

By, marsk og geest



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Oxen for the axe. A contemporary view on historical long-distance livestock transport

By Wilma Gijsbers and Bert Lambooi¹

Within the European Union (EU) a combination of unrestricted mobility between the member states, a greater uniformity in subsidies, and an enhanced infrastructure has resulted in livestock being transported over greater distances. Because consumers today insist on better treatment for animals throughout the whole production process – including transport – the conditions under which animals are transported, their welfare, and the possibility of spreading contagious diseases are increasingly being debated.

Neither the transport issue nor the debate around it are new, as Europe has a long history of transporting livestock over long distances. In this article we will focus on the early modern transport of oxen from Denmark and Schleswig-Holstein to the Netherlands. Today, slaughtering cattle are no longer imported from this production area to the Netherlands nor do oxen play a significant role in the modern livestock industry, yet at the beginning of the seventeenth century tens of thousands travelled every year by road and by sea to this area. Although conditions under which livestock are transported have changed in the last four or five centuries, animals at that time would have reacted in much the same way as animals do today when faced with unusual circumstances. Therefore, an understanding of the physiology of cattle and their behaviour during modern livestock transport today enhances our understanding of early modern transport.

»Again, when we view those large Bodies of Oxen, what can we better conceit them to be, then so many living and walking powdering Tubs, and that they have *animam pro Sale*, as *Philo* speaks of fishes, that their life is but for Salt to keep them sweet till we shall have need to eat them?«²

Animam pro sale, life instead of salt. In 1653, Henry More (philosopher, theologian, and occult scientist at Cambridge) echoed *Philo*'s words, convinced that oxen – which he described as barrels of meat – lived in order to keep their meat fresh until people needed it. Indeed, the very act of 'living' made the preservation process, salting the meat, redundant.³

Oxen – castrated bulls – possessed the best qualities for slaughtering cattle destined for long-distance trade.⁴ The castration made them more docile yet strong at the same time so they were better suited to being transported over long distances than bulls and cows. Consequently, in early modern Europe long-distance trading was done almost exclusively in oxen. In the fifteenth century, Hungary, Poland as well as Denmark along

with neighbouring Schleswig-Holstein carved out their position as the main suppliers of oxen to the more westerly, growing urban centres. Around 1570 no less than a quarter of a million oxen were traded on the continent each year.⁵ By way of comparison: in 2000, 3 million cattle were transported within the EU, or 3.8 million if one includes import and export.

The long-term development of the Danish-Dutch trade in oxen

This article restricts itself to the export of oxen for slaughter from Denmark and Schleswig-Holstein to the Netherlands.⁶ At the end of the fifteenth century, alongside the names of German ox traders, names of people originating from northern and eastern parts of the Netherlands (Deventer, Kampen, Zwolle, Hasselt, Nijmegen, Utrecht and Groningen) began showing up on the toll registers.⁷ The Dutch preferred to collect the oxen in the spring. Then during the summer they were put out to graze in the consumption area so that they could be slaughtered that same year. The names of merchants from the Dutch province of Holland – who will play a key role in this article – are still

Trade in live animals in the EU in 2000 (figures in millions)						
Live animals crossing borders						
	total	within EU	import	export	slaughtered animals	ratio live/slaught.
Cattle	3.80	3.00	0.50	0.30	27.00	15%
Pigs	12.00	11.90	0.06	0.04	203.00	6%
Sheep	4.20	2.60	1.60	0.06	77.00	5%
Singlehoofed	0.20	0.07	0.14	0.01	0.40	59%

Fig. 1. Source: EUROSTAT.

Kilde: EUROSTAT.

absent from the accounts for this period. They had the oxen delivered by ship.

In the sixteenth century the nobility and merchants in Denmark acquired all manner of privileges at the expense of the rights of the farmers. Broadly speaking, labour relations were as follows. Oxen were grazed by Danish farmers, who kept them on a minimum amount of fodder during the winter months. Roundabout their fifth year (which is a considerable age for cattle destined for slaughter as the older the cattle become, the more interstitial tissue they have and the tougher the meat) they were stalled as 'grass oxen' for one final winter with good fodder on the grounds of the royal estates or stately homes. Danish merchants then bought them up as 'stall-fed oxen' and exported them. They either brought the oxen all the way to the consumption area or else sold the oxen halfway through the journey to the Germans or the Dutch at the international cattle fair in Wedel near Hamburg. This fair began on 25 March and ran for several weeks.

The total overland export from Denmark and Schleswig-Holstein peaked between 1610 and 1620: every year between 40.000 and 45.000 oxen from Denmark and 5.000 to 7.000 oxen from Schleswig-Holstein passed through the two most important toll places Gottorf and Rendsburg. The total overseas export reached 10.000 oxen during peak years. Only a portion of this total number of exported oxen was destined for the Dutch market.

At the end of the sixteenth century and during the first quarter of the seventeenth century most of the exported oxen that passed through Toldstedt (Schleswig) by road were still owned by Danish exporters. Around the middle of the seventeenth century this had dropped to only half and by the last quarter of the seventeenth century it had fallen even further to less than one fifth.⁸ In the meantime, the share in the export of among others the Dutch – which had been rather modest during the 1630s and 1640s and restricted to the purchase of oxen in Ribe and Skåne – had grown steadily during the 1650s.⁹



Fig. 2. The production line of Danish calves to Dutch slaughter oxen.

De produktionsled, som danske kalve gennemlevede, før de blev til hollandsk slagtekvæg.

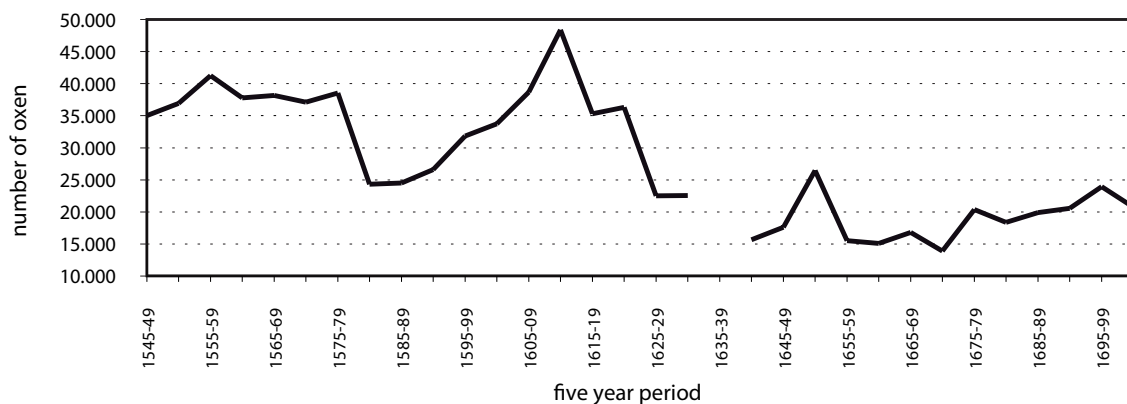


Fig. 3. Number of oxen exported via Gottorf (1545-1704). Source: Wiese, 'Der Rinderhandel', p. 61-62. For years in which figures from Gottorf are missing these have been derived from the export figures for Rendsburg, where available.

Antal okser eksporteret via Gottorf (1545-1704). De manglende år i tallene fra Gottorf er hentet fra eksporttallene fra Rendsburg, hvis de foreligger.

A similar development was observed in the export of oxen overseas. Ribe was an important crossroads for the international oxen trade as it was the point at which the western overland route through Jutland and an important sea-route came together. Between 1596-1660 (with the exception of nine years that cannot be accounted for), 138.694 oxen were exported by sea from Ribe's coastline, a large portion of which were destined for the Netherlands.¹⁰ The Dutch merchants' share in the overseas export from Ribe was nil during the decade 1610-1619, rising to 10% during the years 1620-1629 and eventually 17% in 1630-1639. It then dropped slightly to 13% in 1640-1649. The Dutch share subsequently rose to a staggering 46% during the years 1650-1659 for which the merchants from Amsterdam in particular deserve most of the credit. This brought Dutch exports up to the same level as those of merchants from Denmark and Schleswig-Holstein (50%).¹¹ Comparative data on exports from other coastal areas are not available.

Due to a host of different factors that will not be explored further here, so it was that the so-called 'classic period' of Danish production and export of stall-fed cattle came to an end. The Dutch had acquired an important share in overland and overseas export. In Denmark, the period after 1660 is even known as the *Hollandertiden* or 'the era of the Dutch'.¹²

Merchants from the province of Holland in particular played an important role during this period. They often operated in 'ox-trading companies', occasional companies run by wealthy, land-owning town-dwellers. Grazing Danish oxen became a favourite pastime, even if in practice the ox merchants generally left the purchase of the oxen in the production areas and the grazing process to their farm-hands and tenant farmers on their land in the neighbouring reclaimed polderlands or on the original unclaimed land. The partners in these companies were financiers of the international ox trade in the same way that they invested in other branches of the economy. During the secular contraction phase in Europe (± 1660-1750) – which brought plummeting grain prices, relatively high real wages, few cultivation activities, the transformation of arable land into grazing pastures and an increase in cattle raising – the ox trade became less profitable. The call from landowners for protectionist measures was finally heeded. From 1686 the States General imposed a duty on imported fattened cattle, in 1724 it also phased it in for lean cattle, including Danish oxen. An outbreak of rinderpest secured a brief recovery for cattle imports, but the regular Danish-Dutch ox trade had had its heyday.¹³

This raises the question why farmers in the Dutch pasture lands did not themselves switch to keeping oxen, in light of the steady demand. The

