



EFTBA Veterinary Newsletter 11



J. Stanhope

Conventional versus sympathetic training

Welcome to EFTBA's veterinary newsletter

It has always struck me that if I was part of a herd being pursued by some famished feline my best chance of survival would be somewhere in the middle, on the basis that those on the outside were likely to cop it first! And it seems to me that most horses are happiest lobbing along with their pals around them.

If I'm right then it's the "nature" of the horse not to be in front, and it is only through "nurture" that we can instil in him the will to win. That's of course where training comes in. The need to understand the effects

of different training methods on performances, and the need to ensure that those methods are sympathetic, is an important part of improving thoroughbred performances.

Hanspeter's examination of the issues is not only fascinating but also demonstrates how little we still know despite the 300 or so years we've spent trying to teach the noble beast to run faster. And as usual it is succinct and erudite. Another "must read".

Rhydian Morgan-Jones, OBE, FCA.

Rhydian Morgan-Jones

Chairman, EFTBA

Editorial

In Newsletter 10, we spoke of psychological aspects of educating and training young horses and were disappointed with the state of the research in this field. However, we are in good company, as Derksen and Clayton (2007) also pointed out that valid and reliable measurements to assess the horse's psychological state still must be identified. It is therefore also difficult to justify our traditional methods, which we consider valid, empirically. But especially in regard to welfare, conventional methods are often criticised, above all in compari-

son with sympathetic methods as for instance "natural horsemanship".

These aspects actually were planned to be included in the last newsletter, but it soon was obvious that it would have been far too much material - a fact which occurs with just about any subject in these days (see also comments on genetics and Herpesvirus).

Therefore, here now a summary of studies both of comparing different training methods and of some neurophysiological aspects of learning. It is again quite a bit of theory, but the familiarity with these subjects

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- . Nothing in biology makes sense except in the light of evolution (Dobzhansky)
- . Prey- and gregarious animals are accustomed to learn both with positive and negative reinforcement
- . The education and training of young horses ought always to be conducted with the aid of the ablest and patient assistants

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Profound Beauty (Danehill) owned and bred by Moyglare Stud.

seems to be favorable, as we are confronted with them not only for the basic education but also for the retraining of 'second chance horses' - also a big issue in our industry, by the way.

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Introduction

As already mentioned in the last issue, the proper education and training is beneficial in any aspect of the well-being of a racehorse (physical and mental health, wastage, durability) and the safety for animal and man. Beside our traditional methods, there exist also other ideas of how to educate the horse, with so-called sympathetic methods among them, e.g. "whispering". Such alternatives did become quite popular in our times, especially as they quite often are also labeled "natural". However, only scant scientific research has been done with these training methods and only few comparative studies (conventional vs. sympathetic/natural methods) were undertaken. Only some of them are mentioned here because the results of most of the trials do correspond well.

Recent Research

In these days, in equitation quite some literature on foundation training is available. However, there, the education of horses normally doesn't start as early as in our sport. But they nevertheless may give us some hints for optimal possibilities and flaws to be avoided.

Visser et al. (2009) made "**A comparison of sympathetic and conventional training methods on responses to initial horse training**". During a 5-week starting period the effect of a sympathetic (ST) versus a conventional (CT) training method was studied using 28 young Warmblood horses (3.5 years \pm 2 months of age). Behavioral observations during the starting period as well as during a standardised final riding test were performed by trained observers.

Results: A human-approach test showed that ST horses snorted significantly less compared to CT horses after the training period ($P = 0.006$). Furthermore, CT horses showed more fear and stress-related behaviors during training such as 'body tension'

($P < 0.001$), 'high head carriage' ($P < 0.001$), 'lip movements' ($P = 0.008$) and 'teeth grinding' ($P = 0.03$). Principal component analysis demonstrated that horses showed consistent differences in a range of behavioral and heart rate parameters between groups.

Behavioral parameters and technical performance during the standardised final riding test did not differ significantly between groups, but mean heart rate was higher for CT horses ($P < 0.001$). **The results suggest that applying a sympathetic training method when starting young horses did not compromise technical performance, but seemed to reduce stress during training compared to a conventional training method.**

Kędzierski et al. (2011) followed with "**A comparison of heart rate response to natural and conventional training methods in Purebred Arabian colts and fillies**" ($n = 32$ two-year olds). As reason for performing this study, the authors mentioned that the emotional status is important not only in the view of animal welfare but also of training efficiency. To assess the horses' emotional response to training process, the heart rate (HR) was measured telemetrically. Upon reviewing the study results, the team found that the horses' heart rates differed significantly depending on the training group they were in. The horses that were trained sympathetically had the lowest heart rates, which is generally accepted as indicating less excitement. Particularly colts reacted positively to the sympathetic method. **The authors concluded that the advantage (lesser emotional response) of their "natural" training method, compared to a conventional method, was proved.**

Overney-Tännler S. und Favre B. (2010): **Investigation of the influence of different factors on the education of three year-old Freiburger-horses** (Untersuchung verschiedener Einflussfaktoren auf die Ausbildung 3-jähriger Freiburgerpferde. Bachelorarbeit).

