

Exotic Type And Horn Form In The Dutch Landrace Goat



Raymond Werner, August 2008

Exotic Type And Horn Form In The Dutch Landrace Goat

Raymond Werner, August 2008

Summary

It has been firmly established that the Dutch landrace goat belongs to the Northern breed Group, being a Cold weather animal whose origin is rooted in the first phase of nomadic pastoralism towards the end of the Ice Age.

The breed divides into several sub-groups, including one that is typical of the Northern Breed Group mentioned above, and another that, although also typically Cold Weather in appearance, has more of the breed type or “jizz” of the Pashmina Down breed groups of Asia (Central Asian Pashmina Down Breed Group and the Western Himalayan Pashmina Down Breed Group- see appendix 2)

Seven horn forms have been identified in the breed to date. Three of these are typical of both the Northern Breed Group and the goats of Central Europe generally (dorcas, scimitar and moderate twist). Four are not (dorcas type with an incipient corkscrew, incipient corkscrew, Ammon-horn and straight-horned with a marginal twist), and may be thought of in terms of being ‘exotic’. They are characterised by twisting that forms an incipient spiral, and are thus related to corkscrew horns.

Although a number of breed groups from the Mediterranean Basin, North and West Africa and the Middle East have horns with an incipient spiralling or corkscrew, only other Cold Weather breed groups have horns that are of the same basic type as those under discussion.

The breed was reviewed historically by way of old paintings and drawings, and it was established that these exotic horn forms were present in the breed prior to attempts to save a remnant in the late 1950’s. This ruled out the possibility that the cashmere element was introduced only when the last surviving goats were in two zoos.

The herd book was then perused to establish the type of the last two pure-bred Old Dutch goats. These were found to have been of distinctly Cold Weather type, to have had two types of exotic horn form, and to have bred a third type of exotic horn. It was thus concluded that the exotic horn type was present in the earliest days of the breeding programme.

The next question related to whether or not the last surviving Dutch Landrace goats were not only typical of the breed, but also typified the possibility that it had been mongrelized at some time in the past. This would suggest that the Old Dutch goat had been mongrelized by foreign imports during a colonial phase. This could not be ruled out, there being no evidence one way or the other.

However, yet another exotic horn form was identified, this being found in the Norwegian billy that was introduced into the breeding programme. We now had a situation in which both the Dutch Landrace and Norwegian Landrace breeds may exhibit an exotic horn form. This tended to rule out the possibility that the Old Dutch goat had been mongrelized with foreign

goat stock in the past, and the investigation became one of trying to establish why breeds belonging to the Northern breed group in the Netherlands and Scandinavia may have exotic horn forms whilst those further west, and more specifically the British Primitive Goat, do not.

The answer had to lie within the scope of people movement and migration within Europe, and one group of grassland nomads, the Battle-Axe people fitted the necessary criteria.

The battle-Axe people introduced goats into Europe that had a similar horn form to those seen in the Dutch Landrace breed. Their migrations took them across the North European Plain, into Scandinavia by way of Sweden and Denmark, and west as far as the Netherlands and the Rhine. They did not reach the British Isles. If we attempt to link horn form with historical migration patterns, the Battle-Axe people are thus the prime candidates for introducing the exotic horn forms in question into some breeds of the Northern Breed Group but not into others.

There are wider implications if this be the case, and namely that the eastern and western types of the Cold Weather goat may have a more complex history and relationship than has previously been thought.

Introduction

More than one 'type' of goat has been identified in the Dutch Landrace breed. Aside of the typical characteristics of the Northern Breed group (elsewhere called the 'Nordic type'), there is some evidence of Swiss influence and what may be summarized as the "jizz" of a "cashmere" type. By jizz, we mean the overall feel and look, affecting conformation, style of the head, coat and horns.

Most compellingly, there are differences in the form of the horns in Dutch Landrace goats that are not found in the British Primitive breed. These horn forms are quite exotic and otherwise not known in European goats generally. By way of elimination, we can link these to other Cold Weather breed groups world-wide, which brings us back to the 'cashmere' type'.

In this study we will therefore attempt to define horn type generally and horn forms found in the Dutch Landrace goat more particularly; explore several theories as to how either the old Dutch goat or the remnant stock of the old breed only acquired such exotic horns; and theorize as to why such horn forms are found in the Dutch Landrace but not in the British Primitive goat.

Lastly, we will review the implications for further breeding programmes.

Defining horn form by defining horn growth

The shape of the horn in goats may be interpreted as the result of the interaction between (a) variable growth rates and (b) positioning in relation to the skull (plane of the forehead). Here, it is suggested that there are 7 elements to this, each with varying degrees of tension in terms of the strength or weakness of their growth in relation to the other elements.

