

# THE KEEPING AND MILKING OF SHEEP IN THE OLD SUBSISTENCE ECONOMY OF SCANDINAVIA, ICELAND AND NORTHERN EUROPE

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## SHEEP IN EARLY SOCIETIES

Archaeologists believe that sheep are associated with the pioneer cultivators in Northern European hunting cultures, and that as domestic animals they may be considered part of the Northern European farm from earliest times (Bröndsted 1957. I. 262).

At Neolithic dwelling sites in Western Norway, sheep bones are identified with refuse from meals (Hagen 1962. 35; Myhre 1967. 33–34), whilst the use of wool for clothes is confirmed from Bronze Age finds in Scandinavia (Bröndsted 1958. II. 119–120). There is also reason to believe that the milk-giving qualities of domestic animals have been known from early times. Perforated pottery vessels from both Bronze Age and Iron Age Scandinavia are thought to have been used in the production of cheese (Ränk 1966. 44–47).

But there is no real evidence to suggest a development from general sheep-keeping to selective sheep-breeding in prehistoric times in Northern Europe — whether for wool or for meat. The prehistoric sheep — descendants of which, in historic times, were found in e.g. Iceland and the Faroes, in the Norwegian *spælsau* or short-tailed sheep, and in the Swedish *lantras* (country breed) — were kept equally for their milk, wool and mutton.

Non-specialised use of the sheep belongs primarily to a subsistence economy where sheep-keeping is based on an individual's personal needs rather than on a concept of produce for sale. Only gradually, as a community becomes more stratified and sections of the population find themselves without sheep, does a more deliberate policy of sheep-keeping appear, linked to commercial and economic factors. Such changes are generally linked to the development of towns and cities.

There are indications from the Mediterranean and the Near East, areas more developed than the North in prehistoric times, that there was some kind of early differentiation within sheep-keeping. It seems that a distinction existed in Old Mesopotamia between 'mutton sheep' and 'wool sheep', and that the Semites emphasised the production of fat whilst Indo-Europeans concentrated on wool. From the Roman Empire there are literary examples which may indicate that they knew about crossing and the development of breeds specially suited to certain types of grazing, and we also hear of sheep from Egypt and Libya which held a higher price because of their fine wool (Jacobbeit 1961. 12).

The transition from sheep-keeping to sheep-breeding becomes more marked, however, in 12th century Europe — partly for mutton, but primarily for wool: from about 1100 AD in Spain and England, and some time later in

the Middle Ages in Central Europe (Jacobeit 1961. 14, 18).

From all this development, the Northern and North-Western fringes of Europe for a long time stood aside, continuing to see in the sheep an essentially domestic subsistence resource. A trend to be noted, however, and one which will be explored below, was the milking of ewes to provide milk and other produce for the household. Variations existed, of course, in different areas, as to the emphasis placed upon ewe-milking, and there were differences in the time-scale of such developments.

## SHEEP-KEEPING IN SCANDINAVIA AND THE NORTH ATLANTIC ISLANDS

In the Icelandic Sagas there is literary evidence for ewe-milking, e.g. the *Saga of Ramnkjell Fróysgode* (chpt. 6) and the *Eyrbyggja Saga*, where certain associated practices are mentioned (chpt. 45). Such evidence might even suggest conditions in Norway, whence the Icelanders came; also older customs, later transplanted, which prevailed in Norway before the colonization of Iceland.

Later evidence shows that in the Faroes the practice was forgotten by the latter part of the 18th century, when only stories and certain place-names in outlying areas could bear witness to the milking of sheep (Svabo 1859. 205). However, it seems likely that it lasted longer on other Atlantic islands where, additionally, we know of a shieling system (*seterbruk*) which may have developed through both Celtic and Northern influences. In Iceland it was common to milk ewes till well into the 20th century; in the Hebrides it is said to have ended 'in late times' (Reinton 1961. III. 72-79; Olsson 1954. 79). Perhaps we can see a certain cultural connection with Ireland here, where there are accounts of sheep-milking in the 17th, 18th and 19th centuries (Lucas 1951. 124).