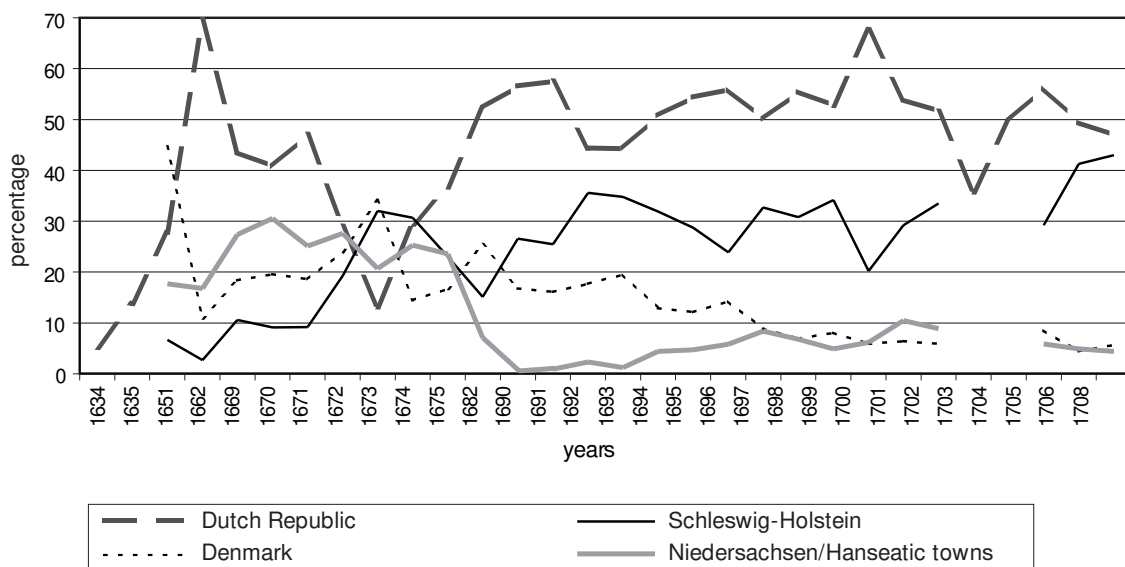


Fig. 4. Number of oxen exported via Toldsted (1634-1708) divided up according to the buyer's place of origin (in percentages). Source: Gregersen, *Toldsted*, p. 120, 125, 127, 130, 144 and *idem*, 'Studedriften', p. 142.

Antal okser eksporteret via Toldsted (1634-1708) opdelt efter køberens hjemegn (i procent).

large scale breeding needed to maintain a stock of cattle that would only generate income in the final year – with all the incumbent risks that this brings – would not be a profitable enterprise in a relatively densely populated area. In Holland, therefore, the focus was on keeping diary cattle. Besides, why would anyone want to keep oxen themselves as long as producers in Denmark and Schleswig-Holstein continued to deliver them at affordable prices?

The economic value of oxen for slaughter extended far beyond just providing meat. Oxen were no longer capable of producing offspring, slaughter oxen were not yoked up to ploughs or carts, yet during their last grazing period they fertilised the land and after slaughter they produced a variety of indispensable by-products for urban industry such as leather, bone and horn.¹⁴ These by-products could indeed be produced by other types of cattle, so the next question is why did people overlook the niche for Dutch cows (people did not like the taste of meat from old bulls) in the demand for slaughtered cattle at the time. Oxen meat was valued as fatty, healthier and tastier meat, but it was only ever eaten fresh for a very brief period during the year.¹⁵ Most of it was preserved and used as

winter food for those living in the towns or as ships' provisions. So, if it was to be salted at the expense of the taste and the structure of the meat after all, what did it matter in the long run if oxen meat or cow meat was used?

Chomel implicitly provides an explanation for the long-distance trade when he writes: 'Whenever one wishes to fatten up old Beasts, Oxen or Cows, whether by grazing them in the meadows or feeding them in stalls, it is much better to have them lean rather than fleshy; because then they acquire, besides fat, a totally new meat, that is much more succulent and pliable, and not so tough'.¹⁶ At the end of the eighteenth century the explanation for the preference for Danish oxen was still being sought in the tender and succulent structure of the meat, which salt could easily penetrate, and yet perhaps the Danish-Dutch ox trade is not linked so strongly to any specific biological traits of the Danish oxen but has more to do with the strenuous long-distance transport that preceded their final grazing spell on the lush Dutch meadows.¹⁷ The five-year old Danish oxen walked themselves lean and then ate themselves fat and succulent.

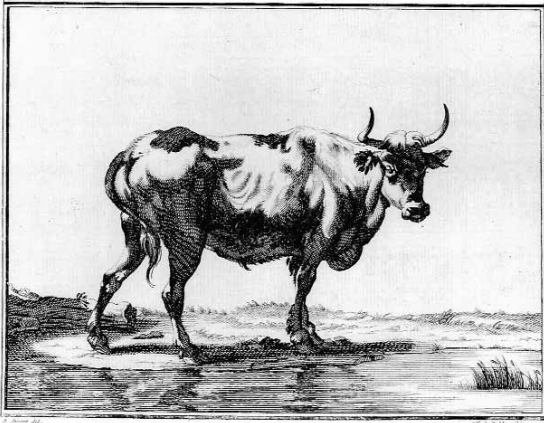


Fig. 5. An ox. The earlier and more rigorous the castration of the male calf, the greater the impact on the shape of its body: hormonal changes stimulated the growth process in the limbs, but inhibited growth in the backbone. This is why an ox had longer legs and a rather stocky trunk compared to a bull of the same 'breed'. Oxen also acquired longer horns and a different tone of voice. Source: Chomel-De Chalmot, *Huishoudelijk woordenboek*, 2nd ed. (1778) vol. 4, plate 37. Library of the Faculty of Veterinary Medicine, Utrecht University.

En okse. Jo tidligere tyrekalvene kastreres des tydeligere ses resultatet på kropsbygningen; de hormonelle ændringer øger lemmernes vækst men hæmmer rygsøjleens. Derfor har en okse længere ben og kortere krop end en tyr af samme race. Okser fik også længere horn og anderledes stemmer.

The treatment and welfare of animals during (early) modern livestock transport

Today the standard mode of transporting livestock is by road, although transport by train, sea or air has gained a greater degree of acceptance. Centuries ago oxen were also transported from the production area to the Netherlands by road and by sea, although the means of transport was different: in those days cattle had to walk all the way to the consumption area and if they had to be transported over water, sailing ships were the only means of transport available. The conditions of transport influenced the animals' well-being, the condition in which the cattle arrived, and the quality of the meat. How did the oxen endure the strenuous transport? If we compare how cattle today react during modern livestock transportation then this should provide us with more insights into the matter.

Modern transportation of livestock

In the Netherlands today it is primarily calves that

are slaughtered for meat production. Cattle destined for the abattoir that are more than two years old are usually discarded dairy cattle, and bulls are very rarely kept. Animals intended for meat production will be transported several times during their lives. Their first journey is from the breeding farm to the fattening farm, in the midst of which they are sometimes taken to another fattening farm, until their final journey which will be to the abattoir. The experience is always a negative one for animals that are unaccustomed to being transported. Loading and unloading are especially stressful because the animals have to go to a new, unfamiliar environment.

Individual cattle respond to being transported in different ways. Their response depends upon their genotype, their past experiences and the treatment they receive. They have their own strategy for dealing with difficult circumstances, called a *coping style*. Their strategy varies – depending on specific circumstances – and can be divided into three broad categories: adapting to the situation as best they can, avoidance behaviour, or passive acceptance.

The term stress is used when an animal's *coping*-strategy is unable to deal with a change in circumstances, such as transport. Stress activates hormones via the pituitary-adrenal system (glucocorticoids) and the sympathetic-adrenal medullary system (catecholamines) resulting in clinical and behavioural deviations from normal functioning, followed by exhaustion. The animal's control system becomes overloaded and its biological fitness starts to fall. The feelings of stress have an impact on the animal's energy reserves and on its body temperature causing its breathing and heart rate to accelerate and its evaporation level to increase. Cattle experience a drop in their blood glucose (= sugar) level during the first hours of transport, after which it rises significantly. The concentration of ketones behaves in the opposite way. The haemoglobin and haematocrit levels can rise somewhat during the transportation process (dehydration). The animals also defecate more frequently. The weight loss among cattle during long periods of transportation is approximately 8% during the first 24 hours and approximately 2% in the following days.



Fig. 6. Watering the cattle in a truck during a stop-over.

En kvægtransport gør holdt for at vande dyrene.

Yet the stress can also produce atypical behaviour (overreacting) resulting in injuries, exhaustion and sickness. During loading and unloading, transport injuries and bruising commonly occur in all animal species. These defects occur as a result of forceful contacts in passage ways or, once inside the compartments, by fighting between animals or by animals mounting each other. This is why high cargo levels lead to a lot of skin damage in cattle. To ensure animal welfare during transport the animals have to be fit at the start of the journey. Given that pigs don't eat at all, sheep hardly drink anything, and cattle and horses remain standing up, periods of rest (without unloading the animals) should be calculated during the transportation process and the length of the journey should be restricted. From a welfare perspective, it is recommended that cattle and horses should be watered and fed as a matter of course within 8 hours. According to EU guidelines, cattle should be rested for at least 1 hour after a 14-hour journey during which they should be watered and,

if necessary, fed. After this rest period they may be transported for another 14 hours. During the journey the animals learn to adapt to their new circumstances within a few hours.

Animals must be able to stand in their natural position and all of them must be able to lie down. For animals which remain standing during the journey (such as horses and cattle), the roof above their heads must be high enough to allow them to hold their heads up in their natural position. This height will ensure adequate freedom of movement and ventilation and will depend on the species and breed concerned. In cattle at a loading density of 200 kg/m² animal movement was unrestricted and the preferred orientation was standing parallel with the direction of travel during journeys of 4 hours and perpendicular to the long axis of the truck during 1 hour journeys. Losses of balance were associated with specific driving events such as braking and cornering.

For cattle with a live weight of 400-600 kg a loading density of 1.7-2.0 m²/animal is recommended. Animals going down underfoot was associated with an extremely high load density of 600 kg/m². When down they were sometimes trapped, destabilizing other animals of the group in a domino effect. The animal lying underneath can also end up being trampled. The most detrimental effect of transportation is death which normally follows a period of very poor welfare. The percentage of deaths among cattle during long spells of transportation is 0.01%.

