band and cheek piece and anchored to the “O” rings of the head collar.

**Figure 5b:** Hanson in the saddle with his 11-year-old half-bred mare wearing his copy of a Bedouin noseband attached to the head collar supporting the exercise video-endoscope in the mare's right nasal cavity. The audio-recorder lies above the white label.

been made for a smaller horse fitted his 15.2 hand mare perfectly. The noseband lay at the same level as recommended for a crossunder. The absence of a brow band was no problem, as the throat latch served the same purpose. In time, Hanson discovered that absence of a brow band was actually an advantage, as it allowed him to recognize if the copies he made were, like the Kuwait bridle, properly balanced. The Bedouin bridle rein signal, given with a mere vibration of a loose rein, invoked proprioceptive receptors in the skin of the horse's nose and no pain or pressure receptors. As this minimalist tactile signal was never anything but centrally applied, the absence of torque and twisting also ensured the bridle's stability.

By tying the free end of the plaited rope rein back to the shackle of the “Y”-shaped chain link, Hanson used two reins, adding their weight to that of the three short chains (Fig. 3). Not once during the race did Hanson use anything but a loose rein. Not once did his horse pull. To a great extent, she chose her own pace. As a result, he finished the race in 150 minutes; 30 minutes quicker than recommended. Nevertheless, his horse easily passed the vet check for heart rate and skin hydration.

Hanson's comments on day one were ...

- Perfect – exquisitely good.
- Probably the ultimate.
- Incorporated many subtle aspects.
- Lifts communication to a wholly new level.
- Every signal is a whisper.
- Analogous to the fine control that an operator has on a backhoe.
- Provides horse and rider with total awareness of their mutual “body position in space.”
- You can keep in touch with the horse's “balancer,” her head and neck, without interfering with her balance.
- Because of the plaiting in the rein (wool and horse-mane hair) it has a prickly feel to it [helpful for neck reining], together with elasticity and a vital springiness.
- All these subtle qualities are missing from a standard leather or synthetic rein.
- During use (even in dry weather) the rein may pick up moisture from the horse's sweat and become slightly heavier.
- The small chain links mould themselves closely to the variable contours of the bridge of the nose.
- Unlike a bosal, it “fits like water.”
- The bridle is pain-free.
- Importantly too, the signal is essentially pressure-free. The only pressure the horse feels, and this as a very slight constant, is the weight of the rein.

Since that day of discovery in late December 2014, Hanson has continued to keep his 11-year-old mare in peak physical condition using the Bedouin bridle. In 9 months of further usage, the improvements in her breathing, striding and performance – that had first been apparent with use of the crossover – continued and were brought to their full potential. He has since used the Bedouin bridle on many other horses with equal success. Hanson will take up the story from here but, in closing this introduction, I wish to thank and congratulate my colleague. What an example this is of “one-medicine.” Hanson’s skill as a horseman and his application of the science of proprioception to equitation represents a major contribution to horse and human health.

Traditionally, a bridle consists of three parts; headstall, bit and reins. In the last 15 years, by introducing the crossunder bitless bridle, I have been able to show that the bit is not only superfluous but contraindicated. Subjecting the bit to scientific scrutiny for the first time has revealed that the bit is a scourge for the horse, a handicap for the rider and a health hazard for both. Hanson has now subjected the rein to the same scientific scrutiny and discovered that the conventional rein is inadequate and misapplied. Even when not attached to a bit, a rein should not be used to physically “tie” two athletes together. Instead, the rein should unite them as one athlete, mentally. We should think of the reins as neurological links between two nervous systems. With Hanson’s work, 21st century riding is not just “bitless”; it is also, in the conventional sense, “reinless.” Specifically, rein tension is avoided and superseded by using the rein in an entirely different way, that is for tapping into a far more sensitive method of communication, the horse’s and rider’s sixth sense of proprioception. In this way, two species unite as one and the dream of the centaur is achieved. It furthers the upgrade of equitation from “control by pain and fear” along the final path to “communication by partnership”; from dictatorship to democracy – a renaissance in riding.