As regards husbandry, the Faroes appear to have deviated from Icelandic and Norwegian practice. The Norwegian historian of customary law (i.e. legal matters relating primarily to agricultural districts), Kristian Østberg, has given consideration to the idea that, strictly speaking, the sheep could not be called a 'domestic' animal in the Faroes. It was outdoors day and night, summer and winter, in outlying areas which were 'common' not only with regard to grazing but to the ownership of the sheep. Each individual had a share in the sheep equal to his share in the outfield grazing. Closer contact between human and sheep was limited to the time when the annual yield was 'reaped', when the wool was torn off and the sheep slaughtered — to be distributed in accordance with each individual's share in outfield and sheep flock (Østberg 1922. 65-81).

From the 1770s comes a description of Faroese sheep as 'wild sheep' — as opposed to sheep of Iceland and Norway. A situation reminiscent of Faroese practice, however, has been recorded for a few islands off the West Norwegian coast where 'wild sheep' were outdoors all year round and were hunted in common, as game, until property rights were established. People from each farm went to help each other with branding in the spring and with the selection of animals for slaughter in the autumn (Halletveit 1974. 6-7). Of this 'wild sheep' it is said that on good summer grazing it could store fat in large

quantities for the winter. In this respect it reminds us of the reindeer (Bu 1953/4. 83–84).

The more intensive nature of Icelandic and Norwegian sheep-keeping becomes apparent when we see the sheep kept as a shieling animal — not just along with cattle, but sometimes in special sheep shielings. At some shielings the sheep are known to have been milked (*Ramnkjell's Saga*; Reinton 1955. I. 34).

From Iceland, special names have survived for sheep which were being milked and for ewes in lamb. And with regard to herding, it is primarily the tending of milking ewes that we hear of. There were not so many predators in Iceland as in Norway, where it was more necessary to protect domestic animals; in Iceland, therefore, the herding of milking ewes was more in the way of keeping them together in the 'right' grazing grounds and driving them to the shieling to be milked. Milking and other associated tasks were women's jobs (Schönfeldt 1902. 203, 219–220). Although the trend in Iceland in the 19th century was towards greater emphasis on the meat-producing qualities of sheep and the export of mutton, the practice of milking continued well into the 20th century. During the first World War there were even special dairies where sheep milk played a great part. In the 1920s an unsuccessful attempt was also made at establishing a sheep dairy at Flateyri in Western Iceland. In the Flateyrar region, the practice of milking sheep came to an end in the 1930s, though on the farm Kirkjuból it continued until 1951, presumably the last instance of sheep-milking in Iceland (Bergsaker 1972. 18).

In Norway, multi-purpose use of the sheep, which (also on the basis of information from the Icelandic sagas) can be traced to prehistoric times, was still a predominant practice in the 18th century. A clause in Christian V's Norwegian Law of 1687 tells of the renting out of milking ewes, which could be evidence of a firmly established practice of sheep-milking (Kong Christian 1687. bk. 5 chpt. 8 para. 9). Cattle-renting regulations, including milking ewes, lasted throughout the 19th century (Reinton 1955. I. 193), and even well into the 20th century there are examples of such practice in Northern Norway (Bergsaker 1972. 22).

For Norway generally, however, we must regard the 19th century as a period of transition leading to a break with the old practice of balanced exploitation for milk, wool and mutton. With the import of English sheep for crossing with the old Norwegian breeds, especially from the end of the 18th century, we can trace the emphasis placed on the production of wool — and quantity of wool, although not quality, certainly suffered when ewes were milked (Berge 1942. 105, 111). But even if the desire for more wool drove the first wedge into the old traditional practices, it was a demand for more mutton that first caused a real move away from ewe-milking during the 18th century. With the development of a commercial market for lamb, lambs had to get milk from the ewes during the summer in order to achieve a better weight at slaughtering time in the autumn. Under the old system, it was not usual to kill lambs in their first year; they were not killed until the following autumn when they had had a whole year to put on weight. The new pressures looked for slaughter the same year.