The effects of climatic conditions on an animal's welfare during transportation are hard to measure. The weather conditions depend on the location, the time of day and the season. More animals die when they are transported during warm weather (namely on short journeys) than during cold weather. According to the Central Department for Livestock Insurance, the percentage of deaths in the Netherlands among pigs travelling on a short journey to the abattoir is less than 0.4% and among sheep, cattle and sows less than 0.1%. Transportation in closed compartments with air-conditioning would be the best solution, however only a handful are available. This system of climate control is ideal for the welfare of all types of animals during transportation as well as for the

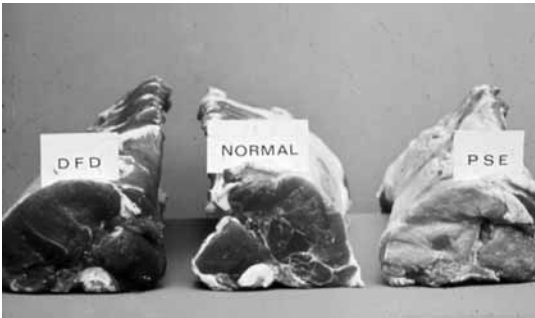


Fig. 7. Comparing DFD meat, normal meat and PSE meat.

Sammenligning mellem DFD-kød, normalt kød og PSE-kød.

post mortem meat quality after slaughter. Closed compartments also reduce the risk of contamination, in part because they reduce the chance of losing organic material during transportation.

A commonly known illness that can occur among cattle and other animals under extreme conditions (during shipping or similar situations) is *shipping fever*: septicæmia (blood-poisoning) resulting in a high fever and pneumonia ending in death. Yet even with a less dramatic ending transporting livestock can overshoot its goal as stress and fatigue directly influence the quality of the meat. Stress before slaughter leads to an increased breakdown of glycogen and a greater decrease in the energy store. In pigs and broilers this results in *pale, soft and exudative* (PSE) meat.¹⁸ Cattle are particularly prone to developing *dark, firm and dry* (DFD) meat if they become exhausted just before they are slaughtered. Depending on the duration of the transport and the rest that the animals are given afterwards, it could take from 2-4 hours to up to a few (1-2) days before the animals have recuperated sufficiently from the journey to be ready for slaughter.

It is clear that the health and welfare of cattle can be damaged by transportation. Preparing the animals for their journey, a well-equipped vehicle, and expert supervision all contribute to the well-being of cattle on their way to slaughter and with this, the quality of the meat. To what extent did early modern transport fulfil these conditions?

Early modern transportation of oxen

Given its geographical position, transporting oxen

by sea was the obvious choice in Northwest Europe, but in numbers, sea transport always lagged behind land transport. An eighteenth century document stated that every year around 16.000 foreign oxen were delivered for slaughter, of which 12.000 were transported by road and 4.000 by sea.¹⁹ It was considered almost impossible to deliver all the oxen by ship, for a variety of reasons: not enough ships were available, the cargo costs (and in turn the price of the oxen) would rise exponentially, in bad weather the large number of ships at the loading and unloading places would create havoc and cause a lot of damage, while feed shortages at the loading places would cause oxen to die. Transport by road on the other hand was less risky and more punctual than transport by sea, oxen that were transported by road could be fed better, the prices charged for oxen that had been transported by road were one sixth higher on arrival, while transport by road was actually one fourth cheaper.²⁰ This explains the merchants' preference for transport by road. However, transport by road was certainly slower. The home journey from North-Jutland to the Republic took around six weeks under normal circumstances. Transport by ship from the Sound or the Belt took about three weeks, while it would only take four to five days from the west coast of Jutland. Of course, the speed of the journey was governed by the weather conditions.

At the end of October, beginning of November the merchants from Holland or their agents travelled to the production area. They bought oxen from different country estates. In 1600, the average herd size to pass by the great toll places was 220 oxen, by 1700 the average head count had risen to 400 oxen.²¹ The Dutch merchants' herds were often bigger and sometimes numbered more than one thousand head of oxen. The oxen were branded, but they were unshod and still had their horns. After the oxen traders had been paid (the required amount had been picked up beforehand in cash in Hamburg or was paid in the form of remittances), they gathered the oxen together at the end of February, beginning of March on the different estates in Denmark or Schleswig-Holstein.

Once the herd was complete they headed for home. In Jutland the oxen passed over three main



Fig. 8. While the ox roads in Jutland were sometimes little more than small country lanes, in Schleswig they could reach impressive widths. The photo shows 'Kropper Busch' near Sorgbrück (Schleswig). Photo: J. Reichstein (1990, Archäologisches Landesamt Schleswig-Holstein).

Mens oksevejene i Jylland sjældent var bredere end landeveje, kunne de i Slesvig nå op på imponerende bredder. På fotoet ses "Kropper Busch" nær Sorgbrück.

roads going from north to south (with a few connecting roads). The ox road in the middle was called *Hærvejen* (later to become the *Heerweg* in Schleswig-Holstein). The majority of the oxen that were driven overland would assemble on the road past Gottorf in order to pass the *Danevirke* on their way to the south.²² Gottorf and Rendsburg were the main toll places in this area. The width of the road was not only the result of the large number of oxen (and of course other traffic) passing through it, but also had to do with the oxen's preference to walk on the softest parts of the road, often the grass verges, because of the sensitivity of their hooves.²³ Assembling herds of different origin where the animals were not used to one another was not only taxing on the oxen but, with long-distance transport in a relatively short time and in different directions, contagious bovine diseases that may possibly have originated in the production area could spread rapidly throughout a large part of Europe.

The ox trade played an important role in determining the economic structure of the transit area.

Inns for merchants and drovers, meadows for the cattle, markets, ferryboats and toll places all sprang up along the route. Local farmers earned money from selling hay and straw, leasing pastures and renting out stables.²⁴ Depending on the place of departure and the final destination of the oxen, a variety of natural obstacles had to be surmounted: the Sound or the Belt in Denmark, the Eider, the Elbe, the Weser and the Eems in Germany, and the big rivers or the Zuider Zee in the Dutch Republic. And each and every time the oxen had to be loaded on and off the ships. The Zuider Zee region plays an important role in overseas transport. Hoorn was a delivery point and market for Danish cattle as far back as the fourteenth century. Roundabout 1600 Hoorn fell out of favour with the foreign merchants and the lean cattle fair relocated first to Enkhuizen and in 1653 to Amsterdam, following an earlier attempt to attract the market in 1629 which did not work out.

It is thanks to the surviving notary acts (especially the freight contracts and attestations) drawn up by notaries operating in Hoorn, Enkhuizen and Amsterdam that we can build up a picture of overseas oxen transport.²⁵ It would appear that up until the second quarter of the seventeenth century the overseas export of oxen was almost exclusively in the hands of merchants and skippers from the production area. The abolishment of the export restrictions in 1623 by the Danish king in connection with the Thirty Years War marked a new period in overseas export. Dutch skippers were employed with increasing regularity to ship Danish oxen to Dutch markets. For that purpose, prior to the journey freight contracts were drawn up in Holland: initially almost exclusively by merchants from West Jutland, but soon afterwards also by Dutch merchants, notably from Amsterdam. Freight contracts were to a large extent standardised. In a freight contract the merchant(s) and skipper agreed in writing, and witnessed by the notary before the journey commenced, that the skipper would load the goods for the freighter(s) at a future date and on an agreed location in order to ship and unload them elsewhere in return for payment. They always contain the date, the names and places of origin of the parties and their signatures, the cargo, the moment of departure and return, the



Fig. 9. Loading places of oxen. Source: Freight contracts from the notary archives of Enkhuizen and Amsterdam.

Ladepladser for okser.

harbours of departure and destination, a freight rate, and sometimes also the name, type and size of the ship, a primage for the skipper and special conditions. Consequently, they are ideally suited for ongoing research into developments within this branch of trade. Attestations (witness statements) were drawn up after a trip had been concluded, by reason of inadequate compliance with



Fig. 10. Unloading places of oxen. Source: Freight contracts from the notary archives of Enkhuizen and Amsterdam.

Landingspladser for okser.



Fig. 11. Places of origin of the skippers. Source: Freight contracts from the notary archives of Enkhuizen and Amsterdam.

Hjemsteder for skipperne.

mutual agreements or because incidents had taken place during the journey. Their lay-out and contents are therefore unique and give us a glimpse behind the scenes of this branch of the trade.

Hoorn's role in the world of international trade quickly ended after the market moved. The freight contracts in Enkhuizen, which were mainly drawn up by foreign merchants, only contain a handful of references to oxen exports from eastern Denmark. Although foreign merchants also concluded freight contracts in Amsterdam, there the Amsterdam merchants more readily took the initiative and had freight contracts drawn up. They sent the contracted Dutch skippers more frequently to the Sound and the surrounding areas. Moreover, the acts contain a greater variety of loading points. For the Dutch freighters, oxen were only one of several possible return goods.

Both Danish and Dutch freighters made full use of the services of skippers from the Dutch provinces of Holland, Overijssel and Friesland to transport the oxen. They picked up the oxen on the shallows of the west-coast of Jutland with flat-bottomed ships (predominantly *boeiers*, *smafschepen*,

wijdschepen, *potschepen* and later *tjalken* too). The skippers then deliberately ran the ships aground on the sandbanks just before the west-coast of Jutland so that fifty to sixty oxen could be loaded. Larger ships with the capacity to load eighty or ninety oxen left for the Sound or the Belt.

