

Harnessing and yoking - German harnesses for oxen

by

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The use of animals for working

The use of animals for working or traction purposes has a long history - not only in Europe, but world-wide. Not only cattle or horses are used, as well donkeys, camels or elephants, even dogs and goats can be found as working animals. All in all, the importance of working-cattle was very obvious in the past, which can be shown by the situation in Germany, where from 1880 up to the 1930s, more than two million cows or oxen were used as working animals. In almost every part of the world there was, and in many places still is, the use of animals for work an important necessity.

In Europe, the use of cattle for working has a very long tradition. Through thousands of years, cows or oxen were the most used working-animals. Their importance surely was much higher, than the relevance of working-horses. Cows and oxen always in history were much easier accessible. They played an important role in agriculture and also an irreplaceable role regarding transportation during the long period of human history. In this respect, all over Europe, the technique of using animals for work and its harnessing was a process of several initial inventions and fabrication-methods and a further evolution as a continuing process. Up to the early 20th century, a broad variety of kinds and types of harnessing was developed, in most cases depending on what materials farmers could afford to construct and built a harness. Many investigations for better and more effective harnessing were made to perfect the harnessing-techniques. In almost every case, the developed systems used yokes (head , withers or neck yokes) to take off power and force from the animals. But these systems are not as effective as they could be, as many investigations show. Moreover, regarding aspects of animal welfare, they have some disadvantages.

The three-pad-collar for cows and oxen

In Germany a very specific kind of harness for cattle was developed. It surely has it's origin in the horse-harnessing systems, where, especially for heavy working horses, collars were and still are in use. Their main advantage is the high efficiency, and so the challenge was to transform and adapt a similar system to cattle. But, regarding the use of collar-harnessing there are some differences between cattle and horses, mainly caused by the species anatomy.

A horse collar is completely stiff and inelastic, and lies directly on the horses chest. The horses chest has always the same conformity, no matter how the horse is moving. So, even when a horse is in move, the collar always lies in a right and adequate position. The result is a very efficient transmission of the horses power over its harness and further to a plough or a cart.

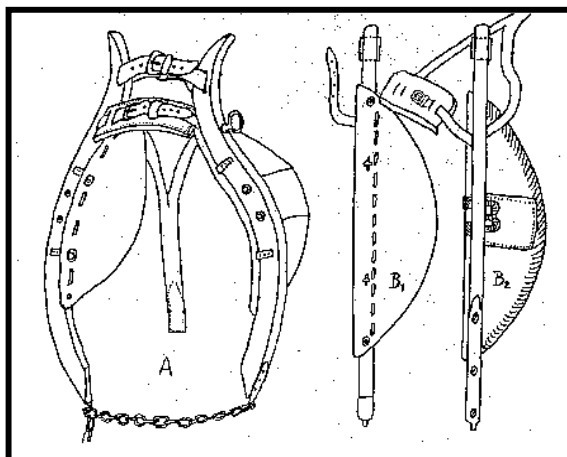
Seeing the anatomy of cattle, we can see the difference, and we also can see, that a stiff collar would not be suitable. We do not have the cattle's chest in a distinct way as we have it within the species of horse. Here, the shoulders of cattle are the parts of the body, where we could adjust a collar. And here we have the main difference. If a stiff collar would be laid around a cattle's neck or chest and would lie on its shoulder, this would constrain cows or oxen in their movement.

While stepping forward, we have the situation, that cows or oxen right and left shoulder never will be in the same position to another. Stepping forward with the right front hoof will bring the right shoulder in front, whereas the left shoulder will be behind. With a left step forward, the position will change into the other way. One can see, that in this respect we would need a flexible collar, that follows the movement of a cows or oxen actions. This preconditions lead to the development of a flexible collar, which consists of three pads.

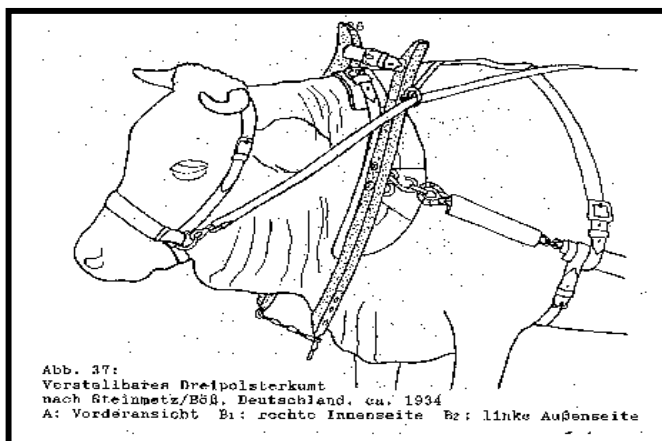
At first the collar consists of two separate wooden hames. On each, there is a leather-pad, which comes to lie on the cows or oxen shoulder. This are the two points, where power is given from the animals movement to the harness. The third pad is between the two hames, which has the function, to position the collar on a cattle's neck, and where additionally little power can be taken off.