Reasons for performing the study and objectives:

Analysis of different factors on the learning behavior of young horses

Material and Methods: two temperamentally homogeneous groups of three year-old Freiburger-horses (light draught-breed) were tested, one the control group, the other one with horses which had been prepared with "ethological" exercises (sympathetic method) before they were introduced to a short training-course for riding and driving.

Results: The "ethological" preparation had a significant negative effect on the marks of some exami-

nations and showed a dependence on the person responsible for the education.

Discussion: This study was done with very few horses (n = 9) only and therefore the results have to be judged critically.

Zollinger A. et Gindrat - von Allmen Y. (2012): **Determination of the emotional state in horses while learning a task with positive or negative reinforcement** (Détermination de l'état émotionnel dans lequel se trouve un cheval après avoir appris une tâche avec du renforcement positif ou négatif. Travail de Bachelor).

Reasons for performing the study and objectives: The processing of informations may be influenced by emotion in man. A person with a negative attitude may judge an information pessimistic while a positive approach may result in an optimistic judgment (judgment bias). This phenomenon has been observed in several animals as well, but not in horses yet. However, such an investigation might help to improve their well-being.

Material and Methods: The evaluation of the emotional state occurred by means of the reactions to an ambiguous situation shown by the animals which had been trained with two different training methods. 12 fillies and mares (9 to 20 years of age) were divided into two homogeneous groups which had to discriminate spatially between two and three buckets, respectively, with and without food. Six of the animals were trained with negative (Parelli-method) and the other six with positive reinforcement (Clicker-method). The emotional state was studied by measuring the heart rate by telemetry. The test for ambiguity was quantified by measuring the time for finding the buckets.

Results: The observations in regard to the behavior (emotional state) of the horses showed significant differences. The group with positive reinforcement showed positive effects but the negative reinforcement influenced the state of mind negatively. The test of ambiguity however delivered contrary results. The mares with the positive reinforcement made her decisions significantly slower.

Discussion: The authors ascribed the result of the ambiguity test to methodic shortcomings.

Discussion

In spite of the popularity of sympathetic methods, only very few studies were undertaken yet, both to show their effect on later performance and to compare their results with those of conventional me-

thods. What may be the reason for this scarcity? Is there not much interest? Do the advocates of "natural horsemanship" not want to prove supposed advantages? Is everybody happy with its own method? Are the achieved results disappointing? A lot of assumptions may be made, but most probably and very simply, the main reason may be that the ratio of cost and benefit of such an investigation just hasn't been considered favorable enough yet, though certainly every horseman/woman has got sympathy for the search for potentially better methods. Once more there is the fact that horses are expensive 'guinea pigs' and that the set-up for getting reliable results is pretty demanding. Very many environmental factors may influence such a study and complicate the interpretation of the results. Most probably, these factors are also responsible for the modest quality of the publications as above. Moreover, their results are not really in favor of sympathetic methods, sorry to say; therefore there might not have been much appeal yet to carry on with such research.

In regard to these shortcomings, the discussion of the articles has to be critical. First of all and generally speaking, very simple things in regard to writing and publishing must be taken into account. Most important is the planning of studies, of course, and if one is trying to compare different methods, the number of probationers must be much bigger than in any of the cited investigations (please remember the reliable quantity of data in the studies on physical aspects in Newsletter 9). Moreover, comparative examinations must be done under exactly the same circumstances for the groups. One also has to watch the suitability of the participants, and in regard to studying learning-effects, one must work with young animals, usually younger than 12 years of age (Lindberg et al. 1999, Krueger 2013).

Another basic problem is the 'publication bias', the fact that both authors and editors prefer to publish positive results. The outcome of similar studies as above are therefore not well suited for publication if one doesn't prefer straight scientific work.