Ships contracted by merchants from Denmark and Schleswig-Holstein in both Enkhuizen and Amsterdam mainly carried unspecified ballast to the production area, while the destination and return cargo (oxen) was already known.²⁶ In a small number of cases where a load was reported on the outward journey to Jutland, it did not appear to be luxury goods, but building materials such as stones (large bricks and clinkers) from Harlingen, roof tiles from Leiderdorp, Harlingen or Enkhuizen and chalk, likewise from Harlingen and Enkhuizen. The freight contracts that were studied showed no record of ox ships taking on wall tiles – large numbers of which are still found in Jutland – as ballast on the outward journey. But nevertheless, wall tiles might have been transported aboard the ox ships on occasions when the crew was granted the right to transport and trade small amounts of

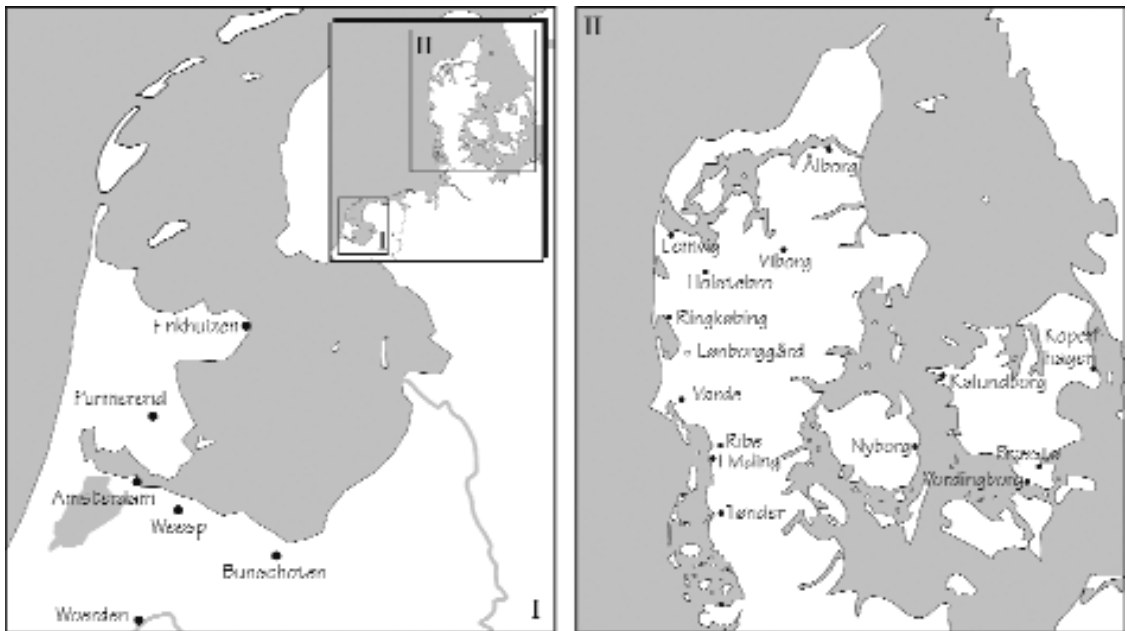


Fig. 12. Places of origin of the ox traders. Source: Freight contracts from the notary archives of Enkhuizen and Amsterdam.

Hjemsteder for oksehændlere.

goods at their own expense in the remaining space of the ship rented by the freighter.²⁷

Most of the Danish merchants whose names were found in the Dutch notary acts came from towns in Jutland. They were wealthy and often held prominent positions in society. Like Bagge Pedersen, for example, a councillor and ox trader in Ribe who took part in the ox trade with Holland for a number of years, as well as his sons(-in-law), who occasionally belonged to the ruling class of other towns in Jutland. Likewise the mayor of Ringkøbing Jens Olufsen and his sons(-in-law) traded in oxen. The Varder (half) brothers, Las, Jakob, Iver and Enevold Jensen, and their brothers-in-law concluded their own contracts in Enkhuizen or Amsterdam or commissioned a trustee to do this for them. Tønder was the original home of councillor and ox trader Berend de Behr, yet several of his sons-in-law and brothers-in-law too participated in the ox trade with Holland.²⁸ Some of the members of the families mentioned above were also related to each other by marriage. Merchants abroad regularly fell back upon these family ties. The merchants mentioned in the

notary acts could often be traced using the literature on the ruling classes in Denmark and Schleswig. Ribe beat all of them hands down: more than seventy different merchants who were found in the notary acts concluded in Hoorn, Enkhuizen or Amsterdam, came from this town. Just because most of the merchants found in the archives came from Jutland does not necessarily mean that other Danish merchants did not visit the Dutch markets: perhaps they came by road, owned their own ships or rented them elsewhere. In which case they would not have concluded any freight contracts in Hoorn, Enkhuizen or Amsterdam.

Examples from day-to-day trading practices

What sort of picture do the notary acts paint of how oxen, the main subject of this article, were transported? What follows is an impression of the transport over land and by sea based on examples from day-to-day trading practices. It was pointed out earlier that extreme temperatures (particularly warmth), a lack of fodder or drinking water, a lack of rest and space, as well as sickness and injury undermine the well-being of animals that are

being transported and lead to stress. What references can be found in the literature or in the archives indicating that this was the case in early modern road and sea transport, what did the various individuals involved do to spare the animals from discomfort or pain along the way, and if that question can be answered all these centuries later, what were the motives behind their actions?

Transport by road

Let us begin by evaluating transportation by road under the above-mentioned conditions. The period 1430-1820 is known as the Little Ice Age, with colder winters, cooler summers and stronger continental influences.²⁹ Transport in cold weather might have been more favourable than in warm weather, but the low temperatures of the late winter combined with physical exertion and a frugal diet must have caused the oxen suffering after their months spent in the stall. Their destination in the consumption area was not called 'the lean cattle fair' for nothing, although regional differences in quality, their weight before they set off, and the fodder situation in the production and transit areas would have influenced their condition.³⁰ At any rate, extreme cold weather had to be avoided. Did the ox merchants heed the temperature before they set off? Most certainly. At the end of January 1684, Joseph Deutz, a merchant from Amsterdam and partner in an ox company, wrote to his agents who were buying oxen in Denmark, to plan their return journey around the weather. As a result of a hard frost the grass would arrive late in the Beemster, a polder in North Holland where he owned land. It was better to set off later than allow bad weather to tire the oxen out.³¹

The oxen covered an average of 25 kilometres every day, with a couple of rest days in between. It was better for them to leave when they were well-fed and rested. Although in practice this was not always the case. This was the situation in 1648 when the Danish nobleman, Oluf Parsberg, wanted Evert van Leeswijk, the son of a surgeon from Leiden, to take along 654 oxen that had been bought earlier in the season on the estates of Skanderborg, Palstrup, Hagsholm, Løjstrup, Tulstrup and Jernit. The oxen were lean, emaciated even, because after they had been purchased they had

been given more straw than hay. Van Leeswijk complained to the nobleman that had they been given decent fodder during the winter, the oxen would not have been in a weakened state but would have actually put weight on, which proves that oxen were purposefully fattened up in anticipation of the difficult journey ahead. In this case, the drovers (three of whom came from Vilslev) even refused to accompany these oxen on the journey. The nobleman had the drovers imprisoned in a tower on his estate and forced them to ride a 'wooden donkey' (*trahest*), a painful form of corporal punishment. Van Leeswijk was threatened with the same punishment if he did not stop complaining, at which point both he and the drovers decided to cut their losses and left. Everyone who saw the herd pass by was astonished at the condition of the oxen. Oxen that collapsed along the way and were too weak to get back on their feet again were simply abandoned on the side of the road.³²

Once the journey got underway fodder was a constant source of worry. It was the end of winter, and there was little grass. One person travelled ahead of the herd to warn the next inn of their pending arrival. If a fodder shortage was anticipated along the way the drovers could choose to make a detour or take a hay-cart with them. As soon as they reached the inn each pair of oxen was given a bail of generally low quality hay. Consequently, the inns along the route had to have an enormous amount of fodder available each day. This was because oxen had enormous appetites. A butcher from Amsterdam, Jan Harmensz, who in 1673 had to keep his oxen in his stalls longer than he had expected, moaned that someone who had never kept animals would be astounded at how much fodder a herd of oxen needed each day.³³

There would certainly have been a lack of space wherever large herds gathered. At the inns, toll places, ferry boats or at the Wedel market, for example. The latter grew exponentially after 1550. On average, between 16.000 to 20.000 oxen were traded at this market in the sixteenth century. However, in 1613 this number rose to 40.000 oxen, ferried across the Elbe in only twelve days.³⁴ But also in the towns in the consumption areas it must have been teeming with oxen and folk in the



Fig. 13. Ribe, with an ox-drive being led by a hay-cart in the foreground. Etching from Braun and Hogenberg, *Civitatis orbis terrarum*, III, dl 5, 33 (detail).

Ribe med en oksedrift i forgrunden anført af en høvogn.

narrow streets and in the markets, not to mention the racket and the stench. This would explain why the cattle market gradually shifted towards the edge of the town – inside or outside the ramparts – when the supply of cattle to a densely populated town increased.³⁵

Naturally, merchants in Denmark preferred not to buy substandard, weak, sick or wounded oxen. However, it was also not the case that only lean but healthy animals reached the Dutch markets. The oxen could already have been coming down with something when they set off or they could have contracted a disease or injury along the way. Sometimes ox merchants exempted oxen from a sale if they looked as if there was something wrong with them. At least this was the gist of a complaint made by a Dutch buyer from Naarden to Johan Borchertsen, an ox merchant from Odense, who was the son-in-law of Niels Bager, a wholesaler of oxen from the Danish island of Fyn who died in 1602. In 1610, Borchertsen was selling 132 oxen on the street in Utrecht (because Holland was certainly not the only province where the Danish oxen were sold) but there was a rumour that some of them were sick. Of course, Borchertsen denied this emphatically; after all, he had personally driven all the oxen from Zollenspieker (a toll place at the Elbe) to Utrecht. Admittedly, one ox did have a limp in the batch that had been sold, but if the buyer did not want to keep it, then he would hang on to it himself.³⁶ This is how we know that all the oxen that were capable of going on the journey, were taken along.