## References

Cook, W.R. (2014): *A hypothetical etiological relationship between the horse’s bit, nasopharyngeal asphyxia and negative pressure pulmonary edema (bleeding)*. *Equine Veterinary Education*, 26, 381-389.

Cook, W.R. (2015): *Bit-induced asphyxia in the racehorse as a cause of sudden death: a hypothesis*. *Equine Veterinary Education*. In press.

## Part 2: Why and how does the bridle work?

by Fridtjof Hanson

In Part 1, Robert Cook has described how we came across this amazingly simple and extraordinarily effective device. I will now comment on the bridle, piece by piece, for – as we all know – the devil is in the details.

The Kuwait bridle, typical of Bedouin bridles in general, consists of a plaited woollen headstall. The loosely fitting and apparently quite flimsy noseband consists of a strip of felt over which lies a light, stainless steel chain, loosely attached. The link chain is similar in type to the choke chain used by dog trainers. The other crucial element is a rein of some weight and body that conducts proprioceptive signals.

*Proprioception* is a medical word for a sophisticated sixth sense pos-

Photos courtesy Fridtjof Hanson



Figure 6a: My warmblood show jumper in a copy of the Kuwait bridle.

“keeps us together.” Proprioception provides the policeman’s field test for sobriety, whereby we demonstrate – with our eyes closed – that we can place the tip of our finger on the tip of our nose. As complex organisms, horses and humans have this sense of self-awareness to a high degree. It permits the horse-and-rider “centaur” to achieve a yoga-like union, a voluntary yoking of two unlikely species, each at different extremes of the prey/predator spectrum. The horse’s head is an especially “aware” part of its body. Touch is only part of the nose signal.

Constant contact with a bit will send a considerable background level of pressure and pain signals to the horse’s brain, all the time. Such a high and persistent level of signal “noise,” together with intermittent spikes in the signal from the intended rein-aids, may well confuse and irritate. Some horses may “tune-out” altogether. In



Figure 6b: The same bridle, showing the weighted reins.

con-  
trast, the default signal of a feeling rein is virtually no signal – just the weight of the rein. This and the inherent hypersensitivity of the horse explains why the minimal signals of the Bedouin bridle are effective.

The free portion of the nose chain hangs loose below and just behind the horse’s chin. The chain and rein serve to connect the hand of the rider with the skin of the horse’s nose and, crucially, vice-versa. The connection is both simple and subtle. There is more to it than meets the eye. It can be

assessed by horses, and humans, as by all animals. In equitation, seat and leg aids are proprioceptive signals. Rein-aids, however, when given with a bit and by any other than the most advanced of riders, cannot tap into this proprioceptive sense. It is blocked-out and over-ridden by pressure and pain. Proprioception is the awareness of body position and movement in space. Integral to awareness is balance. Special receptors pick up signals from the movement of skin, joints, muscles and the inner ear. Think of it as a sensory “glue” that

thought of as an extension of the rider's forearm, but a better image is to think of it as a nerve trunk that connects the nervous system of the rider to that of the horse. To further understand how the Bedouin bridle "works," think of the "Y"-shaped connection as a plumb line or plumb bob. Horse and rider have a mutual interest in keeping the plumb bob as close to the vertical and as still as possible. The rider signals to the horse by creating tiny departures of the plumb bob from the vertical. Signals are made via an entirely loose rein, but it is in no way an inactive rein. Communication is not, as with the bit, by differential rein tension but by wave-like "whispers"; a brief vibration is sufficient. For this to occur, the rein (whether single or double) has to have three properties; "body," weight, and flexibility. Conventional reins lack the first two attributes. The descriptive term "weighted rein" is easily misunderstood. It does not mean that the rider is increasing the pressure on her horse, quite the opposite. Hand pressure is virtually eliminated. It is reduced to the weight of the rein only. Think of the weighted rein as acting like an antenna or "feeler." Let's call it a *feeling rein*.