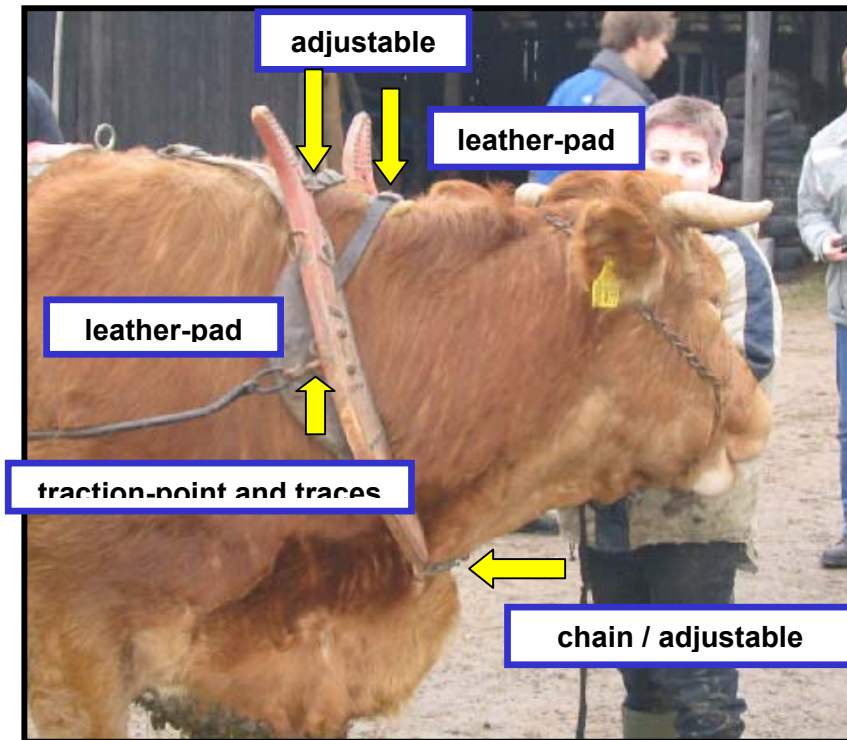
The hames themselves are fixed to another by a leather strap on their tops and by a chain (can be a leather strap also) on the bottom. This makes the collar flexible and follow the cattle's movement. More that this, the collar is adjustable to animals of different sizes, by shorten or widen the leather straps and / or the chain. Finally this flexibility allows to give the collar always the right position on the cows or oxen shoulder. This is a very important point, because only the right position on the shoulders guarantees efficient work.

Would the pads not lie on the shoulder, but to high, the collar would slip backwards from the neck of the cow or oxen, where then no more power or traction can be taken off. Otherwise, if the collar would lie below the shoulders and squeeze or press on the cattle's joint, it would constrain the cow or oxen in moving forward, which would be ineffective also. As a resume, we can say, that it is most important, that the position of the pads always are right on the shoulder.



3-pad-collar for cattle





History and outlook

The three-pad-collar was mainly developed by "Heinrich Steinmetz". who was an agricultural engineer. In 1935 he published his booklet "Cow-harnessing in Germany" (Steinmetz, 1936). It is a complete documentation of the situation of that time, and a promotion for the "Adjustable three-pad-collar"

In Germany, up to the 1970s, the use of animals for work and traction was popular and common and an essential part of agricultural work. In this respect, the recommendations of Heinrich Steinmetz for the three-pad-collar still were of relevance and importance for small farmers in Germany.

Whereas in the 1930s the main reasons for the development of new harnessing-systems were to increase the efficiency of farming-systems that base on cattle or animal traction, concerns of animal welfare were only secondary aspects. Today, the improvement of the animals situation regarding it's welfare should be an important argument for this type of harnessing too. Transporting this ideas to developing countries should be a big challenge.

In the early 1990s, where not even one working cow or oxen could be seen on a field or on a farm in Germany, Dr. Rolf Minhorst took up the ideas of Heinrich Steinmetz, and published a handbook for improved cattle harnessing (Minhorst, 1991). Thought as a guideline for farmers in developing countries, it became very popular in Germany too. The effect was, that more and more people in Germany read the book and started "working with cattle". For historical reasons mainly, in show-parades, but also to promote the three-pad-collar for those farmers, in that parts of the world, where working-cattle still are of existential necessity.

References

- Minhorst R, 1991. Modern harness for working cattle. EG Hochschulbüro Weser Ems, Artilleriestraße 46, Gebäudeteil 44, 49076 Osnabrück, Germany. 82p.
- Steinmetz, H. 1936. Kuhanspannung in Deutschland. Arbeiten des Reichsnährstandes Band 11, Berlin, Germany.