What do the archives tell us about stress among oxen while they were being transported overland? Oxen are not nervous animals, they are on the contrary very docile. A large herd of well fed oxen would let themselves to be driven by a child.³⁷ Yet docile or not, oxen were subjected to all kinds of stress for long periods of time. Possibly as a way of reducing the stress, the animals were tied together in pairs – on the Danish country estates or at the Dutch lean cattle fairs – and were sold in pairs for an average price. Wilder oxen could be calmed down during transport by pairing them up with a more docile companion.

Still, commotion along the way could not always be avoided, as illustrated by the butcher from Amsterdam mentioned earlier. He suffered an enormous stroke of bad luck when the herd of a few hundred oxen that he had bought from the Count of Oldenburg in 1661 stampeded, as a result of which the meat of the majority of the oxen was not suitable to use after slaughter, possibly due to exhaustion.³⁸

Transport by sea

Transport by sea was even more taxing than transport overland. We will judge sea transport based on the same conditions as transport by road above, beginning with the temperature. By the time the oxen were being loaded onto the ships some of them already had an entire journey in the cold, from the stalls to the shipping point, behind them. They were then placed in the hold. The dozens of oxen present must have produced a tremendous

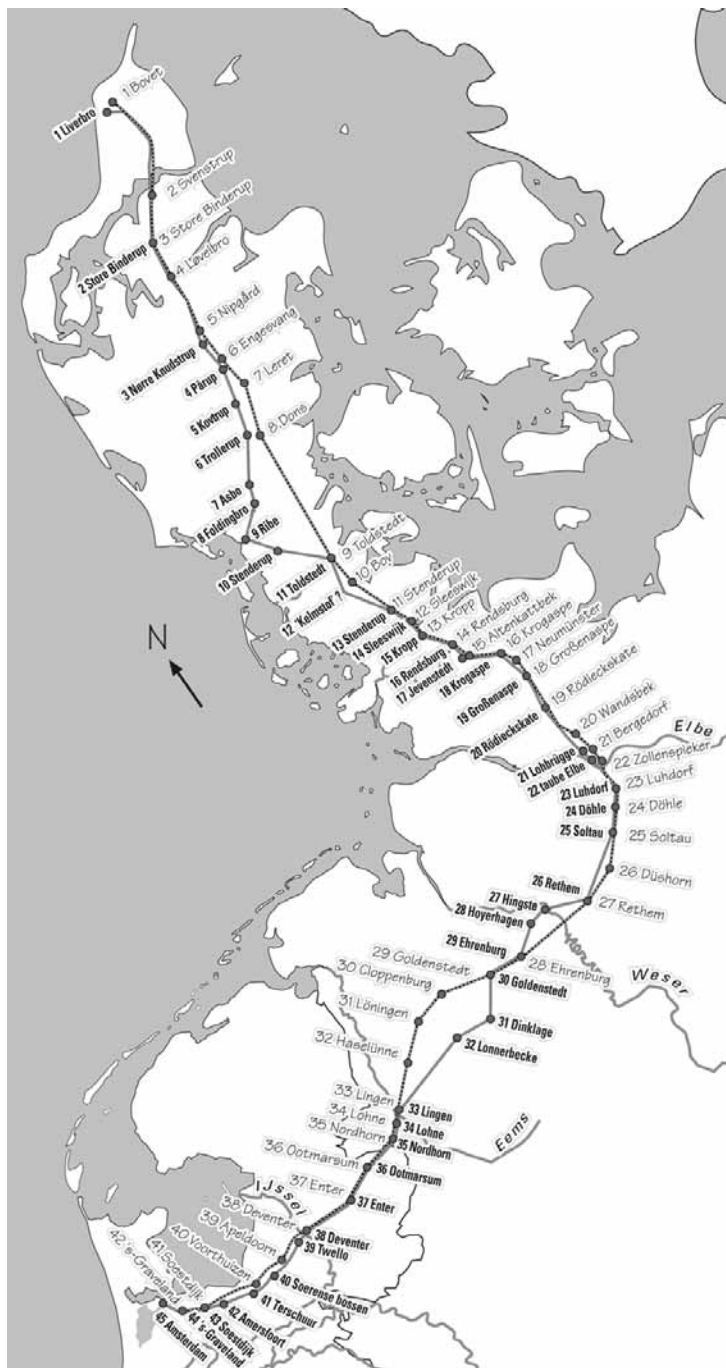


Fig. 14. Two overland routes from the Danish stalls to the meadows of Holland (1731). When there were places with similar names in the same region, the route cannot be traced with any certainty. In these cases a choice was made. Dr Peder Gammeltoft confirmed the location of the majority of the places on an earlier published version of this map, but he located the starting point of one of the routes ('Luiverebrug') in another place (namely in Liverbro). Gammeltoft suggested Bovet in Bjergby sogn, Vennebjerg herred or Bovet in Aså-Melholt sogn, Dronninglund herred as the starting point of the other route that began 'on Bouw'. On this map both routes start near Hjørring. He also gave alternatives for the places Store Binderup, Nørre Knudstrup, Pårup and Stenderup (respectively, Binderup, Vokslev sogn, Hornum herred; Knudstrup, Vester Bølle sogn, Rinds herred; Pårup, Them sogn, Vrads herred; Stenderup, Øster Lindet sogn, Frøs og Kalvslund herred).

It was not possible to locate 'Kelmstof'. Professor Dr Ekkehard Westermann located Jevenstedt, Rödieckskate and 'taube Elbe' in Schleswig-Holstein and suggested that 'Outbergen' could refer to 'alt-Bergedorf'. D.J. Veldhuizen located the place Terschuur in the Netherlands. Source of the documents with the routes: Nationaal Archief in Den Haag, Staten-Generaal, Liassen Admiraliteiten, inv.nr 5664, d.d.26/01/1731.

To okseveje fra de danske stalde til de hollandske enge (1731). Når der i samme område optræder ens stednavne kan ruten ikke placeres præcist. I disse tilfælde er truffet et valg. Lektor Peder Gammeltoft har bekræftet placeringen af størsteparten af stederne på en tidligere udgivet version af dette kort, men han placerede en af ruterne udgangspunkt ("Luiverebrug") et andet sted (i "Liverbro"). Gammeltoft foreslog endvidere Bovet i Bjergby sogn, Vennebjerg herred eller Bovet i Aså-Melholt s., Dronninglund h. som udgangspunkt for den anden rute, der angives "on Bouw". På dette kort begynder begge ruter nær Hjørring. Han foreslog også alternative placeringer af Store Binderup, Nørre Knudstrup, Pårup og Stenderup (hvh. Binderup, Vokslev s., Hornum h.; Knudstrup, Vester Bølle s., Rinds h.; Pårup, Them s., Vrads h.; Stenderup, Ø. Lindet s., Frøs og Kalvslund h.) Det var ikke muligt at lokalisere "Kelmstof". Professor dr. Ekkehard Westermann lokaliserede Jevenstedt, Rödieckskate og "taube Elbe" i Slesvig-Holsten og foreslog, at "Outbergen" kunne henvise til "alt-Bergedorf". D. J. Veldhuizen lokaliserede stedet Terschuur i Holland.

amount of heat and stench. Fresh air was essential in a space contaminated with urine and manure. The skippers usually kept three or four hatches open to ventilate all areas of the ship's hold. However, sea water inevitably splashed inside the hatches along with the cold winter air.³⁹

The notary acts do not reveal much about the fodder and drink situation on board the ships. Some of the freighters from Denmark or the Dutch province of Holland gave the skippers hay, bread, and occasionally oats for the journey, or eggs and beer in case the oxen might need this. Sometimes mangers were bought prior to the journey or a loft was hammered together for the hay. Maybe they were part of a ship's standard equipment, but water barrels are only mentioned on a couple of occasions. A note in one of the freight contracts stated that the skipper had been given candles and lanterns, probably to help with looking after the oxen in the pitch-black hold.⁴⁰

Of course, we also come across examples of exhaustion with sea transport too. In 1708 a crew attempted to prove the innocence of their skipper who had transported oxen for Just Nielsen Arctander, a merchant from Viborg. Witnesses claimed that the oxen were completely exhausted and on their last legs when they were being loaded on the west coast of Jutland. They were unable to regain their strength because of the severe wind during the crossing and they became very distressed. Two ox hands had already informed the skipper three hours into the journey that the oxen's tongues were hanging out of their mouths from sheer exhaustion. The ox hand was given bread, beer, and brandy wine to relieve the oxen. Nothing helped. When the wind eventually subsided a couple of days later twenty oxen had already kicked the bucket. Was it exhaustion, lack of care, a contagious disease or, as suspected, a lack of oxygen caused by a load being placed on the hatches during the journey? We will never know. Fearing that the remaining animals might die, the rotting carcasses were promptly ditched overboard along the way. Moreover, a contradictory explanation was given, which stated that the oxen had been fit, healthy and well-rested when they were loaded onto the ship and that once at sea they had had good weather with a favourable wind. In addition,

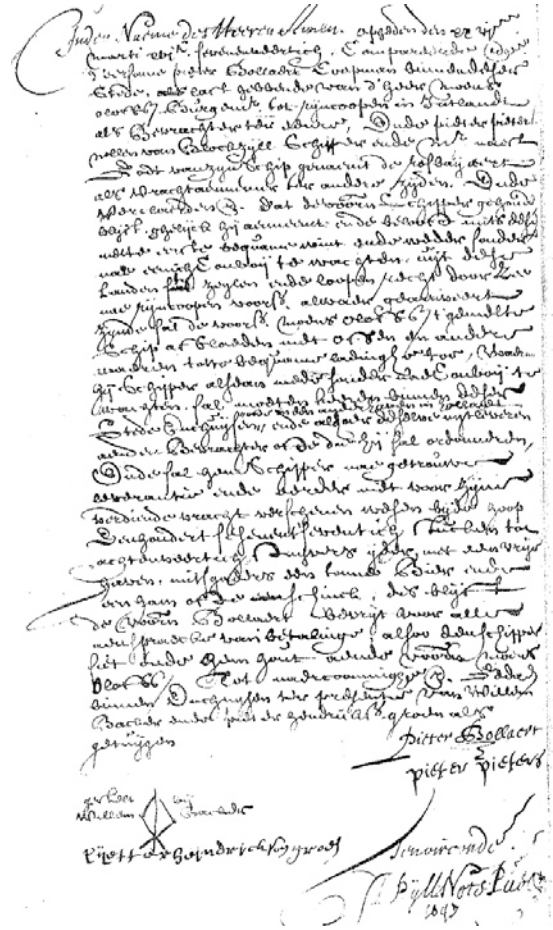


Fig. 15. An example of a freight contract drawn up on the instructions of mayor Mogens Olufsen from Ringkøbing on 26 March 1647 in Enkhuizen. Westfries Archief in Hoorn, NAE, inv.nr 1019, akte 23.