My Xmas present, the Kuwait Bedouin bridle, has a rope-like "feeler" plaited out of horse-mane hair and goat wool. This is a complex, crafted item that I cannot match in my copies. But a feeler rein that functions in a similar way can be made by using a light stainless steel chain [3 metres long for a pair of reins] wrapped in sheep's wool and sheathed in a racing bicycle's inner tube (Fig. 6). Note especially the importance of correctly distributed weight. A feature of any really well-designed hand tool is that it needs to be properly balanced for optimal performance. If, for example, the shackle uniting chain and rein is too heavy, this results in the shackle swinging from side to side at fast paces and bothering the horse. Similarly, if the chin chain is too long, the poll piece of the bridle begins to migrate down the horse's neck, as it has done in Figure 7. But bridle "balance," properly achieved, results in a bridle that simply stays in place by gravity, like the Kuwait bridle. Correctly fitted and used, the Bedouin bridle is the closest to comfort for the horse and effectiveness for the rider that I have ever encountered.



Figure 7: My 11-year-old half-bred mare in a copy of the Bedouin bridle (as in Fig.6).

In my copies of the Bedouin bridle, both reins attach to the same ring which itself hangs free from chin chain (Figs. 2 and 6). Again, to prevent the crown piece of the bridle from sliding away from the poll, the chin chain's length should be adjusted to provide an appropriate gap between the bottom edge of the horse's jawbone and the shackle (Fig. 2) or rein ring (Figs. 8 & 9). A two finger-width gap is ideal.

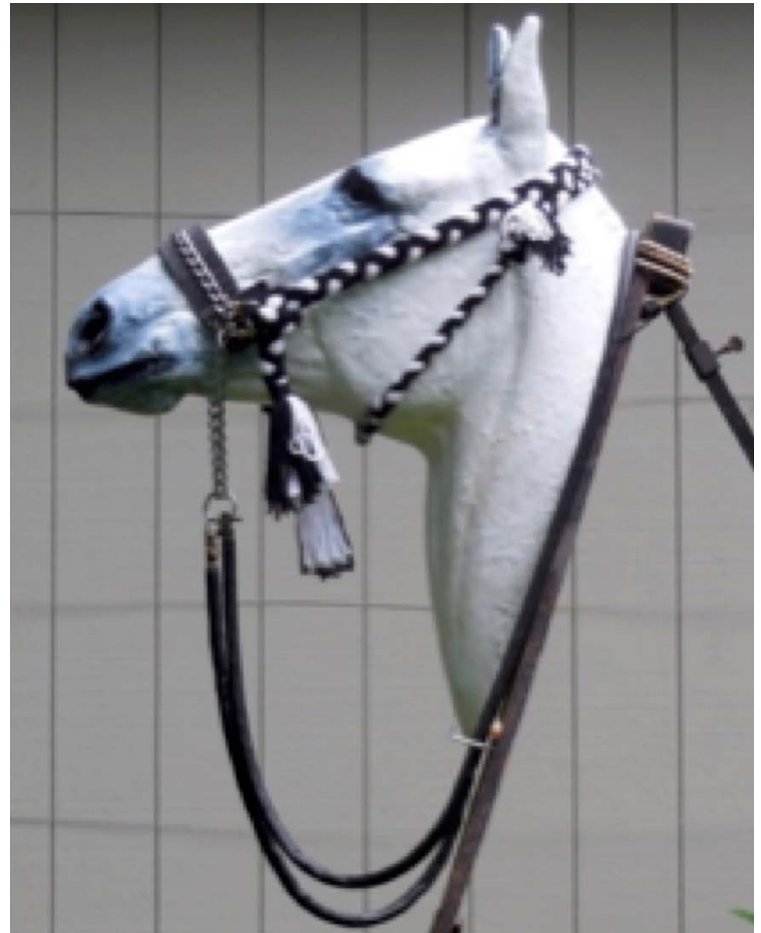


Figure 8. The "Hanson" bridle.