1. Growth away from the skull on a single plane, and without any tendency to curve on its axis or twist away from its axis in either direction. Such a horn would be a simple cone.

2. A tendency to curve on its axis with varying degrees of growth rate, so that the horn may form a weak curve through to a semi-circle. The term 'scimitar' is often used to describe one variant of this, along with 'recurved' or 'sabre'.
3. A variable angle of emergence, as measured in relation to the plane of the forehead. This varies between high and low. Examples of variable angles of horn emergence are shown in illustration 12. The low angle of emergence shown at the top is typical of Mediterranean goats, whereas the high angle of emergence shown centre will typify goat breeds of the Alpine and Northern Breed Groups.
4. A tendency to turn or curve away from the horn's axis so that there is an insipient spiral without a noticeable twisting.
5. Twisting around the horn's axis in varying degrees, and dependent upon the growth rate in relation to 1 and 2. Horns of this type may twist into an open spiral or form a tight corkscrew if this growth is very fast.
6. The direction of the diverging or twisting mentioned in 4 and 5 in relation to the anterior-posterior axis of the body. If the left horn twists clockwise, then the horns are termed homonymous. If the left horn twists anticlockwise, the horns are termed heteronymous or perverted. The horns of the Markhor are heteronymous, whereas those of most twisted-horned domestic goats are homonymous. A simpler way of defining these horn types is to picture homonymous horns as turning or twisting away from the anterior-posterior axis of the body, whereas heteronymous horns turn or twist towards it.
7. The degree to which the horns diverge away from the skull or remain largely in parallel (see illustrations 9 and 25)

A strong upward growth with no tendency to turn away from its axis is hardly known in goats, wild or domestic, but the strength of its growth away from the skull helps to define elements 2, 4 and 5. The goat pictured second from the right in illustration 28 has horns with strong straight growth and both a weak tendency to curve on its axis (2) and twist away from its axis in a heteronymous fashion (5).

The classic scimitar horn is 1 in tension with 2, the strength of the growth of either defining the degree of curvature. Even so, the classic scimitar is quite rare, as there is usually an element of 4 involved, this dictating the direction of the final third of the horn away from its axis in either direction.

A classic corkscrew, sometimes termed an 'ordinary screw' by way of reference to a screw in 'screws and nails', is a straight cone (1) with very tight twisting around its axis (5).

A strong tendency to grow in a semi-circle (2), with an equally strong tendency to turn away from the horn's axis (4) in a very tight twist (5) will produce a horn that closely resembles those of wild sheep, and in particular the Ammon horn.

And so it goes on. It will be readily seen that the 7 elements, acting in varying degrees of tension through their strengths and weaknesses (growth rates in relation to each other) will produce infinite subtle and overt degrees of differences in horn form and type. Consequently, some recognised horn forms, such as 'dorcac', 'corkscrew' and 'scimitar', are merely expressions of a wider range of variation, with some forms merging into each other along a cline.

Horn form in the Dutch Landrace Goat

By way of visiting several shows and the homes of breeders of Dutch Landrace goats, perusing old photographs of the breed making a study of the Herd Book, 7 horn types have been identified in the Dutch landrace breed to date. These are:

1. Ammon horn
2. Dorcas horn
3. Scimitar
4. A moderate twist
5. A dorcas type horn with an incipient corkscrew
6. Incipient corkscrew
7. Straight-horned with marginal twisting

Defining horn forms that are relevant to the Dutch Landrace Goat

Ammon horn. This form is called ammon horn by the present writer because its shape replicates the horn form of the Argali Wild sheep, type sub-species *Ovis ammon ammon*, from the Altai Mountain range.

The horns form a more or less complete circle (illustrations 1 and 2). They rise steeply from the forehead (a high angle of emergence), and are close together initially. They then curve nearly in a circle, diverging away from their axis so as to be spirally wound. The latter growth is horizontally forwards, the tips twisting upwards and outwards at almost a right angle to the body, but angled upwards with the posterior side almost being horizontal again. This horn form is homonymous.

Ammon horn is most sheep-like and not typical of European goats generally.