Eksempel på en fragtkontrakt indgået efter Ringkøbings borgmester, Mogens Olufsens, anvisninger d. 26. marts 1647 i Enkhuizen.

when they disembarked in Muiden the oxen were by and large even sturdier and fatter than the oxen that were unloaded from other ships. But this did not explain why twenty oxen succumbed during the voyage.⁴¹

Every inch of space on board had to be used sparingly. Freight contracts often insisted that a full load of oxen had to be placed on board to the merchant's satisfaction.⁴² At any rate, the oxen had to be placed together in such a way that they could not harm each other. With fifty to sixty horned oxen on a floor surface area of around 15 by 5 metres within the bulk-heads of flat-bottomed



Fig. 16. Detail of an image on a goblet belonging to the ox graziers' guild of Haarlem that often procured oxen in Jutland during the eighteenth century. The image shows how oxen were brought via gangplanks on board a flat-bottomed ship beached on a sandbank in front of the west-coast of Jutland. These gangplanks were left behind on the beach when the ship set sail. Source: Frans Hals Museum, Haarlem. Photo: Tom Haartsen.

Detalje fra udsmykningen på en pokal tilhørende okseopfedernes gilde i Harleem, som ofte opkøbte okser fra Jylland i det 18. århundrede. Billedet viser, hvordan okser via gangplanker bringes ombord på et fladbundet skib, der står på den ved lavvande tørlagte havbund et sted på Jyllands Vestkyst. Gangplankerne blev efterladt på stranden, når skibet satte sejl.

ships, that would have required some nifty measuring. We cannot say anything about the measurements and weight of Danish oxen during this period as we do not have the data, but based on the total floor surface area and the average measurements of an adult head of cattle today, around 1.5 m² would be available for each ox. However, the entire floor surface area was not available because a gangway had to be left free in order to reach all the oxen.

Racks and stakes were set up in the hold and the oxen were then tethered to them with ropes. The skipper or merchant sometimes loaded too many oxen onto the ship. This was the state in which two Danish ox merchants, Laurids Baggesen from Ribe and Laurids Christensen from Ålborg, found the ship's hold of a skipper from Husum that was chartered by mayor Christoffer de Hemmer from

Ålborg; too full. One of the oxen had even been placed alongship in the gangway. Baggesen declared that, had they been his oxen, he would not have allowed them to be lined up so tightly.⁴³

Standing across ship the oxen were less troubled by the ship's pitching (the front and back of the ship going up and down) which apparently reduced the possibility of becoming seasick.⁴⁴ But the oxen regularly sustained injuries on the journey. According to one witness in 1715, on the return voyage from the Grådyb oxen fell over as a result of the tempestuous sea. One of the ox hands (his seasick mate was lying in the hay) could not get them back to their place single-handedly and the skipper and his men offered no help. The next day three or four oxen had died, while the others were still lying upside down.⁴⁵

Here is another example, this time with a more sombre ending. In 1630, the ship of Nickels Asmussen, a skipper from Ribe, got caught up in bad weather on the way to Enkhuizen. The oxen tethers on the luff side of the ship broke, as a result of which all the oxen fell towards the lee side of the ship. Many died. This caused the ship to remain on its side. Strong winds blew the drifting ship to Wrangeroog, where it sank half an hour later. The oxen were irretrievably lost.⁴⁶

One or two merchants took steps to insure their valuable cargo, like Steffen Rode in 1644, a wholesaler from Copenhagen (in whose name a couple of notary acts were concluded in Enkhuizen during the 1630s)⁴⁷. The premium was 2½% and covered 9/10 of the total worth of the cargo. Due to the high costs, Rode only insured the oxen on the two largest ships out of the five that he had chartered.⁴⁸

Transport by sea undoubtedly caused stress among the oxen. The animals walked from the beach during low tide over the gangplanks on board the ships. But when the water suddenly rose and speed was of the essence the possibility of hoisting them on board would also have been exploited. In such cases, the oxen would not have been handled very gently. The ships did not always leave as soon as the oxen had boarded them. Occasionally, if the ships had to wait for a considerable length of time because there was no wind at all, or if the wind was too severe or

unfavourable, the oxen were unloaded again onto the sandbanks. This happened, for example, in 1597 with the 55 oxen aboard the ship of Occo Ocksen of Föhr belonging to Anders Skriver from Løgumkloster: after having waited for a favourable wind for four days the oxen were unloaded onto the beach. The following day the wind rose again and the oxen had to be loaded once more.⁴⁹ Sometimes the weather conditions forced a ship to turn back after it had already set sail. This was, of course, extremely stressful for the oxen as they still had the whole journey ahead of them. Once they had set sail they did not stop by any harbours along the way, unless the ships were obliged to because of the weather conditions. The sailing ships did not always manage to sail into the Vlie, which gave them passage to the Zuider Zee. In that case the skippers sought refuge in a nearby harbour. In May 1627 two merchants declared that they had been overwhelmed by a storm and rough weather after setting sail from Højer on the evening of 23 April. Risking life and limb, they finally reached the Hals near Delfzijl (Groningen province) with great difficulty, where they had to wait before sailing into the harbour for some time. Eventually they were forced to sell a portion of the oxen in Delfzijl and a portion in Groningen because they were unable to reach Holland.⁵⁰

In the majority of cases it worked. As soon as the ship arrived in Holland only the oxen that were so wretched that they could not stand upright were hoisted from the ship.⁵¹ The rest disembarked via the gangplank. During unloading, a wild ox occasionally escaped its supervisor. By the time one ox was captured in Enkhuizen it had already tossed someone on its horns and wounded him.⁵² So, docile or otherwise, there were still certain hazards attached to transporting oxen.

Concluding remarks

It is clear that even hundreds of years ago the international transport of cattle was anything but idyllic. Almost none of the conditions laid out for the transportation of cattle today were met to the detriment of the condition of the ox. The importance of rest during transport is highlighted as, despite the fact that transport by sea from the west-

coast of Jutland was much quicker than travelling overland, the oxen still arrived in a worse condition. They stood for days on end in the dark or semi-darkness, squashed together in a stuffy ship's hold, and were more difficult to look after compared with overland transport. Normal patterns of behaviour were impossible so they undoubtedly suffered more stress than the oxen that were transported overland.

For this article extensive use was made of witness statements concerning transportations that led to financial damage which had been signed in the presence of a notary as a precautionary measure on the off-chance that a legal suit might follow. Were they exceptions to the rule or just the tip of the iceberg? That is hard to answer. At any rate, they highlight the risks involved in transporting oxen over long distances. Damage was not always the result of negligence or malice on the part of the people transporting the animals, although this certainly did occur. It just remains a fact that any large scale transportation of living creatures was and still is a hazardous process.

What can one say now about the motives of those who were involved with dealing with the cattle in their care? The cattle were looked after by many different people in their final year: Danish farmers, estate hands, Danish or Dutch ox merchants, their agents, the ships crew, market traders, graziers and finally the butchers. All those involved had their own interests at heart. However, there was a great deal of social control, on ships, in the inns or in the markets, people spent days, sometimes weeks, in each others company. They operated in networks made up of family members and acquaintances, people from the same town, who relied on each other for help when they were abroad. Watchful eyes were everywhere. The eye for detail that can sometimes be found in the witness statements is remarkable, even when given some time after the incident. Moreover, the oxen were desperately needed in the Republic to graze the land, they were also desired for their meat and other products and the trade provided many people with an income. The price of the oxen was partly determined by the condition in which they arrived and, to encourage good treatment, agents and skippers often received

an additional bonus on top of their wage. The oxen were ultimately destined for slaughter, but not instantly, nor were they discarded cattle. Graziers took great pride in their cattle. Cruel or shoddy treatment of the animals by anyone would damage the price, and that was bad for trade. In an age where rules and regulations for the protection of animals were unheard of, this probably offered the best form of protection for the animals.