Figure 9. A two-piece chain; nose and chin chain.

**Figure 8:** "Hanson" bridle. Unlike the Kuwait bridle, the cheek pieces (ending in large tassels) are adjustable to fit horses of all sizes. The small tassel shows the point of attachment of the throat latch (Figs. 5 & 6).

**Figure 9:** Showing a two-piece chain; nose and chin chain. The chin chain would be shortened before use.

Consider what the horse will feel. Instead of a pain in the mouth it feels a nudge on the nose. Skin is the largest sense organ. Hair-bearing skin was evolved by Nature to sense the world. The links of the

nose chain mould themselves automatically to the variable contours of the bridge of the nose. Because each link has freedom to move, subtle signals are possible. Most importantly, the signalling method permits instantaneous signal cessation. This is not release from pressure and pain as neither was inflicted in the first instance. There is a unique clarity of signal; a clear distinction between signal and non-signal. Because the horse is the quintessential flight animal, the rider's cardinal skill is the accuracy, speed and timing of pain-free signals. It is impossible to exaggerate the importance of these features. As the Bedouin bridle permits them, it represents, in my experience, the ultimate of bridles.

That said, one important caveat is necessary and in order to note this I cannot avoid "giving myself toffee." A precision instrument demands precise usage. Success with the Bedouin bridle presupposes that the rider has an independent seat. It cannot be used to advantage by a rider whose riding experience is in the category of "beginner," "novice" or even "intermediate." By definition, none of these have the independent seat of an "advanced" rider. I beg my reader's indulgence for stating this necessary and patent fact. What skills I have as a rider have taken me 73 years to develop. I would be doing riders no favours by indicating that proprioceptive riding can be enjoyed without going through the mill of learning a skill. Graduation to a Bedouin bridle is a process. Beginners might start with a crossunder bridle and conventional rein. As their "seat" gets stronger, they can learn how to use the crossunder with a feeler rein, thereby also increasing the sensitivity of the crossunder. Finally, once they have achieved an independent seat and learned a new way of using the reins, they are ready for the Bedouin bridle. In future, with the benefit of the printed word (these words), the process will not take a lifetime.

By now, the reader will probably have some understanding of why the feeler rein qualities of distributed weight, "body" and flexibility, are so important. They allow horse and rider to blend into one proprioceptive unit. Nevertheless, readers may still be puzzled as to how exactly the Bedouin bridle is used.

Before we consider this, let's recognize the degree to which we relieve the horse of the harmful effects of conventional bridles by simply removing the bit. This vital step, as Cook's research has shown, eliminates over a hundred behavioral problems and forty or more bit-induced diseases. Some of the behaviors and diseases are the cause of accidents, a few of them fatal to horse and rider. Indisputably, it is both considerate and wise to "keep out of a horse's mouth." However, because tradition and our own fears convince us that control requires contact, rein tension remains, and we persist in "hanging on to his head." In so doing, we are seriously interfering with the horse's ability to balance. Freedom of movement of the head/neck pendulum at fast paces is as important to the horse as freedom of movement of its legs. The "pendulum" is an essential part of balancing, striding, breathing, and the circulation of blood. Furthermore, contact through rein tension acts as a barrier to a rider's own balance and his/her attainment of an independent seat. As balance is an important part of proprioception, we are seriously interfering with this vital sixth sense, both for the horse and ourselves. As both horse and rider are "out of balance," we, by definition, rule-out the possibility of achieving rider/horse unity – the very goal of horsemanship.