The investigation of Visser et al. (2009) looks best in regard to the methodic and, in consideration of the not significant differences, they correctly didn't try to gloss over the results. But nevertheless, one certainly would like to know how these horses developed later on. These flaw is even more pronounced in the study of Kędzierski and coworkers, as it is – contrary to equestrian sports - easy to get relatively reliable results from racing performances, the ultimate goal of our endeavors.

The results of the studies of the bachelor-students were disappointing for them, but any thesis is ac-

tually meant to get experience in scientific work - and negative results can be at least as valuable as hoped-for ones (Overney-Tännler and Favre 2010, Zollinger and Gindrat-von Allmen 2012). But they nevertheless searched desperately for explanations and, e.g., mentioned the dependence on the person responsible for the trial. But most probably, it is well accepted that any method is as good as the person who carries it out. „*Problems with horses are people problems*” as ‘the horse’s lawyer’ Tom Dorrance once said (Miller and Lamb 2005). Success and failure may occur with any system and this fact was also dealt with by Charles Thompson and John Hinds a long time ago in their booklet: “*Rules for bad horsemen; hints to inexperienced travelers and maxims worth remembering by the most experienced equestrians*” (London 1830). In the introduction they wrote: “*There is in this country, more than any other, an almost universal fondness for horses, and the exercise of riding them; yet few, in comparison, out of this multitude, make even tolerable horsemen, and a still less number do the thing as it ought to be done*”.

But how about trying to explain the ‘unpleasant’ results matter-of-factly, trying to reflect on them and refer to the (prey-animal-)nature of the horse, its ethology and neurophysiology which have been formed by evolution ? - **Nothing in biology makes sense except in the light of evolution** (Dobzhansky 1973).

Evolutionary aspects

For instance, one might refer to a trial of Kratzer and coworkers (1977), who studied “**Maze learning in Quarter Horses**”. They worked with 37 quarter horses and a T-maze (labyrinth), where the animals had to find the best way (left or right) to find the exit. After some trials, the researchers decided to see what would happen if they introduced a **punishment for an incorrect choice**. Animals that picked the wrong turn in the maze were greeted with a blast from a carbon-dioxide fire extinguisher. After this experience, the horses made fewer mistakes with fewer lessons, but they ended up spending significantly more time deciding about which way to turn. In other words, **they learned faster but were more worried about getting the right choice** (Budiansky 1998). Now, aren’t these results well compatible with the horse’s nature ? As prey-animals, almost exclusively negative reinforcement forced them to learn. They had to be prepared to encounter unpleasant events all their life and such learn-experiences even could decide between their death and life. This is a basic evolutionary phenomenon, which also enhanced the development of the brain of prey-ani-

animals. They only could survive if they were faster, stronger or smarter than predators. For the latter, a failed attack meant a missed meal, but for the victim any assault was a question of survival. But even if it doesn’t come to deadly attacks, it makes sense that negative experiences are more strongly felt; in this way, they enhance caution better (Bengtson 2002, Schwägerl 2012, Lyubomirsky 2013).

The horse as a gregarious animal

Beside this, if one watches free roaming equids, they may discipline each other quite harshly, but they accept punishment for the sake of the social hierarchy. Being gregarious animals, horses must be forgiving, as well. They must have cooperative or social intelligence, another feature of greatest importance in the history of evolution (Nowak and Highfield 2011, Engeln 2012). For this competence, the neocortex must be relatively big - and its size enhances also learning capabilities, generally (Dunbar 1992, Engeln 2012) (however, in equids, the knowledge of this part of neuro-anatomy is not well advanced yet).

There certainly is no doubt about forgiveness in horses and Tom Dorrance thinks that “they are even too forgiving”. However, this had to be in our favor, because domestication wouldn’t have been possible otherwise (Budiansky 1998, Miller and Lamb 2005). Without these favorable preconditions, we wouldn’t have got a chance to tame them. We couldn’t work them, if any mistake of ours would be life-threatening for us.

Neuro-physiological facts

As already mentioned, evolution formed anatomy and function of the brain (for about 3.5 billion years), and to-days human neuro-physiology tells us that light stress enhances learning ability. On the contrary, heavy stress (under the influence of cortisol and noradrenaline) blocks the forebrain. Not-stressed participants in a study of Schwabe and Wolf (2012) used above all the hippocampus, the structure of the brain which has a central function for the longterm-memory. With stressed probationers, the striatum in the midbrain took charge of learning, which is responsible for unconscious, mechanical learning. Stress disturbs the conscious, systematic learning, the brain therefore uses other resources, and the “gut-feeling” can be activated. Under these circumstances humans don’t think systematically any longer but become creatures of habit, however with the advantage of being able to act quickly in situations of stress, danger and survival (Schwabe and Wolf 2012) – the same as animals. In modern psychology, the gut feeling is consi-

dered as the collection of our life-experiences and a useful tool, the “unconscious intelligence” (Gigerenzer 2008, Dobelli 2011, Anthony and Spence 2012). In our days, it not only has got meaning for dangerous situations but for business decisions as well. In this way, the traditional management-maxim “If you feel ‘No’, don’t say ‘Yes’” is well confirmed too.