Scimitar. This horn form is typical of the Wild Goat (illustration 29). What isn't generally realised, however, is that there is a natural cline in the wild species between a tendency for the horns to turn outwards through to turning inwards as one follows the sub-species from west to east. That the Wild goat of the Greek archipelago had horns with a tendency to grow horizontally outwards in an open spiral has been well-argued. Thus, The wild goat of Andimilos (*Eremomilos*) in the Cyclades, the wild status of which has been argued, but which may have retained a proportion of wild breeding even so, has horns with a slight outward turn at their tips. Also, the wild goat of Joura, in the Northern Sporades, has what is termed 'dorcas' horns. This goat has been designated feral, although its real status may well be much more complicated than that. Moving westwards, the typical sub-species, *Capra hircus aegagrus* (the Caucasus and Asia Minor to Baluchistan and the Sind) has horns with tips that are slightly convergent (illustration 29), whilst the sub-species *Capra hircus blythi* (Turkmenia, western Sind and Baluchistan) has horns that are more closely approximated at the tips that those of *aegagrus*, and with a tendency to be slightly heteronymous (illustration 32). In the east of the range of the Wild Goat there is a sub-species, *Capra hircus chialtanensis*, with horns that form an open, heteronymous spiral of rather more than one complete turn (illustration 33). Due to its horn characteristics, this sub-species was long considered to have been a sub-species of the Markhor, but has now been shown to be a genuine Wild Goat. Throughout the range of the Wild Goat, there are intermediate types between the extremes, and in some areas more than one variation is to be found. Thus, in the Caucasus, *Capra*

hircus aegagrus may have horns with either slightly convergent tips or horns with a distinctly homogenous twist in the upper third (illustrations shown as 30 and 31).

Scimitar horns are not uncommon in the Northern breed Group (illustration 6, showing a Welsh goat, illustration 27 showing a Bagot goat, and illustration 7 showing a Norwegian goat). There may be a tendency, in this horn form for the growth away from the skull to be stronger than the tendency to curve on its axis, producing a horn variation as seen in the Scottish goat (illustration 9, right).

The degree to which the horns may diverge away from each other is variable.

Dorcas. The dorcas horn form was first identified in the Jura goat (illustration 23). It has already been discussed in the section on scimitar horns. It is common in the Northern Breed Group (illustration 24, a Scottish goat), as well as in the Alpine Breed Group (illustration 34, a Saanen goat). It may also be considered to be typical of the Dutch Landrace goat.

In this horn form the horns rise vertically from the forehead, close together, with a high angle of emergence. There is little divergence in the initial growth. They then twist and diverge outwards, at right angles to the body, and in such a way that this horizontal growth does not drop below the plane of the forehead. The degree of this outward twisting is variable, with the posterior side sometimes lying horizontally downwards, alternatively lying vertically forwards. The tips are turned between a little to nearly vertically upwards, but are never uppermost. This is a defining characteristic of this horn form. Thus, the anterior side of the horn spirals horizontally outwards, lying between horizontally and vertically to the rear, with the tips lying posteriorly vertical.

A feature of this horn form is the little-known fact that the horn core is virtually untwisted, and thus resembles that of the scimitar horn form (illustrations comprising 20). This means that it is virtually impossible to distinguish a scimitar horn from a dorcas horn by the core alone, and has led to the erroneous belief that twisted-horned goats came late into Europe. Of equal importance is the fact that the dorcas and scimitar horn forms are closely related, being little more than a cline that was demonstrated when the variables of horn type were discussed under the heading of the Scimitar horn form.

Moderate twist. It has already been established that there is a scimitar-dorcas cline, which implies that there will be many intermediate types. The term 'moderate twist' has therefore been adopted by the present writer to accommodate the centre ground of this cline. An alternative term would be scimitar-dorcas. As a general principle, the degree to which the latter growth of the horn is inclined to diverge away from its axis is in keeping with the degree to which there is a tendency for it to twist rather than curve, and ultimately the strength of the twisting. This will be evident by following the sequence of illustrations from 25 and 27 through 5 and 26 to 8. Thus 27 more closely approximates to a scimitar horn, whereas 8 is more closely aligned to a dorcas one. One variable is the degree to which the horn grows upwards before beginning to diverge. As a visual presentation, nearly two-thirds of the dorcas horn of the Saanen (34) is horizontal, whereas the horizontal growth of the moderately-twisted Scottish feral goat's horn (8) accounts for only a third. Their shapes are basically similar, but the horns of the Saanen twist earlier and therefore more markedly.

Dorcas in type with an incipient corkscrew. In this form, the horn replicates a dorcas horn in general growth, but the twisting is more marked so that the posterior side may be uppermost at the tip (illustration 4, compared to a dorcas horn shown as 3). It appears to be closely

related to the dorcas horn, at least visually, in every respect, but the overall appearance is more 'exotic' as it is becoming an incipient corkscrew. This type of horn has not been associated with Central and northern European goats in general and the Northern breed group in particular.

Incipient corkscrew. This is the most puzzling of the horn forms seen in the Dutch Landrace goat, and appears to be associated with an overall 'cashmere' "jizz", as exemplified by the male shown in illustration 10, and the female in illustration 11.