Several other factors also contributed to the disintegration of the practice of milking sheep:-

1. In some places there was a clear policy-change from winter to spring lambing;

2. In other places epidemics (e.g. scab in Western Norway) over several decades in the 19th century necessitated the replacement of sheep-stocks and encouraged the introduction of new breeds;

3. The dairies established from the 1860s were no longer allowed to mix cow milk, sheep milk and goat milk, as was formerly practised on the farm;

4. The lessening danger from wild beasts and other predators enabled sheep to be kept at mountain pastures during the summer without human supervision.

Behind all these factors, however, was the overall movement towards agricultural improvement. From the 18th century, but particularly in the later 19th century, there were deliberate attempts to break with traditional methods and to aim at more effective commercial cattle-keeping and rearing linked to a cash economy. In this a public and semi-public advisory service played a not inconsiderable role.

The old methods lasted longest in Western and Northern Norway. They had more or less come to an end in the latter part of the 19th century, but lingered in a few northern localities into the 20th century. On the whole, the milking of sheep seems to have endured longest in areas with conservative and old-fashioned practices preserved through the system of land-ownership; also on small farms and cottar-holdings, and amongst fishermen-farmers in the North, where cows were fewer and ewe-milk consequently of greater importance in the household diet (Bergsaker 1972. 27-43).

To summarise, the milking of sheep may be seen as linked to the old subsistence economy of Norway and other Scandinavian countries — an economy that demanded good all-round yields in relation to the physical size of a sheep that had to survive outdoors in all weathers. Ewe-milking, therefore, is a primary distinguishing feature between traditional and more modern approaches to farming and livestock husbandry.

We shall now look at different aspects of ewe-milking — how the sheep were husbanded; how and how frequently ewes were milked; milk yields; uses for the milk.

## ANTI-SUCKING TECHNIQUES FOR LAMBS

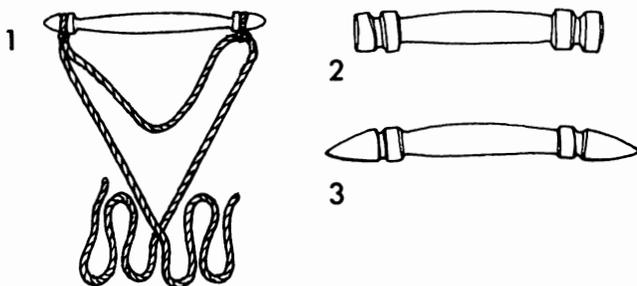
When sheep were to be milked, it was important to keep the lamb from sucking its mother. Sometimes 'technical devices' were used to prevent this; sometimes ewes and lambs were kept separately; sometimes other measures could be taken.

### Gagging:

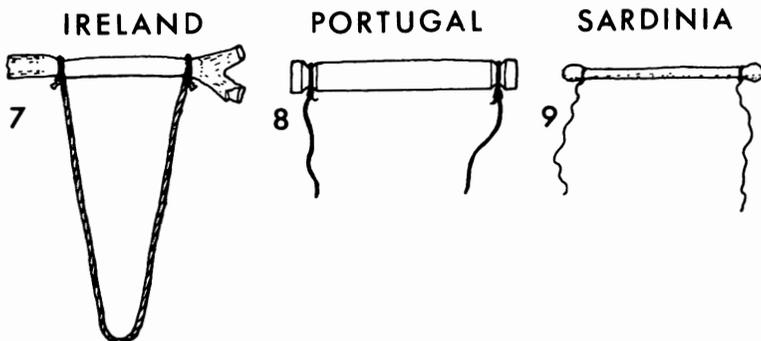
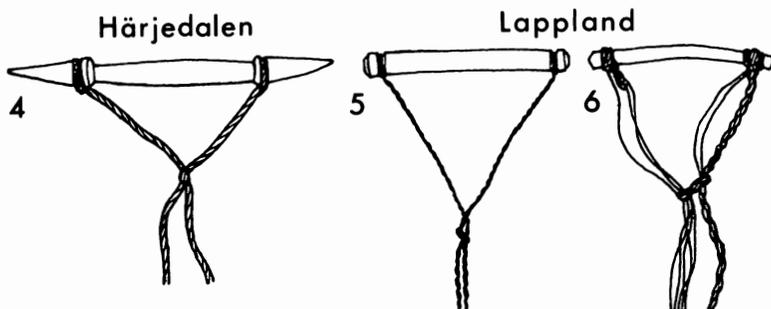
The insertion of a device into the mouth of a lamb to prevent it sucking is most likely of great antiquity in Norway if we accept the evidence of the Icelandic sagas as valid also for Norway. In the *Eyrbyggja Saga* we hear of the gagging of lambs. Snorre Torbrandson, who received an arrow through his throat in a battle at Vigrafjord, had difficulties in eating at a later meal. He illustrates his