As a trainer of equids one obviously has to strike the right balance, and results of experiments with horses are in agreement with the findings in man as above. Positive reinforcement led to long-lasting results, and negative reinforcement had a short-time effect, only. Both methods can be useful, but one also must be aware that severe punishment can lead to aggressiveness and disturbances of the behavior, especially with impossible tasks.

A certain amount of tolerance does exist but differs individually, the same as intellectual abilities. In this context, Hausberger and coworkers (2004) did find genetically determined influences (sire or breed) on individual characteristics of behavior. – Once again scientific endorsement of the empirically founded recommendations of Warburton (1892) for breaking and training yearlings: *“It is at this time also that the idiosyncrasies of the colt, his constitution and peculiarities of temper and breed, must be studied. As regards the last, there will be found a wonderful unanimity in the peculiarities of youngsters of the same family, which will be anticipated by a trainer who has studied this branch of horse lore.”*

Investigations by Lindberg et al. (1999) revealed highly significant differences between breeds in reaching learning criteria; ‘primitive’ breeds reached them faster than warmbloods. ‘Primitive’ breeds seem to be more attentive and independent, probably because they are not as well cared for and left to themselves. However, studies on the intellectual competence of Thoroughbreds are lacking.

Conclusions

Like any living being, horses must be educated and trained somehow and for many centuries, practical knowledge was the only master. Different methods did develop and even some contradictory and inconsistent theories did find followers, maybe because simple solutions are welcome. But education is a very demanding task and most important in regard to future performance, health and welfare. It therefore should be carried out on the basis of the nature of the horse, which was formed in its evo-

lution as both a prey- and gregarious animal with very well developed sense organs and remarkable natural and social intelligence. Adherence to these facts and the confirmation of conventional methods with scientific findings still seem to be the best method for achieving training success, reduce behavioral wastage of horses, and improve safety for both horses and humans.

*La connaissance du naturel d'un cheval
est un des premiers fondements de l'art de
monter et tout homme de cheval doit
en faire sa principale étude
(De la Guérinière 1688 – 1751)*

Now – on a lighter note, some history of whispering

Under the sympathetic methods we also know “whispering”, which some years ago was even considered as sort of a “revolution in horsemanship”. However, John Solomon Rarey (1827-1866, Fig. 1) is reputed to be “the original horse whisperer” (Rarey 1859).

The Original Horse Whisperer: John Solomon Rarey
Excerpt from “The Horse Whisperer” by Nicholas Evans, 1995)

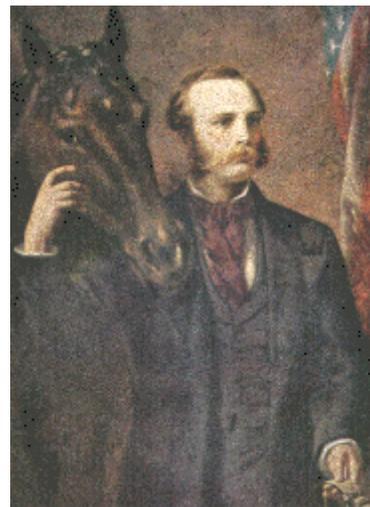


Fig. 1

“There was a man from Groveport, Ohio called John Solomon Rarey, who tamed his first horse at the age of twelve. Word of his gift spread and in 1858 he was summoned to Windsor Castle in England to calm a horse of Queen Victoria. The queen and her entourage watched astonished as Rarey put his hands on the animal and laid it down on the

ground before them. Then he lay down beside it and rested his head on its hooves. The queen chuckled with delight and gave Rarey a hundred dollars. He was a modest, quiet man, but now he was famous and the press wanted more. The call went out to find the most ferocious horse in all England. - It was duly found. He was a stallion by the name of Cruiser, once the fastest racehorse in the land. Now though, according to the account Annie read, he was a "fiend incarnate" and wore an eight-pound iron muzzle to stop him killing too many stableboys (Fig. 2). His owners only kept him alive because they wanted to breed from him and to make him safe enough to do this, they planned to blind him.