In this form, the angle of emergence is high initially, but quickly twists outwards and to the rear, the tips curving outwards and upwards and forwards. In some cases the posterior side of the horn is vertically to the rear. In this form, the females may have horns that are as markedly twisted as those of the males (11). This is important, as horns in females of the Northern Breed Group are generally much weaker than those of the males and tend not to show a notable degree of twisting (illustration 34). One feature of this type is that it does not have a straight axis in its initial growth.

As with the dorcas horn with an incipient corkscrew type, this horn form is not associated with European goats generally and the Northern Breed Group in particular.

Straight horn with a marginal twist. In this horn form the growth is very close together at the base, rises steeply for about two-thirds of its length, and then diverges outwards and a little backwards with the tips almost horizontally downwards. Again this horn form is not European in type, but resembles goats belonging to the Central Asian Pashmina Down Breed group.

The significance of the seven horn forms found in the Dutch Landrace Goat

Of the seven, only three- the dorcas, scimitar and moderate twist- are typical of the Northern breed Group and the goats of Central Europe generally. The other four all have characteristics that may be considered 'exotic' in our context, but which emulate other breed groups world-wide. What joins the four together is their tendency towards forming an open spiral through to a corkscrew, and we need now to review the breed groups in which these characteristics are found.

A review of breed groups in which there is a tendency for the horns to twist into a corkscrew or open spiral

A number of breed groups, associated with the Mediterranean region, South-East Europe, West and North Africa and the Middle East and Central Asia, have horns of the general type under discussion. There are vital differences, however,

In both the Balkans Breed Group and the goats of the Mediterranean basin, the horns tend to have a low angle of emergence. The initial growth is foreshortened, and the horns twist outwards and downwards. Generally they are strongly twisted into an open spiral, with indications of an incipient corkscrew. There are goats in India of similar scrubland breed type to Mediterranean goats that have similar horns, i.e. the Ganjam.

In the Middle East, the Syrian and Damascus breed groups have horns with a low angle of emergence and their initial growth foreshortened. They twist downwards and outwards, having a tighter and straighter spiral winding. The tips face either downwards or upwards.

In West Africa, goats like the Congo Dwarf have horns with a low angle of emergence that form a tight spiral into an incipient corkscrew.

The Central Asian Course-haired Breed group has horns with a lower angle of emergence, again foreshortened in their horizontal growth, and which turn downwards with more significant twisting.

The vital differences between horns in the foregoing breed groups and the 'exotic' horn forms of the Dutch Landrace goat are the low angle of emergence, significantly meaning that the horizontal growth drops below the plane of the forehead, and the intensity of twisting. Overall, and as a generalization, their horns more closely resemble those of the Angora (illustration 13) with often a greater tendency to corkscrew or diverge either away or downwards from the head.

Mediterranean goats and the breed groups of the Middle East (Syrian and Damascus) also have little in common with the Dutch Landrace goat in relation to conformation and both ear and coat type; whereas the Central Asian Course-haired and Balkans breed groups do in this respect, both being 'Cold Weather' goats in origin.

At best, we could argue that goats belonging to any of the foregoing breed groups may have had some input into the Dutch landrace historically, and thus influenced horn development in certain strains. It is possible, therefore, that the Netherlands, as with the British Isles, imported goats of exotic breed type during the earlier phase of their colonial expansion, and that these had some influence on their "native" goat stock. If this were the case, then the last of the breed, saved from extinction in the late 1950's, would have contained an element of this 'mongrelisation' of a former period. We will call this, the first of our theories regarding the origin of the exotic element in Dutch Landrace goats, the colonial importation period theory.

A second, but related, theory would be that during the phase when a search for goats of similar type to the remnant breed was underway to expand the breeding programme, a goat or goats of another breed type, say pygmy, was introduced. This would assume that the last of the Dutch Landrace goats were in fact purebred, but that the exotic horn types were introduced as breeding progressed. We will call this the later introduction of exotic horn type theory. This theory first suggested itself when it was noted that goat 28 in the herd book (shown as goat 12 in appendix 1) was remarkably like a pygmy goat.

We have yet to touch upon one breed group, however, that not only has horns of similar type to the exotic element in the Dutch landrace, but is also comparable in conformation and coat type, this being the Central Asian Pashmina Down Breed Group. Breeds in this breed group include the Mongolian, Tibetan, Changa and Altai Mountain, and embrace what we classically think of as a 'cashmere' goat. It has already been mentioned that certain strains of Dutch Landrace goats have an overall 'cashmere' jizz, and that the exotic horn form in the Dutch breed parallels that of the Central Asian Pashmina Down. These two factors would suggest that we need to take a cashmere connection seriously. We know that cashmere goats were introduced into Europe at various times in the past. For example, as early as 1819 a herd of nearly 400 head was brought into France. Some of this importation was introduced into England, where they remain today at Whipsnade Zoo and as feral stock on the Great Orme, Llandudno, North Wales. It is possible, therefore, that a cashmere strain was introduced into the Dutch landrace goat as some stage in its history, and that this was present in the remnant of the breed. Alternatively, we will have to discount the possibility that cashmere breeding

came in during the 'zoo phase' of the history of the resuscitation of the breed. We thus have a general cashmere origin theory.