# ANTI - SUCKING DEVICES

## NORWAY



## SWEDEN



1,2,3 Ord og Sed 96      4,5,6 Gösta Berg  
7 A.T.Lucas    8 A.Jorge Dias    9 Max Leopold Wagner

Fig. 9.1. —Anti-sucking devices set across lambs' mouths — from Scandinavia and Western Europe.

predicament by telling how lambs feed least when newly gagged (chap. 45).

Gagging a lamb means placing a wooden stick across its mouth and tying it firmly round its head [Fig. 9.1]. Thus the lamb is kept from sucking milk but should be able to graze. At each end of the stick a groove was cut, round which the thread was fastened which was to tie the gag in place. The gag (*kjevle* in Norwegian) was usually a little wider or thicker in the middle to prevent the animal from closing its mouth round the teat. As an extra measure, a hole could be made through the gag at its widest part and the gag might be sharpened at both ends. A blunt-ended gag might not quite prevent sucking, but one with sharp pointed ends would prick the underside or leg of the ewe so that she would not stand still but run away. Here, of course, the length of the gag would also be of importance. Pointed ends of this kind are known from Norway and Northern Sweden and also from Lappish districts. There is no information, however, from Iceland. Gags with pointed ends and a hole through the widest part must represent the most developed and effective form (Bergsaker 1972. 44–51).

In Norway, the gagging of lambs and kids has been practised well into the 20th century, but not as commonly as previously. We also know of it as a more general West European phenomenon — from Sardinia (Wagner 1921. 108), Portugal (Bergsaker 1972. 53), Ireland (Lucas 1951. 123–125), Shetland (Baldwin 1978. below), Iceland (Olafsen 1772. 197), Norway (Bergsaker 1972. 44–52), Northern Sweden (Berg 1949. 55–57), and from Finland, linked culturally as it is with parts of Northern Sweden (Lucas 1951. 123). It is not known, however, from the distinctive sheep-milking areas of Eastern Europe, from the Balkans to Poland (Bergsaker 1972. 56). Here we find other kinds of anti-sucking devices.

The gagging of lambs may have been practised most during the weaning period of early summer and for 'part-time gagging'. The latter would occur if the ewe were milked just once a day for domestic use, and then ewe and lamb let run together for certain periods. In which case, it was not a question of real weaning. Gagging specifically for weaning might take two to four weeks before weaning was complete (Bergsaker 1972. 57–59).

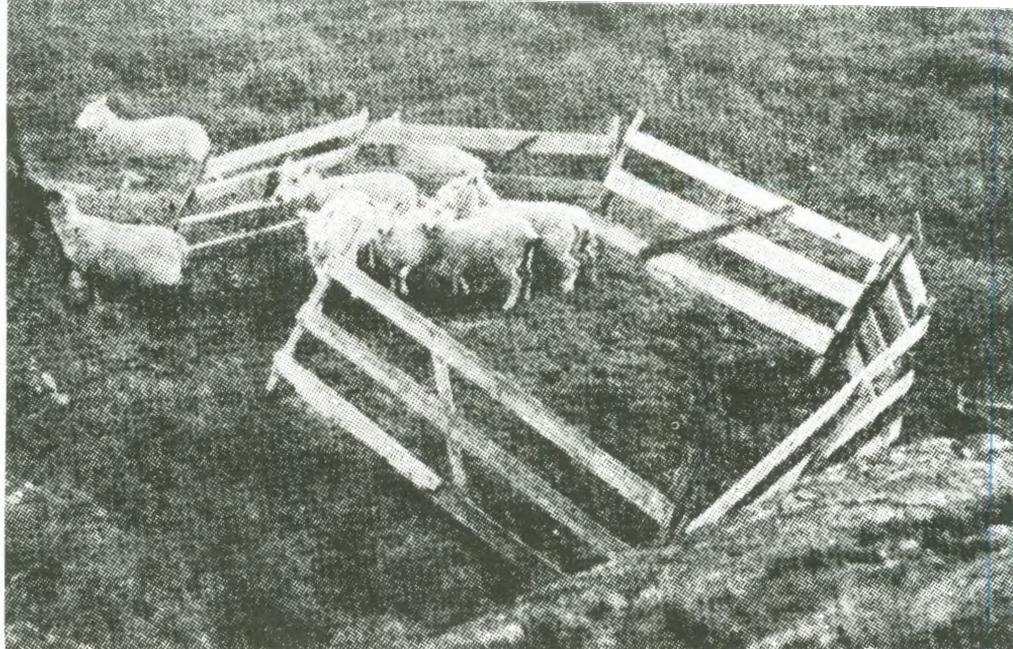
Gagging would also be used at the shieling, particularly when there was danger from predators and it was preferable to keep sheep and lambs grazing together under supervision. Without the threat of predators it was easier to keep lambs apart from milking ewes in separate grazing areas, thus removing the need for gags.