Notes

1. An abridged Dutch version of this article was published under the title 'Ossen voor de bijl. Een hedendaagse kijk op het historisch transport van slachtvee' in: *Argos*, Bulletin van het Veterinair Historisch Genootschap, no. 31 (2004) 7-18. The maps were made by Paul Burm. The text was translated from Dutch into English by Theresa Stanton.
2. Henry More, *An antidote against atheism, or, an appeal to the naturall faculties of the minde of man, whether there be not a God* (second improved and enlarged edition; London 1655) p. 116.
3. For opinions on the natural order in the Middle Ages that correspond with this vision, see: Van Uytven, *De papegaai*, p.19-31 and for the redefinition of the relationship between man and animals between 1500-1800, see: Thomas, *Het verlangen*, p.173-180.
4. Chomel cites around 18-24 months as the most suitable age for this, if the castration was not carried out shortly after birth: Chomel, *Huishoudelijk woordenboek*, dl 3, p.1543. In the Netherlands today no meat from cattle older than 18-24 months is eaten.
5. Blanchard, 'Cattle trades', p.428. See for the meaning of this trade network the different contributions in: Westermann, *Internationaler Ochsenhandel*, passim.
6. See Gijsbers, *Kapitale ossen*, passim. No new archive material has been studied for this article.
7. See Enemark, 'Oksehandelens historie', p. 38. See Benders about the role of North and East Netherlands in the (international) cattle trade between 1350-1550: Benders, 'Over ossen', passim.
8. Ladewig Petersen in 'Production and trade', p.150. For exact figures see Gregersen, 'Stude-driften', p.158 e.v.
9. Olsen, 'Steffen Rodes regnskabsbog', p.268.
10. Degn, *Rig og fattig*, dl 1, p.119.
11. Degn, *Rig og fattig*, dl 2, p.59 (tabelbilag 19).
12. Enemark, 'Historisk essay', p.84. For a picture of the 'classic period' in the ox trade and the transition to the *Hollændertiden* see, for example: Enemark, 'Oksehandelens historie', passim; Ladewig Petersen, 'The crisis', 'Danish Cattle Trade' and 'Production and trade', passim; Frandsen, *Okser på vandring*, passim.
13. See for this development: Gijsbers, 'Danish oxen', passim.
14. Concerning the pulling-power of oxen in the Middle Ages, see: Van Uytven, *De papegaai*, p.157-161, and in the twentieth century, Hillegers, 'Ossen', passim. Rixson describes in *The history*, p.13-20 the various uses of animal parts.
15. Thomas, *Het verlangen*, p.96.
16. Chomel, *Huishoudelijk woordenboek*, dl 3, p.1548. Quotation translated from Dutch.
17. See for the different sources Gijsbers, *Kapitale ossen*, p.26.
18. Perhaps this phenomenon offers an explanation for the 'bull-baiting' that was quite common in earlier times, whereby bulls that had not been castrated (whose meat was considered unfit to eat) were goaded by dogs, as a result of which the bull's blood reportedly became thinner and its flesh more succulent: Thomas, *Het verlangen*, p.96-97.
19. Besides, the export of oxen along Gottorf and Rendsburg numbered around 20.000 at the beginning of the eighteenth century, which was half the number of the previous century. With regard to overland export the figures are available up to 1704, however figures concerning sea transport for this period are too incomplete to draw any conclusions.
20. Nationaal Archief, Admiraliteitscolleges II, Collectie Bisdom, XXXI-243, vol. 36, nr. 35, folio 161.
21. Wiese, 'Der Rinderhandel', p.66, 117-118.
22. The fortification between the former Hedeby (near Schleswig) and Hollingstedt dates back

- to the Viking age and later. The ox roads became increasingly more popular, partly due to the work of the *Arbeitsgemeinschaft Ochsenweg* (www.ochsenweg-ev.de). See for example, Hill, 'Der Ochsenweg', passim, on the interaction between regional awareness, tourism and the role of science.
23. Colin Miller pointed this phenomenon out.
 24. Westermann, 'Forschungsaufgaben', p.265.
 25. The limitations of this source with regard to reconstructing the overseas ox trade will not be dealt with here. For this, see Gijsbers, *Kapitale ossen*, p.111-113.
 26. Ballasting a ship without a load was necessary to prevent it from straying off course. Moreover, ballasting helped to increase the ship's stability, as a result of which it rolled and pitched a lot less. With thanks to B. Siertsema (ship-building engineer) for this information.
 27. Gijsbers, *Kapitale ossen*, p.147.
 28. Gijsbers, *Kapitale ossen*, p.198 ev. (Ribe); p.200 ev. (Varde); p.202 ev. (Tønder); p.288-313 or Gijsbers, 'En vestjysk købmands rolle', passim (Ringkøbing). For the names of merchants and skippers found in the notary acts, see Gijsbers, *Kapitale ossen*, annexes 9 and 10.
 29. Buisman, J., *Duizend jaar weer, wind en water in de Lage Landen*, dl 2 (1300-1450), dl 3 (1450-1575), dl 4 (1575-1675), red. A.F.V. van Engelen (Franeker 1996, 1998, 2000). Deel 2, p.641; deel 3, p.737-740; deel 4, p.9-10, 706-708.
 30. According to a nineteenth century calculation, Danish oxen lost 80 kilos over a distance of approximately 330 kilometres: Tang, 'Om studehandel', p.125. Vial (1868) cited a weight loss of 14% in fourteen days, while he also knew of examples of oxen weighing between 1.400-1.800 pounds that had lost as much as 24% of their weight in sixteen days. Moreover, these figures were linked to France, where the oxen were driven during warm weather: Vial, *Het vetmesten*, p.229. Figures that date from different periods, and that concern cattle with a different constitution in another climate, can only provide an indication, especially if no mention is made of whether the animal has been weighed before or after drinking (40-60 litres can make a difference of 8 to 10% to body weight) or before or after feeding.
 31. Gemeentearchief Amsterdam (GAA), Particulier Archief Deutzenhofje (234), inv.nr 280, d.d. 29/01/1684.
 32. GAA, Notarieel Archief Amsterdam (NAA), inv.nr 1084, folio 361, d.d. 28/05/1648.
 33. GAA, NAA, inv.nr 3437, akte 53, d.d. 23/03/1674.
 34. Jürgens, *Schleswig-Holsteinischen Handelsgeschichte*, p.158.
 35. See the maps showing the relocations of the Amsterdam cattle market over the centuries: Gijsbers, *Kapitale ossen*, p.218-220.
 36. GAA, NAA, inv.nr 253, folio 234 verso, d.d. 13/05/1610.
 37. Le Francq van Berkhey, *Natuurlijke historie*, p.184; Burroughes (1643) quoted by Thomas, *Het verlangen*, p.17.
 38. GAA, NAA, inv.nr 3437, akte 53, d.d. 23/03/1674.
 39. GAA, NAA, inv.nr 6958, akte 42, folio 1149, d.d. 19/05/1708.
 40. See for the different sources Gijsbers, *Kapitale ossen*, p.154-155; Vial cites the effect alcohol has on stimulating digestion, followed by fatigue. The oxen did not have much to digest, so this would have had more to do with the calming effect of beer here: Vial, *Het vetmesten*, p.154.
 41. GAA, NAA, inv.nr 6039, folio 763, d.d. 01/05/1708; ibidem, inv.nr 7162, akte 180, folio 1507, d.d. 15/05/1708; ibidem, inv.nr 6958, akte 42, folio 1149, d.d. 19/05/1708; ibidem, inv.nr 7286, akte 205, folio 211, d.d. 21/05/1708.
 42. Westfries Archief (WA) in Hoorn, Notariële Archief Enkhuizen (NAE), inv.nr 970, akte 86 en 87, d.d. 12 en 13/05/1635.
 43. WA, NAE, inv.nr 931, akte 163, d.d. 01/05/1636.
 44. B. Siertsema pointed this out.
 45. WA, NAE, inv.nr 1225, akte 31, d.d. 09/04/1715.
 46. WA, NAE, inv.nr 924, akte 163, d.d. 06/05/1630.

47. WA, NAE, inv.nr 927.
48. Olsen, 'Steffen Rodes regnskabsbog', p.271.
49. WA, NAE, inv.nr 818, akte 569, d.d. 26/04/1597.
50. WA, NAE, inv.nr 905, akte 223, d.d. 20/05/1627.
51. GAA, NAA, inv.nr 7286, akte 205, folio 211, d.d. 21/05/1708.
52. WA, NAE, inv.nr 957, akte 27, d.d. 29/05/1651.

Literature on cattle and the transport of cattle used for this article (for other literature and archivalia about early modern livestock transport, see notes)

Literature on the early modern transportation of cattle

- Benders, Jeroen, 'Over ossen en keurslagers. De stad-Groningse, Overijsselse en Gelderse veehandel tussen circa 1350 en 1550' in: *Het Noorden in het midden. Opstellen over de geschiedenis van de Noord-Nederlandse gewesten in Middeleeuwen en Nieuwe Tijd*, Groninger Historische Reeks, nr 17 (1998) 61-86.
- Blanchard, Ian, 'The continental European cattle trades, 1400-1600' in: *Economic History Review*, 2nd ser. XXXIX, 3 (1986) 427-460.
- Chomel, M.N. and J.A. de Chalmot, *Algemeen huishoudelijk-, natuur-, zedenkundig- en konstwoordenboek, vervattende veele middelen om zijn goed te vermeerderen en zijne gezondheid te behouden*, dl 3, (Leiden/ Leeuwarden 1770).
- Degn, Ole, *Rig og fattig i Ribe. Økonomiske og sociale forhold i Ribesamfundet 1560 1660*, 2 dele, Skrifter udgivet af Jysk Selskab for Historie nr. 39 (Aarhus) 1981.
- Enemark, Poul, 'Oksehandelens historie ca. 1300-1700' in: *Sortbroget kvæg – baggrund og udvikling i Danmark* (Viby 1983) 9-87.
- Enemark, Poul, 'Historisk essay. Gamle toldregnskaber som historisk kildemateriale. Dansk studehandels struktur og omfang i senmiddelalder og tidlig nyere tid' in: *Historie. Jyske Samlinger*, ny række 20 (1993) 72-87.
- Francq van Berkhey, J. Le, *Natuurlijke historie van Holland*, deel 3 [1] (Amsterdam 1776).
- Frandsen, Karl-Erik, *Okser på vandring. Pro-*