In summary, there are three theories to consider. In essence, they divide between the length of time that exotic horn features may have been present in the breed. If an exotic horn form is historical, then we need to take seriously the possibility that mongrelisation has taken place in the past between the original breed and imported stock. This happened in England, where the original landrace breed- the British Primitive goat- was mongrelized with imported goat stock from the Mediterranean, Middle East and India, this newly emergent breed then being considered the original and landrace one from the late nineteenth century until quite recently. If, on the other hand, it dates from the time of the saving of a remnant of the breed in the late 1950's and early 1960's, then its introduction was somehow mixed up with the efforts to save the breed, and is therefore quite recent.

Two lines of investigation will help us with our quest: the herd book and old illustrations and paintings of the breed.

The Herd Book

By 1958 the Dutch Landrace breed was all but extinct due to crossings with imported Saanen, Toggenburg, and German Improved White goats from around the turn of the twentieth century. There are two versions of how the breed was saved, the first being that the present population is descended from only five old Dutch goats that were preserved in the zoological gardens in Rotterdam and Emmen, the second that the breed was down to the last two specimens in 1958, but that these along with 'highly similar' animals found in rural areas were used in a breeding programme to resuscitate the breed. This second version would seem to be the one that is taken the more seriously by present day breeders in the Netherlands.

The first 8 goats entered in the herd book were males. Four were of unknown pedigree (1, 2, 6 and 8) and 4 were bred from these (3, 4, and 5 out of 2; and 7 out of 6). If we then consider the first 45 goats recorded in the herd book, for reasons that will become apparent later, we find that 8 females of unknown pedigree were recorded (10, 11, 13, 14, 27, 28, 29, and 30). Two other females were out of female 30, but sired by an unknown male. Moving on to consider the first 100 goats entered, we find that one new male of unknown pedigree, number 89, was entered, and two female twins bred from female 45 had an unknown sire. All the rest were bred from herd book animals. For pictures of the first 10 goats entered in the herd book, see appendix 1.

The herd book was therefore based upon 4 males and 8 females of unknown ancestry (within the first 30 goats entered in the herd book) following which one new male and two sets of twins with a herd book dam and unknown sire were entered within the first 100 entries. We will now try to work out which of these were the last 2 purebred Dutch Landrace goats, a male and a female.

The first 4 males of unknown pedigree, and thus the potential foundation stock of a newly invigorated breed, are very interesting. Number 1 had moderately twisted horns, a long face, pricked ears and a thick and long coat, his beard merging into his chest hair. It may be said that he fitted the pattern of a landrace goat. Interestingly, he wasn't used in the breeding programme. Number 2 was white with an impressive coat, ammon-horned, dished faced and small-eared. He fitted the general pattern of a Cold Weather goat, and his horns were exotic.

Number 6 was somewhat like number 1, with curling horns that were only moderately twisted, a longish face and long coat. His ears, at least in the photograph, are quite small but turned forwards. Again, he fits the pattern of a landrace goat in the context of saving the breed. The last goat, number 8, is what is generally known as 'the Toggenburg'. He had moderately twisted horns and a long coat. His 'toggenburgness' is amply testified to by the appearance of his first recorded offspring, entered as number 9 in the herd book. In all respects she is a Swiss goat.

As has been mentioned, number 1 wasn't used, although number 2 was important to the breeding programme. He sired 17 kids out of 11 females (10, 11, 16, 17, 18, 27, 28, 29, 30, 31, and 32), including 3 sets of twins. He was the grandsire of a male kid (45) and the grandsire of 3 female kids (18, 39 and 16). He was also the great-grandsire of female twins (31 and 32). Six of the 11 females bred with him were of unknown pedigree.

Male 6 sired 9 kids out of 9 females (13, 28, 29, 30, 31 and 32). Four of the latter were of unknown pedigree. He was also the grandsire of one male (40) and 2 females (9 and 17).

Male 8, the 'Toggenburg', sired 4 kids out of 3 females (10, 12 and 15) including one set of twins. He was also the grand-sire of one male (42) and 2 females (43 and 44).