This is where European horsemanship needs to take a lesson from Western horsemanship, forgetting for the moment that many "Western" horsemen embrace the use of a bit. At the highest level of skill, the rapid movements of a top cutting horse are only possible because of the advanced Western rider's loose and feeling rein. Similarly with the Bedouin bridle, the horse is free to use his head and neck, his "balancer," without restriction because the feeler rein is loose. The signals consist of waves, wobbles and vibrations that travel up and down the "nerve trunk." Rein tension is rarely needed, and on those few occasions when required – during an emergency or for correcting unwanted behavior – can still be achieved with surprisingly little force by good timing and a quick jerk. This makes the Bedouin bridle, in my experience, by far the safest bridle to use on any horse. As we all know, horses respond to gentleness and deft handling. They love the skilled and gentle touch. When excited or fearful, they require a firm but steady touch, i.e., enough pressure and for long enough, but no more force than absolutely necessary.

The Bedouin bridle is the tool for the job! For geographic and historic reasons, it is closer to the Western than the European ("English") tradition. The bitless portion of the Western tradition came from Spain and, prior to Spain, from Arabia.

During my nine months trial of the Bedouin bridle, none of my horses have developed bridle abrasions, rub marks or galls. If the noseband caused even the mildest discomfort, the horse can quickly shift its position slightly, as easily as we adjust the spectacles on our nose!

Let's talk about aids. The signal to "walk on" is a slight forward push of the hand on a loose rein. This forward push is possible with a feeling rein but not with a conventional one. With a feeler, the rider has the option of both push and pull. One might say "push" to go and "pull" to stop, except that such a bald description does not do justice to the unique quality of the "nerve trunk" rein-aid.

The lateral aid is a mere twist of the wrist, flick, shake or vibration of one rein. Most horses will understand the lateral aid on day one, as they do with the crossunder bridle, for the effect is the same in principle, albeit more of a whisper. A momentary nudge is all that is required. To steer to the right, twist your wrist clockwise, for left anti-clockwise. Horses whose responses have been blunted by the bit may need a little retraining.

Readers can simulate the rein-aid signals on themselves by a simple experiment.

- Take a dog's choke-chain lead and draw the chain loop over your foot so that it encircles the leg just above the ankle, lying over a light sock.
- Close your eyes.
- Apply light and transient traction by a straight "pull."
- Ask yourself what you feel. You will, as for the "slow" or "stop" aid, feel equal, slight and well-distributed, pain-free pressure on both sides of your shin.
- Now repeat the experiment with a slightly diagonal pull. A pull to the right nudges the left side of your leg and vice-versa.

A dog lead is not a feeler "rein," so to experience the wrist-twist

effect, don a knee-length sock. Pinch a fold of the sock between finger and thumb at the level of the calf muscle. Rotate the fold clockwise and anti-clockwise to feel the effect.

Using two reins, an additional rein-aid for steering is “neck-reining.” All in all, and remembering that rein-aids are only supplementary to more important seat and leg aids, the Bedouin bridle provides an abundance of superior (purely proprioceptive) communication. The horse is so superbly “aware,” it is almost uncanny. We can never, it seems, overestimate its sensitivity and the rapidity and willingness of its response to a proprioceptive signal. The horse challenges us to match his “awareness” but will always leave us in the shade.

So start slowly with the bridle’s introduction. Give the horse time and opportunity to discover how light your signals can be. Then keep trying to get lighter and lighter. Restrict your signals to precise little “bumps.” Then progressively move up and down the scale through all three paces, from single steps to a full gallop. But do this smoothly and by small degrees and you will find, in due course, that you can go from “flat out” to a smooth full-stop, with a rein signal that works like “stroking pussy’s tail.” A backward stroke of the reins is all that’s needed.

From keeping my mare in bitless training for a whole year, in preparation for the Massey University project, I was astonished to realize how much better she began to breathe and stride. With the passing months, her breathing became “cleaner” (complete absence of inspiratory breath sounds) as her speed became faster. To document this, I used a battery-powered audio-recorder. This taught me something else of importance. In a bitted bridle, though I still rode mostly on a loose rein (“on the buckle”), I realized that if I put tension on the reins, the rhythm, depth and rate of her breathing was immediately interrupted. This didn’t occur in the crossunder or the Bedouin bridle. As a horse at the canter takes one stride per breath, something that Cook was one of the first to note in 1965, this momentary loss of locomotor/respiratory coupling is perhaps unsurprising. Nevertheless, it is a feature of bit-rein tension that has not previously been recorded. It reminds us, once again, that we interfere – at our peril – with the free movement of a horse’s head and neck at fast exercise. How often, I wonder, is a horse’s stumbling caused in this way?