### **Smearing:**

A quite different method of keeping a lamb away from a ewe was to rub the underside with some 'stinking mixture'. From Norway there are examples of cod-liver oil or tar rubbed in near the teats (Bergsaker 1972. 55), and there is evidence that the method was known in many primitive cultures.

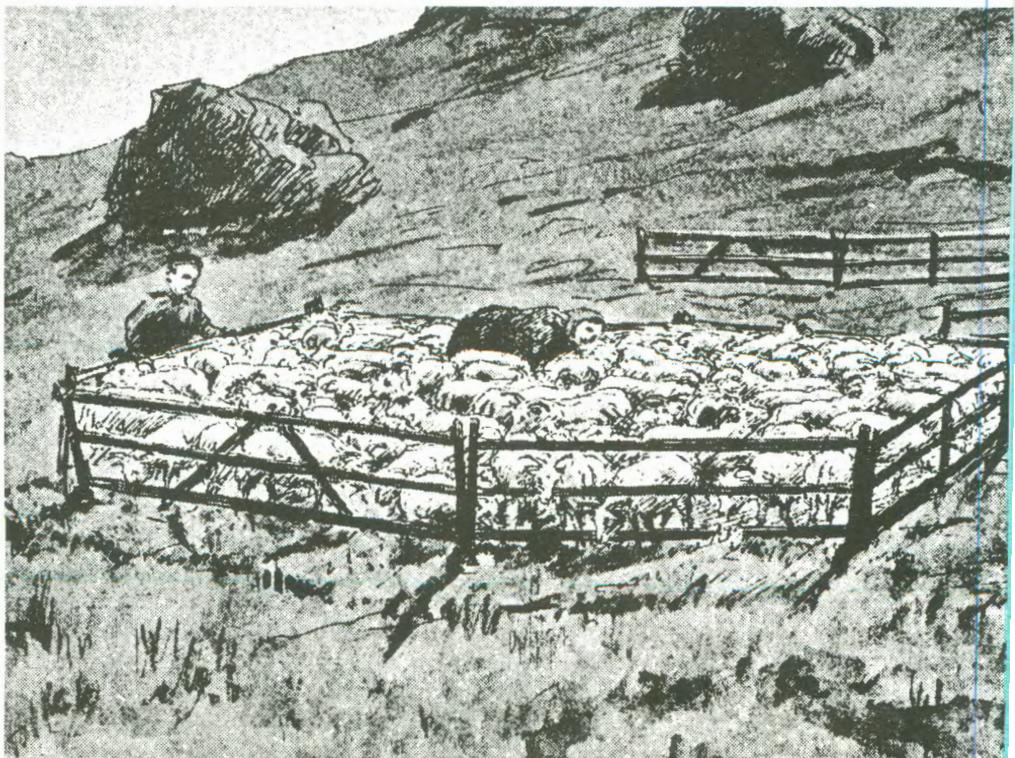
### **Folding:**

A third method involved separating sheep and lambs in folds at night. The ewes were then milked in the morning and the lambs allowed to run with their