It would seem likely, therefore, that male 2 was the last purebred billy of the breed, at least judging by its extensive use in the initial stages of the breeding programme. But what of the last female landrace goat? Candidates are likely to have been females entered as numbers 10, 11, 13 or 14. The last 3 are not by any means exotic, although number 10 is highly intriguing. She would appear to be a female counterpart of male 2, having a long dished face, small pricked ears and a longish coat, along with the general confirmation of a Cold Weather animal. What is of the greatest interest, however, is her right horn. This appears to twist inwards, which is characteristic of the heteronymous horn form. Heteronymous horns are not found in European goats, but are a common in the cashmere breeds (illustration 21). One may argue that the photographic negative may have been reversed, meaning that the right horn was, in real life, the left. This does not alter the outcome, even so, as the left horn would still be heteronymous and remain a feature of Cashmere, and not European, goat stock.

The breeding programme involving females 10, 11, 13 and 14 are of particular interest. Female 10 produced 4 herd book kids, being put to male 2, the Toggenburg, and male 45, which was her own son out of male 2. This would suggest an attempt to maximise breeding based upon 2 and 10, as well as to maximise landrace breeding when using the Toggenburg sire. Female 11 had 2 kids, both by male 2. Female 13 had 2 kids, one sired by male 6, the landrace type and unpedigreed male, and male 5, out of female 10, sired by male 2. Female 14 wasn't used. Of the 11 kids produced by these 4 females, 4 were sired by male 2, 3 by the sons of male 2, and one by the grandson of male 2. Female 10 was therefore not only the dam of 4 of these kids, but the grand-dam of 2 more and the great-grand-dam of yet another. It is therefore possible that female 10 is the second purebred landrace goat mentioned in the literature.

Following the lines of goats 2 and 10 in the early years of the herd book, we now come to the reason why it is thought that information on the first 45 goats registered is highly significant. Male 45 has large horns of dorcas type with an incipient corkscrew (illustration 4 as the type, with a picture of male 45 shown as photograph 11 in appendix 1). His pedigree, as already noted, is that his sire was 5, out of 2 by 10, and his dam was 12, out of 11 by 2 again. His breeding was therefore one male of unknown pedigree (2) and 2 females of unknown pedigree (10 and 11). Within these 3 goats lay the potential to produce the dorcas with incipient corkscrew horn

form seen later in the Dutch Landrace goat. It is fascinating that male 2 had ammon horns and female 10 horns suggestive of a heteronymous corkscrew. Thus, we need look no further afield for the ammon horn and dorcas horn with an incipient corkscrew: it resided in the second male and first female registered in the herd book, and may well have been associated with the last 2 Dutch landrace goats.

We now return to our 3 theories. Males 2 and 3 (See appendix 1) are of exactly the same type as their sire, male 2, which consolidates the idea that female 10 and possibly female 11, along with male 2, were of a distinct type. The question is what? Overall, they are Cold Weather goats that fit the overall type of the Northern Breed Group, but with horns that are not typical of European goats. If we assume that goats 2 and 10 were in fact the animals believed to have been the last known specimens of the Dutch landrace breed, their horn forms would suggest one of the following:

This is exactly what they were, i.e. purebred Dutch Landrace goats, demonstrating that the exotic horn forms being discussed were to be found in the breed historically. This would support the idea that the breed had been mongrelized to some extent with imported stock in the past (the colonial importation theory).

Exotic horn forms in the breed could not have been introduced in the early stages of the breeding programme by way of using a goat/goats of foreign breed type, i.e. pygmy or cashmere, as the horn forms under discussion already resided in the foundation stock. This would invalidate the later introduction of exotic horn type theory.

If the foundation goats 2 and 10 were already in the zoo when they were discovered to be 'Dutch Landrace', then they may have actually been Cashmere goats or of largely cashmere breeding, and not Dutch Landrace goats at all.

Our three initial theories have therefore been revised to two. Either the exotic horn forms in the foundation stock was due to the goats being primarily landrace with an exotic input historically, or the goats were of Cashmere type rather than landrace, and were confused with the old Dutch breed.

With this in mind, is there any other line of enquiry that may be of use in determining which is the most likely explanation? Two have come to light. The first is evidence that exotic horn forms were a feature of the breed in old paintings and sketches, one old drawing known to the present writer appearing to show a male with heteronymous horns. This appears on page 85 and the back cover of the Landelijke Fokkerclub Nederlandse Landgeit, 1982-2007. It also appears as the front cover illustration to this study. Other old paintings and drawings appear to show the artist's attempt to depict horns that are twisted in a way uncharacteristic of European goats. The second is the intriguing story of the Norwegian feral male that was imported into the Netherlands.

Evidence of an exotic horn form in the Norwegian Goat

A Norwegian goat was introduced into the Dutch landrace breeding programme, and although now dead, photographs of this animal, along with its mounted head, have been studied by the present writer. Its horn form is most intriguing (illustration 15) resembling that found in the Cashmere goat (illustrations 16 and 17) but not in goats of European origin. In type, the horns are initially scimitar and grow in a semi-circle, but begin to twist outwards

on the downward curve with the tips curving upwards in such a way that the posterior side is uppermost. In this last respect they resemble the horns designated dorcas with an incipient corkscrew by the present writer.