A further observation, supporting what Cook has already noted, is that in the Bedouin bridle, as in the crossunder and the feral horse at the gallop, the horse’s lips are sealed, the jaw is closed, slobbering and swallowing are absent. When bitted, the opposite is common.

More evidence on the bit/bitless comparison comes from a study of footprints in the sand. Figure 10 show two runs, both on a loose rein. If I had been applying rein tension when using the jointed snaffle (e.g., as when jockeys “rate” their mounts), the differences in the tracks may have been more apparent. As it was, I could see a slight wobble in the bitted track, whereas the bitless track was straight. The difference is not obvious from the photograph. However, there is additional subjective evidence. From my perspective, as a relatively heavy “jockey,” (my riding weight is 95 kg [209 lbs] compared with a jockey’s 57 kg [126 lbs]) the two runs felt distinctly different. With the Bedouin bridle, it felt like driving a car smoothly at high speed on a good highway, whereas with the jointed snaffle my “car” had an unbalanced wheel and I felt a juddering. There was further evi-

Photos courtesy Fridtjof Hanson



**BITTED** ↑

**BITLESS** ↑

Figure 10: The two tracks on the right of the photograph were made, 15 minutes apart, by my barefoot mare galloping towards the camera during a 1km (5 furlong) run. During the first track (on the left), she was wearing a jointed snaffle and on the second my copy of the Bedouin bridle.