*Fig. 9.2. —A movable fold to separate sheep and lambs — from Finnmark, Norway.  
(Courtesy of Prof. Knut Kolsrud)*

*Fig. 9.3. —A similar fold made from wooden hurdles — from Iceland.  
(Courtesy of Daniel Bruun)*



mothers during the day. Movable folds [Figs. 9.2; 9.3], common throughout Europe, were most often used at the shieling and allowed the fertilisation of different areas with the dung of the sheep. Fixed enclosures were also used in Norway and other Scandinavian areas — close to the farm, as well as at the shieling (Kolsrud 1955. 147; Bergsaker 1972. 60–64; Baldwin 1978. below). Additionally, fixed enclosures are known to have been used specifically for milking in both Iceland (Bergsaker 1972. 75–76) and Shetland (Baldwin 1978. below).

## EWE MILKING

### Time and Frequency:

Most sheep-milking took place at the shieling, normally from about midsummer. By then lambs from the spring lambing were generally able to manage on the pastures.

In some places milking took place both morning and night, and there are even a few examples of milking three times a day (as also with cows in certain areas). Available evidence suggests milking once a day, every twenty-four hours, to have been the most common practice in Norway, though that may have been a gradual development from twice-daily milking (the regular custom in Iceland) — with ewes and lambs continuing to be kept separate, each in their own grazing areas. Twice-daily milking was preserved longest in Northern Norway.

Once-daily milking normally took place in the morning, the lambs being separated from the ewes during the night and allowed to be together by day. During the shieling period, however, milking ewes and lambs could also be kept in continually separate grazing areas (Bergsaker 1972. 66–72) — a feature constantly associated with sheep-milking in the Balkans (Földes 1969. 359–361) and once found to some degree in Iceland (Bruun [1897] 1928. 278). In Iceland, however, where we are talking more of weaning, this separation was generally effected by gagging; and it took place in early summer, before the shieling period. Such was also the general trend in Norway.

### Techniques:

Standing astride the sheep or goat to be milked was common to both Norway and Northern Sweden. The milker faced the back of the animal, bending over its rear with one arm down either side of the animal to the teats. Actual milking was forward into a vessel placed underneath the animal (Bergsaker 1972. 77–80).

A second method, found widely in Europe from the Balkans to Poland (Földes 1961. 575; 1969. 650) is that of milking the ewe from behind, the milk streaming out backwards. The northern continental limit for this technique, performed from a sitting position, is in Skåne/Småland and Denmark (Bergsaker 1972. 76–77). Whether it once extended further north into Scandinavia is unknown, though the fact that it existed in Iceland (with the milker standing) might suggest earlier Norwegian practice. Further, we know that it was practised elsewhere in Western Europe, from Portugal and Ireland

to Iceland (Bergsaker 1972. 75).

According to accounts from Skåne, milking from behind and backwards was the easiest though not the best way (Bergsaker 1972. 77). Standing astride the sheep or goat was thought to be better, and also the milker's legs, one either side of the animal, would be a natural and simple way of gripping the animal and keeping it still.

A variant of this method involved standing to one side and putting one arm right over the animal and down to the teat. The animal was then milked with both hands into a vessel placed under the animal. This variant, a form of milking from the side, reminds us, in part at least, of milking a cow.

It is of interest to note that in e.g. Portugal and Skåne — basically areas of 'milking from behind' — side-milking of sheep and goats was also known. It was also known in Norway.

However, it is the important difference between Norway/Northern Sweden on the one hand, and so much of the European Continent (both Eastern Europe and up the western fringe to Iceland) on the other, that stands out most clearly. There is not enough evidence to judge what factors, if any, contributed to Norway and Northern Sweden breaking with a very ancient practice (found, for instance, in a 5000 year old frieze from the Near East and now in the British Museum) and adopting a new milking position, unless it were merely to keep the animal quiet more effectively by standing astride it. Nor do we know at what time such a development took place — even if we assume that the Icelandic method dates to the time of the Norwegian colonisation of Iceland and that there was no influence from the south northwards over the Atlantic seaboard and Ireland to Iceland.