- duktion og eksport af stude fra Danmark i midten af 1600-tallet* (Herning 1994).
- Gijsbers, W., 'Danish oxen in Dutch meadows. Beef cattle trading and graziery in the Netherlands between 1580 and 1750', in: *Facing the North Sea. West Jutland and the World (Proceedings of the Ribe conference, April 6-8, 1992)* Fiskeri- og Søfartsmuseets studieserie, nr. 2 (Esbjerg 1993) 129-148.
- Gijsbers, W., 'En vestjysk købmands rolle i verdenshandelen. Thomas Jensen (ca. 1610-1677) fra Ringkøbing', in: *Erhvervshistorisk Årbog*, 47 (1997) 95-141.
- Gijsbers, W. *Kapitale ossen. De internationale handel in slachtnvee in Noordwest-Europa (1300-1750)* (Hilversum 1999).
- Gregersen, Hans Vald., 'Studedriften forbi Toldsted i 1600-tallet' in: *Jyske Samlinger*, 5 række, 8. bd (Århus 1948) 139-161.
- Gregersen, H.V., *Toldsted ved Hærvejen. Arniekiernes hjemstavn Urnehoved-egnens og oksehandelens historie* (Haderslev 1978).
- Hill, Thomas, 'Der Ochsenweg. Zur konstruktion regionaler historischer Identität', in: Bea Lundt (ed.), *Nordlichter. Geschichtsbewußtsein und Geschichtsmymthen nördlich der Elbe* (Köln 2004) 47-65.
- Hillegers, Henk, 'Ossen in Limburg. Drie aanleidingen en 'n inleiding' in: *Natuurhistorisch maandblad*, jrg 90 (maart 2001) 41-49.
- Jürgens, Adolf, *Zur schleswig-holsteinischen Handelsgeschichte des 16. und 17. Jahrhunderts*. Abhandlungen zur Verkehrs- und Seegeschichte, Bd VIII (Berlin 1914).
- Olsen, Albert, 'Steffen Rodes regnskabsbog over studehandel 1637-1650', *Historisk Tidsskrift*, 9. række, I (1919) 255-281.
- Petersen, E. Ladewig, *The crisis of the Danish nobility 1580-1660* (Odense 1967).
- Petersen, E. Ladewig, 'The Danish cattle trade during the sixteenth and seventeenth centuries', in: *The Scandinavian Economic History Review*, XVIII, 1&2 (1970) 69-85.
- Petersen, Erling Ladewig, 'Production and trade in oxen, 1450-1750: Denmark' in: Ekkehard Westermann ed., *Internationaler Ochsenhandel (1350-1750)*, *Akten des 7th International Economic History Congress*, Edin-

- burgh 1978. Beiträge zur Wirtschafts-
geschichte, Band IX (Stuttgart 1979) 137-170.
- Rixson, Derrick, *The history of meat trading*
(Nottingham 2000).
- Tang, A. E. M., 'Om studehandel i 1849' in:
Hardsyssels Årbog, 56 (1962) 109-126.
- Thomas, Keith, *Het verlangen naar de natuur. De
veranderende houding tegenover planten en
dieren, 1500-1800* (Dutch edit.; Amsterdam
1990. Original title: *Man and the Natural
World, Changing attitudes in England 1500-
1800* (1983)).
- Uytven, Raymond van, *De papegaai van de paus.
Mens en dier in de Middeleeuwen* (Leuven/
Zwolle 2003).
- Vial, C., *Het vetmesten der runderen; bevattende
alles wat daarop betrekking heeft (...)*. (trans-
lated and edited by A. Körte and F.C. Hek-
meijer; Utrecht 1868).
- Westermann, Ekkehard, 'Forschungsaufgaben des
internationalen Ochsenhandels aus mitteleu-
ropäischer Sicht' in: Ekkehard Westermann
ed., *Internationaler Ochsenhandel (1350-
1750), Akten des 7th International Economic
History Congress, Edinburgh 1978*. Beiträge
zur Wirtschaftsgeschichte, Band IX (Stuttgart
1979).
- Wiese, H., 'Der Rinderhandel im nordwesteu-
ropäischen Küstengebiet vom 15. Jahrhundert
bis zum Beginn des 19. Jahrhunderts' in: H.
Wiese and J. Bölts, *Rinderhandel und Rin-
derhaltung im nordwesteuropäischen Küsten-
gebiet vom 15. bis zum 19. Jahrhundert*. Quel-
len und Forschungen zur Agrargeschichte XIV
(Stuttgart 1966) 1-129.

Literature on modern transportation of cattle

- Broom, D.M. and K.G. Johnson, *Stress and Animal
Welfare* (London 1993).
- Connell, J., *International transport of farm ani-
mals intended for slaughter*. Commission of
the European Communities. Report EUR 9556
EN (Brussels 1984).
- Council Directive 91/628/EEC of 19 November
1991 on the protection of animals during trans-
port. *Official Journal of the European
Communities* L 340 (1991), 17.
- Grandin, T., 'Design of loading facilities and hold-
ing pens' in: *Applied Animal Behaviour
Science* (1990) 28: 187-201.
- Kenny, F.J. and P.V. Tarrant, 'The physiological
and behavioural responses of crossbred
Friesian steers to short-haul transport by road'
in: *Livestock Production Science* (1987) 17:
63-75.
- Kenny, F.J. and P.V. Tarrant, 'The reaction of
young bulls to short-haul road transport' in:
Applied Animal Behaviour Science (1987) 17:
209-227.
- Lambooij, E. and B. Hulsegge, 'Long-distance
transport of pregnant heifers by truck' in:
Applied Animal Behaviour Science (1988) 20:
249-258.
- Lambooij, B. e.a., 'The welfare of farm animals
during transport' in: F.J.M. Smulders ed.,
*Veterinary aspects of meat production, proces-
sing and inspection*. ECCEAMST (Utrecht
1999) 113-128.
- Lambooij, E., *De behandeling en het welzijn van
slachtdieren en de duur van het transport*. ID-
Lelystad (2001), rapportnummer 2177.
- Tarrant, V. and T. Grandin, 'Cattle transport' in:
T. Grandin ed., *Livestock Handling and
Transport* (second edition; Oxon 2000) 151-
173.

RESUMÉ

Okser for øksen. Et nutidigt blik på den historiske langdistance-transport af levende okser

I lang tid har vores viden om oksehandelen i Nordvesteuropa stort set udelukkende været baseret på dansk og tysk forskning, selv om størstedelen af de okser, der fra 15-1700-tallet blev eksporteret fra Danmark og Slesvig-Holsten, var bestemt for det hollandske marked. På baggrund af den bestående righoldige litteratur om oksehandelen tegner sig et detaljeret billede af, hvorledes titusinder af okser hvert år blev drevet over land eller sejlet til afsætningsområderne i det nuværende Holland. Men hvad skete der med alle disse okser på vejen. Hvor endte de? Hvem var involveret i denne handel?

De nederlandske arkiver rummer informationer, der kan besvare nogle af disse spørgsmål. Ud fra fragtkontrakter og -attester indgået mellem købmænd og skippere fra Danmark, Slesvig og Ne-

derlandene og nedskrevet af notarer i Hoorn, Enkhuizen og Amsterdam, er det muligt at skitsere handelsnetværkets struktur, men også at fremmane den stemning og det miljø, som oksehandlen udspillede sig i.

I arbejdet med at fortolke arkivernes oplysninger om oksetransporten i 15-1700-tallet er et grundigt kendskab til også den nutidige transport af levende dyr nyttig. I artiklen beskrives, hvorledes man i vore dage søger at begrænse den stress, som transport udsætter dyrene for, og der drages en række parallelere bagud i tid. Selv om forholdene for transport af levende dyr har ændret sig væsentligt gennem århundrederne, må oksernes måde at reagere på uvante omgivelser have været omtrent den samme.

Det står klart, at den historiske oksehandel langt fra var den rene idyl. Hvis datidens okseflokkene var blevet præsenteret for vore dages krav til dyretransporter med specifikke køre- og hviletidsbestemmelser ville mange af dem sikkert have foretrukket en moderne lastbil. Alligevel nåede langt de fleste af okserne deres bestemmelsessted i en tilstand så god, at de kunne blive solgt. Det var langt hurtigere at sejle okserne ned til afsætningsområderne, men de dermed forbundne risici var også langt større, og igennem hele perioden udgjorde skibstransporten kun en mindre del af den samlede eksport.

En stor del af kildematerialet til denne artikel er opstået som følge af problemer i forbindelse med oksehandelen. Ofte er der tale om klager og vidneforklaringer afgivet til notaren for at sikre sig imod eller imødegå eventuelle søgsmål. Er disse forskellige problemer afvigelser fra normen eller kun toppen af isbjerget? Det er svært at give noget sikkert svar på, men uanset hvad oplyser de bevarede arkivalier om hvilke risici, der er forbundet med at transportere levende dyr over større afstande. Det var langt fra altid efterladenhed eller ond vilje fra oksedriverens side, der var årsag til, at en flok ikke nåede helskindet frem, men det forekom dog også.

Hvilke motiver drev de mennesker, der i det daglige havde omgang med okserne? Mange forskellige mennesker havde med okserne at gøre i deres sidste leveår: Danske bønder, godsmedhjælpere, danske eller nederlandske købmænd, deres okse-

opkøbere, skibsbesætning, markedshandlende, studedrivere og til sidst slagterne. Alle de involverede plejede i første omgang deres egne interesser. Alligevel foregik studedriften indenfor områder med stor social kontrol såsom på skibe, kroer eller markeder. Folk tilbragte dage og ofte også uger i hinandens selskab og opererede i netværker opbygget af familiemedlemmer og bekendte eller folk fra samme by, hvor indbyrdes tilid var en nødvendighed. Der var øjne overalt, og det blik for detaljen, som ofte fremgår af vidneforklaringerne, er bemærkelsesværdigt.

Desuden var der stor efterspørgsel efter okser i Nederlandene, hvor de var eftertragede for især deres kød, men også huder, ben og horn fandt anvendelse. Oksehandelen sikrede mange mennesker en indtægt, og prisen på den enkelte flok var langt hen ad vejen betinget af de enkelte dyrs tilstand. For at ansøre til god behandling af dyrene kunne mellemhandlere og skipperne tjene en ekstra bonus ved at levere sundt udseende dyr. Det fremgår, at okseopkøberne så med stolthed på deres dyr, og i det hele taget ingen interesse havde i at behandle dem dårligt. Grusom eller tarvelig behandling af dyrene ville i sidste ende påvirke prisen. I en tid, hvor regler og forordninger om beskyttelse af dyr ikke fandtes, var det sikkert den bedste beskyttelse for dyrene.

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