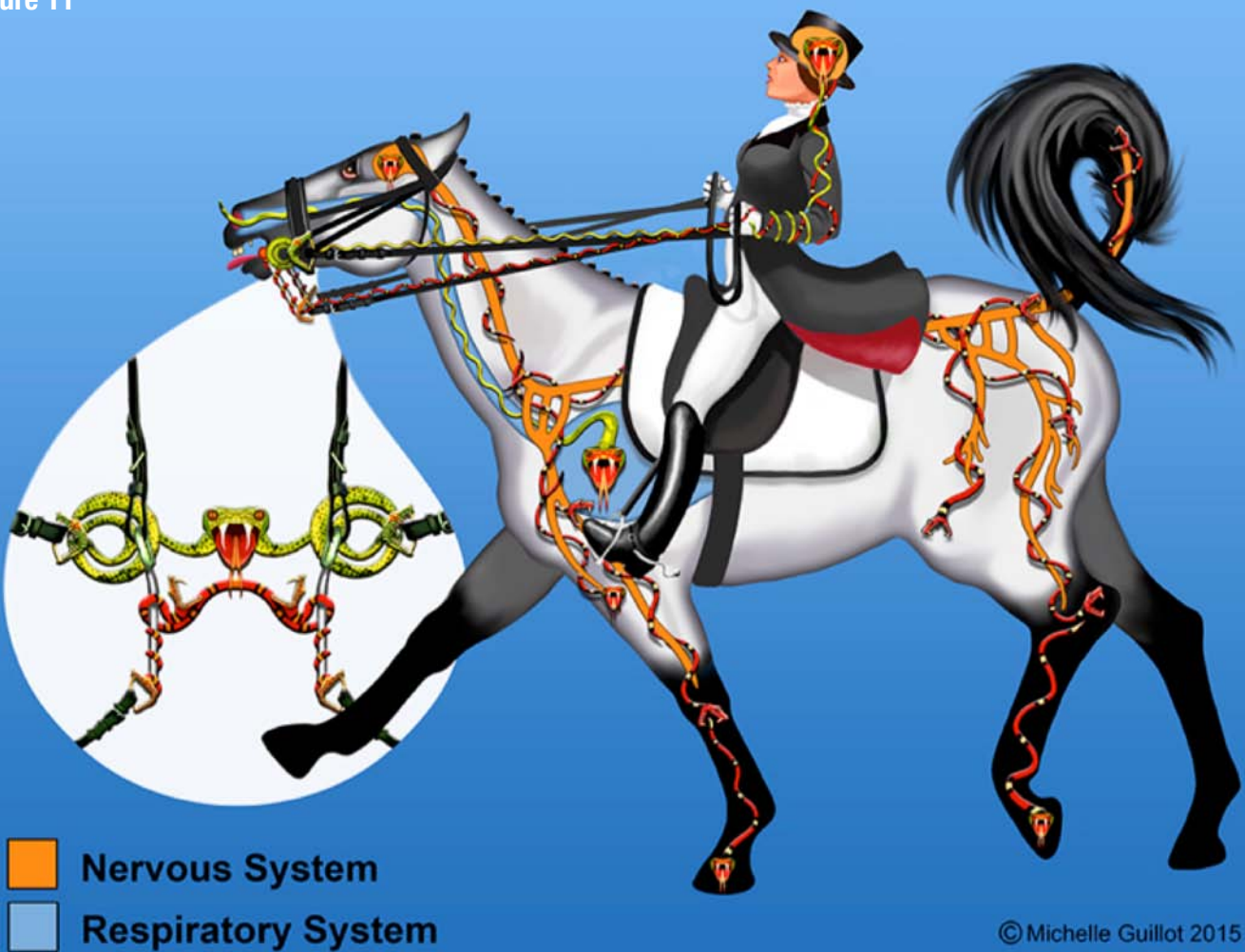
dence of an objective nature. From an observer’s timing of the two 1 km (five-furlong) gallops, the bitted gallop was timed at 47 seconds, the bitless gallop – run 15 minutes later and under similar conditions of weather (overcast) and “going” (heavy) – at 40 seconds. More such gallops need to be timed, but even a 2 second improvement when bitless would be – for the trainer of a racehorse – electrifying news. As little as a fifth of a second in racing is the difference between first and second place.

### Part 3: Joint conclusions and summary

The Bedouin culture is an oral culture. Even the pedigrees of their mares, of which they were fiercely proud, were never written down. To the best of our knowledge, the above information on the Bedouin bridle has never before appeared in print. A criterion of science is that experiments should be published so that they may be repeated. It is our hope that others will repeat the Bedouin experiment and report their findings.

If our findings are confirmed, the implications for equitation are huge. Currently, there are problems in many disciplines that are in urgent need of solution. One small change in horse sport rules could solve multiple problems. A bit does not control a horse. On the contrary, it is a handicap to communication. In the last 15 years, research has shown that the bit is a health and safety hazard for horse and rider. Michelle Guillot’s cartoon summarizes the bit’s non-science; its basic nonsense (Fig. 11). The bit degrades every bodily system vital to exercise, i.e., the nervous system, respiratory, cardiovascular and musculoskeletal. To offer directional signals to a horse by apply-

Figure 11



ing pressure on his tongue, teeth and gums is like offering water to a horse by pouring it in his ears. For thousands of years we have been signaling in the wrong place - barking up the wrong tree.

**Figure 11** (above): The poisonous effect of a rod in the mouth irritates and degrades the performance of body systems vital to quality of life and athleticism .

The evidence for change, for eliminating mandatory bit usage and offering bitless choice in all horse sports, is overwhelming (**Figure 12** at right). It makes no more sense to strap a metal rod in your horse's mouth than it would to drive a nail into your computer. Horse sport administrators that make this much needed change in the years ahead will transform the history of horsemanship. In the meantime, riders who have no wish to compete are free to enjoy working towards harmony with their horse. 🍷

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Figure 12



**BITLESS vs. BIT**

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