## THE PROCESSING AND USES OF SHEEP MILK

In Norway, sheep milk was mainly mixed with cow milk and goat milk, for butter and cheese making. Norwegian analyses of sheep milk show that it gave about 50% higher cheese yield and about 65% higher butter yield than cow milk (Tandberg & Ødegaard 1880. 85; Nedkvitne 1971. 610). Mixed into goat milk, the sheep milk could also soften the taste which goat milk alone gave to butter (Ström 1762. I. 379 : Heramb 1967. 127-128).\*

### Cheese:

The making of firm cheese from pure sheep milk seems not to have been common in Norway in any period for which we have information. Besides, of old, Norway was long recognised as an area for sourmilk cheeses (from natural fermentation) rather than for proper curd cheeses (from artificial fermentation). Only in Northern Norway do certain pointers suggest any wider production of true curd cheeses from sheep milk — some of which even appear to have been produced for sale. Indeed, it may be that sheep milk cheese was more widely produced in Northern Norway than elsewhere in the country, for we hear also of a highly regarded weaker mixture of curdled sheep milk (Bergsaker 1972. 96-98). In many areas of the country, however, e.g. Western Norway, it is said that special sheep milk cheeses were never made

(Bergsaker 1972. 98). And certainly, whilst during the Vasa period in Sweden cheese was made from sheep milk on the king's estates and cow milk was made into butter (Berg 1949. 52; Ränk 1966. 95–97), we lack representative evidence from Norway. We may note, however, as negative evidence, that Olaus Magnus in the 16th century, talking of the use of sheep milk for cheese, makes especial mention of certain Swedish areas, as opposed to Norway or other Swedish areas (Magnus 16th C. bk. 13 chpt. 46).

### Butter and Treated Milk:

Butter from pure sheep milk seems never to have been worth mentioning as of any commercial value, though in places it was used in the farm kitchen. It was said to be white and sweet, and the white colour was not the least factor making it less suitable for sale.

Additionally, sheep milk could be preserved for storage — *syltmylk* : a practice known from Skåne and Zealand (Sjælland) (Bringeus 1970. 113–117), and even lingering in the memory in Norway. Boiled milk — without being stored — might also be used instead of butter on bread (Bergsaker 1972. 92), and when boiled to a 'thick milk' or *tjukka mjølk*, could be used with e.g. porridge; likewise with *dravle*, simmered curds and whey (Bergsaker 1972. 90–92).

These, however, are all exceptions. In Norway, as in Iceland, it seems to have been usual practice not to use sheep milk on its own but to mix it with cow milk and goat milk — in Iceland for butter and curdled milk; in Norway for butter and skim-milk cheese. Nonetheless, we cannot help being conscious of the richness of sheep milk and the part it must have played in achieving higher returns from livestock.

### MILK YIELDS

Evidence suggests an annual yield of about 40 litres of milk from each sheep — more precisely, from 30 to 50 litres (Bergsaker 1972. 105–112) depending on grazing conditions, the length of the milking period (sometimes before and after the shieling period) and how deliberately and intensively sheep milk was taken. In a mixture with cow milk for churning and cheesemaking 40 litres of sheep milk would equal 60–65 litres of cow milk. Icelandic sheep provide the highest yield, compared to usual estimates in Norway, and this we may put down to the importance placed there on sheep milk and to a degree of selective breeding.

If we were to compare these yields from Norway and Iceland, however, with those of developed or improved breeds of sheep, we would find considerable differences. Controlled stocks of the Lacaune sheep — the basis for milk sheep in Southern France — have a mean yield of more than 200 litres, with a fat content of 8–9%. The East Frisian milk sheep, with a live weight of 80–85 kgs, has an annual yield of 'several hundred litres' (Berge 1953. 311–312). The old Norwegian *utegangssau*, on the other hand, which grazed out-of-doors in winter and was last found on a few islands in Western Norway, has a recorded live weight of 20–25 kgs; whilst ewes developed at breeding stations, descendants of the small, wild sheep, have a middle weight of about 50 kgs (Bell 1955. 41).