What does this mean? If we take the fact that exotic horn forms were found historically in the Old Dutch goat, the suggestion that something similar is still evident in the Norwegian breed would seem to indicate that we are not simply dealing with mongrelisation by way of importation over time. What is intriguing is that there is absolutely no evidence of similar horn forms in the British Primitive goat breed, which would suggest that as far as the Northern Breed Group is concerned, the phenomena is confined to the Netherlands and Scandinavia in terms of our present understanding.

Is there then another way of explaining why goats belonging to the Northern Breed Group might have exotic horn forms in one part of their traditional range but not in another? And might it be relevant that this unEuropean characteristic did not reach its western periphery? The answer to both questions is yes, and relates to the Battle Axe people.

The battle axe people and the introduction of a new breed of goat into Europe

To the present writer's knowledge, it has not hitherto been suggested that the Battle Axe people may have been an important component in the introduction and spread of livestock breeds into Europe during the Neolithic. This is strange, as some researchers are still puzzling as to how, in terms of route and by whose hand, at least some of our twisted-horned goats got here. More pertinent to this discussion, they may in fact hold the key to why there are non-European horn characteristics in some landrace goats belonging to the Northern Breed Group. The Battle Axe people made their appearance in Europe with battle axes that may more accurately be described as tomahawks', grave mounds that archaeologists now call long barrows, Indo-European speech, small dark cattle, horses, wagons and chariots.

Their homeland was the vast and rolling grasslands between the Caucasus Mountains and the Black and Caspian seas. Their migrations, which began around 4,000 years ago, took them southwards into the Middle East, eastwards as far as India and central Asia, northwards towards the Taiga, and westwards into Europe.

Known also as the Corded people due to the peculiarity of their ceramic style, they had, by the nineteenth century B. C. established themselves as pastoralists in the zone of grassland that ran from the south-east to the north-west of Europe: in other words from the Caucasus to Jutland, the Netherlands and the banks of the Rhine.

In their first phase of migration, small bands of quite forceful migrant travelled long distances, leaving everywhere they went their characteristic weaponry and pottery in the grave mounds they have become famous for.

Although merely thought of as 'grassland warriors' and hard-riding nomads, their move into Europe wasn't as speedy as is often assumed. The horse was still too small and ill-bred to be ridden at speed at this time, although their warrior-driven chariots must have been a daunting sight to a mainly sedentary population.

In reality, the battle-Axe people quietly took over wherever they went, there being no archaeological evidence of massacre or settlement burning. Initially, they would have skirted

around the established settlements as they herded their livestock westwards. In greater numbers, they fused with the existing population and imposed upon them a class system under which they formed the ruler-warrior class. Everywhere they went they left their mark: this generally meaning anything that still exists on the landscape or that can be unearthed from beneath it and exhibited in a museum. But what of their livestock? The evidence of the horse is clear-cut- the Battle-Axe people burying them ceremoniously- that for cattle, sheep and goats being less so. We do, even so, have some idea of what their goats looked like, the Central Asian Course-haired breed group carrying their genes. More important still, a bronze figurine of a goat's head from the Kuban quite accurately portrays the horn form of the battle-Axe goat (illustration 22). It will be seen that the horns on this figurine are twisted, but not in a dorcas or moderately twisted fashion. They have a high angle of emergence and significant initial growth upwards. They then twist outwards and upwards, the tips facing upwards and outwards with the posterior side inwards to the anterior-posterior part of the body. These horns are therefore very similar to the dorcas with an incipient corkscrew horn form, the difference being that what would otherwise be the outward horizontal growth angles upwards. Battle-Axe people therefore kept goats with horns that were similar to those of the dorcas with an incipient corkscrew type, but with an overall shape that replicates incipient corkscrew horns. This aligns them with two horn forms found in the Dutch Landrace goat and an exotic horn form in the Norwegian Landrace goat, whilst otherwise having nothing in common with the Northern breed group or European goats in general.

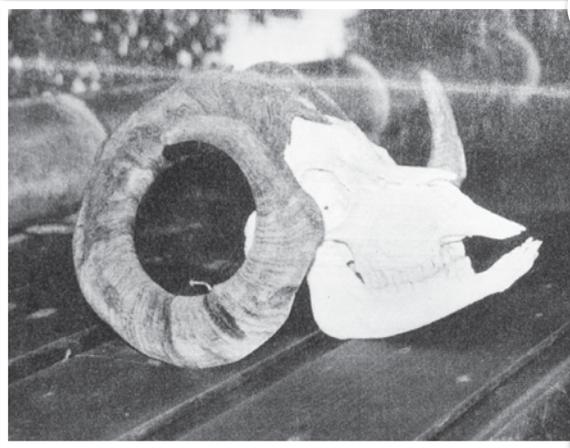
Ultimately, the goats of the Battle-Axe people show an affinity with the Pashmina Down type of Central Asia, and this is the breed of goat that they took across the northern plain of Europe as far as the Rhine and up into Scandinavia.