Fig. 2

Against all advice, Rarey let himself into the stable where no one else dared venture and shut the door. He emerged three hours later leading Cruiser, without his muzzle and gentle as a lamb. The owners were so impressed they gave him the horse (Fig 3). Rarey brought him back to Ohio, where Cruiser died on July 6, 1875, outliving his new master by a full nine years.

The specific technique that Rarey invented for taming a wild, vicious horse - a technique by which he gained worldwide fame using it repeatedly to completely tame the most malevolent horses in the world in a matter of hours, if not minutes - this technique consists of hobbling one of the horse's legs

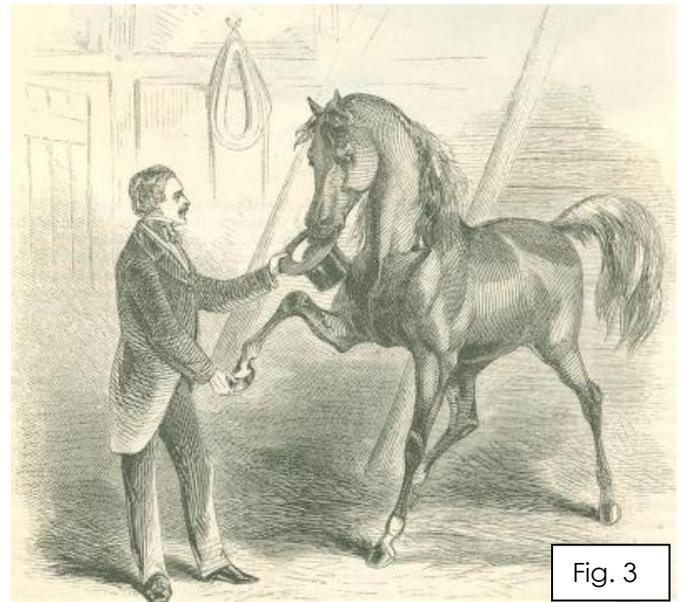


Fig. 3

with a strap enabling the trainer to completely control the horse and quickly tire him out (Fig. 4). The trainer can then make the horse lie down, then stroke and gentle the subdued animal, even laying down on it, until the horse is thoroughly convinced, in the most peaceful way possible, that the trainer is master.

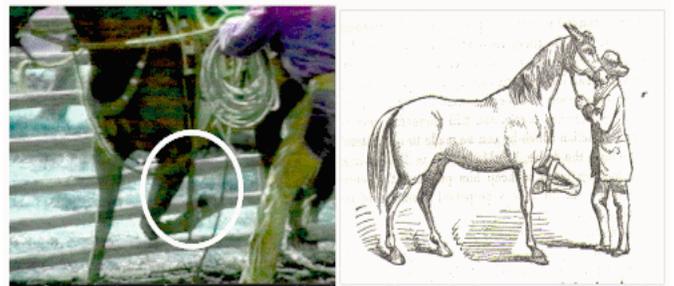


Fig. 4 Technique of John Rarey (1860)

It's amusing that in the fictional work, Booker's taming of the wild horse is drawn out for dramatic purposes to occupy many weeks of intense effort. Rarey's skill with his own technique made the taming of an ill-tempered horse appear so easy as to be boring - except that it dazzled the entire world in a day when the horse was the primary means of conveyance, even as the automobile is today.

Further, Rarey demonstrated that skillful use of his method could enable the trainer, regardless of physical strength, to quickly tame the most violent horse. And that the tamed horse could then be easily handled by anyone; that is, the horse's taming was not personal to the trainer. This is all the more remarkable in view of the general acceptan-

ce of the day that violence and extreme force was the only way to "break" a horse.

Rarey became a rich man after he demonstrated his method for Prince Albert and Queen Victoria. He traveled the world teaching the Rarey method, to France, Sweden, Germany, Russia, Norway, Egypt, Turkey, and the Arab countries. In one demonstration he took four hours taming a wild zebra to be ridden like the most docile horse. Newspaper articles were written about him and poems were composed extolling his virtues. In dictionaries of the time the verb "rarefy" appeared, meaning "to win by love, to mollify with oil of kindness, to reclaim a badly broken horse, to tame a horse by kindness." Ralph Waldo Emerson said of Rarey that he "turned a new leaf in civilization." His method was adopted as the official training procedure of the U. S. Army from 1862 until the advent of the Jeep. The English magazine *Punch* suggested that the Rarey method be practiced on obnoxious politicians, and *Harper's Weekly* recommended it as a cure for wayward husbands.

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