## CONCLUSION

To make any comparison really valid between the ancient and the more cultivated breeds of Scandinavia and Northern Europe, it must take objectives and husbandry into account — practice and methods. It must consider whether milking qualities are the main object, backed up with special feeding; or whether all-round exploitation linked to a minimum of extra feeding is the standard. This latter, of course, as we have seen, was the basic feature of old Norwegian sheep-keeping.

At one time it was said that a man could keep 20–40 sheep through the winter in Iceland on the same amount of food (i.e. additional fodder) needed over the same period for one cow. Local climatic conditions were crucial to such ratios, however, and whilst sheep grazing outdoors through the winter along the Norwegian coast would manage with only a small addition of extra food, we know that some distance inland from the west coast only 6–10 sheep could be raised in winter on the food supply required to feed one cow (Bergsåker 1972. 12).

The milk-giving qualities of such sheep were certainly important, and particularly it would seem in Iceland, but fundamentally what was required in Norway and other Northern areas was a robust, versatile sheep, able to survive and thrive on a minimum of extra feeding and shelter, and able to provide a balanced range of products for a farm-based subsistence economy — wool and meat, as well as milk. Sheep-keeping, with its various practices and techniques, was geared to this end; more specific sheep-breeding generally only developed as social and economic circumstances began to change, and a cash economy gradually replaced subsistence patterns.

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### *References*

- Bell, S. *Sauen*. 1955.  
Berg, G. Fåret som mjølkedjur, in *Rig*. 1949. nr. 32.  
Berge, S. *Avl av sau og geit*. 1942.  
Berge, S. Sau og geit, in Johansson I. ed. *Husdyrvasene*. 1953.  
Bergsåker, J. *Sauen som mjølkedyr*. 1972.  
Bringeus, N.A. *Mat och miljö*. 1970.  
Brøndsted, J. *Danmarks oldtid*. 1957/58/60. I, II, III.  
Bruun, D. *Fortidsminder og nutidshjem på Island*. 1897.  
Bu, A. Villsauen, in *Land og Hav*. 1953/54.  
*Eyrbyggja Saga*.  
Földes, L. *Viehztucht und Hirtenleben in Ostmitteleuropa*. 1961.  
Földes, L. *Viehwirtschaft und Hirtenkultur*. 1969.  
Hagen, A. Forhistorisk tid, in *Vårt folks historie*. 1962. I.  
Halletveit, B. Villsauen på Huftarøy, in *Husflid*. 1974. nr. 6.  
Heramb, L.G. *Besvarelsen af 41 Spøragsmaal Hornquæget betreffende og 33 Spøragsmaal Faareavlens angaaende*. 1967.  
Jacobeit, W. *Schafhaltung und Schäfer in Zentraleuropa bis zum Beginn des 20. Jahrhunderts*. 1961.  
Kolsrud, K. *Sjöfennane i Rognsund*. 1955.  
Kong Christian den Femtes *Norske Lov av 1687*.

- Lucas, A.T. Sucking Obstacles for Young Animals, in *Journal of the Cork Historical and Archaeological Society*. 1951. Vol. 56.
- Myhre, B. Tjorahelleren, in *Stavanger Museums Arbok*. 1957.
- Nedkvitne, J. Mjölkeerstatning til lam, in *Bondevennen*. 1971. nr. 20/21.
- Olafsen, E. *Reise igiennem Island*. 1772.
- Olaus Magnus. *Historia*
- Olsson, A. Färöiska kostvanor, in *Rig*. 1954. nr. 37.
- Østberg, K. Fra Faerøerne, in *Tidsskrift for det norske landbruk*. 1922.
- Ramkjells Saga*.
- Reinton, L. *Saeterbruget i Norge*. 1955/57/61. I, II, III.
- Ränk, G. *Från mjölk till ost*. 1966.
- Schönfeldt, E.D. *Der isländische Bauernhof und sein Betrieb zur Sagazeit*. 1902.
- Ström, H. *Physisk og oekonomisk Beskrivelse over Fogderiet Sönd-Mör*. 1762. I.
- Svabo, J.Chr. *Indberetninger fra en Reise i Faerøe 1781 og 1782*. 1859.
- Tandberg, G. & Ødegaard, N. *Haandbog for Landmaend*. 1880.
- Wagner, M.L. *Das ländliche Leben Sardiniers*. 1921.