Of course, we cannot prove the link, and there is, as yet, no evidence of continuity. It could even be argued that even if the Battle-Axe people introduced goats into parts of Northern Europe, the well-defined characteristics of these battle-Axe goats were absorbed into the generality of the late Neolithic goat population without leaving any trace in the present-day population. The fact remains, however, that horns of a type found in the Caucasus, and introduced into Europe around four thousand years ago by the Battle-Axe people, are found today in the Dutch Landrace goat and linked to a horn form in the Norwegian goat.

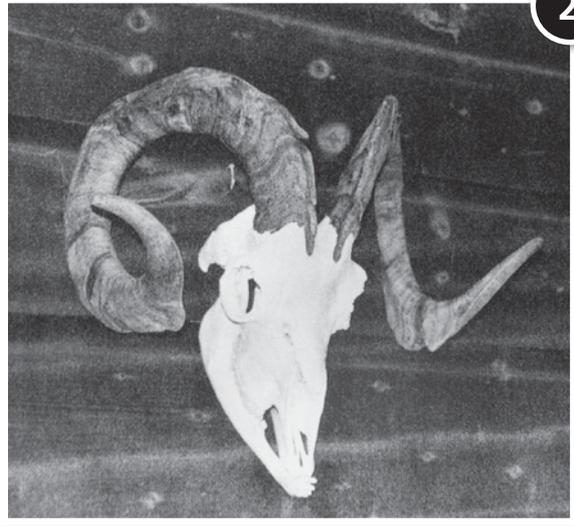
Conclusion and implications

What is thought of as being the last pure-bred Old Dutch goats most certainly were of exotic type and went on to breed others of different, but equally exotic, type. There is evidence that this type was based firmly in the history of the breed as opposed to the attempts to save a remnant of it. Thus, it cannot reasonably be argued that the last of the Old Dutch goats were not landrace goats at all, but something rather exotic that has a history tied up in their domicile in a zoo. This being the case, there are only two explanations that reasonably account for exotic horn form and type in the breed. Either Old Dutch goats were mongrelized with imported stock historically, or the breed has a far more complicated origin and history, and one that would suggest the mingling of the two types of Cold Weather goat (Northern Breed Group and Central Asian Pashmina Down) during the late Neolithic period. The second theory is favoured by the present writer.

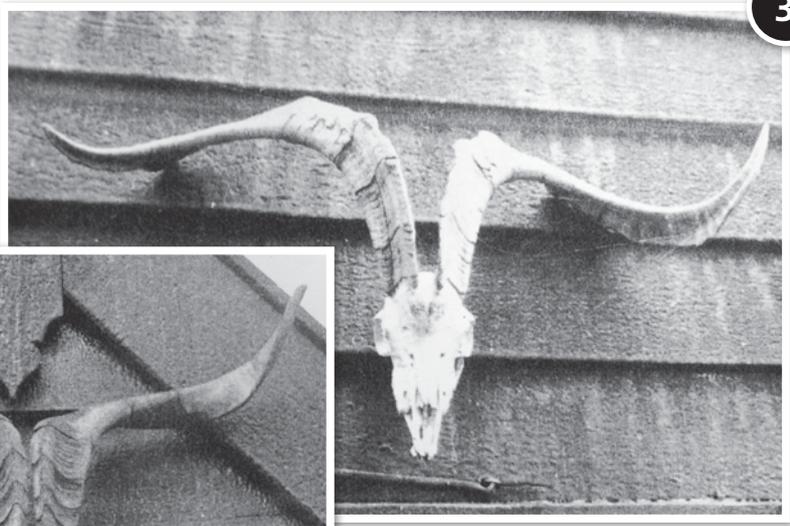
The implications for present breeding programmes are that every effort should be made to preserve this sub-type within the breed as a distinct strain.



1



2



3



4

5



6



7



8



9





10



11

12



13





14

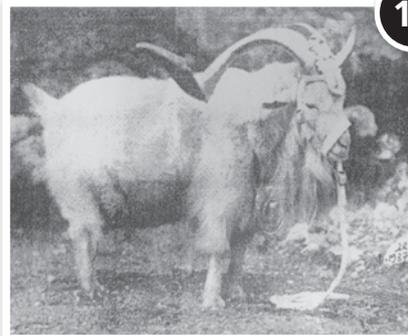
15



16



17





18



19

20



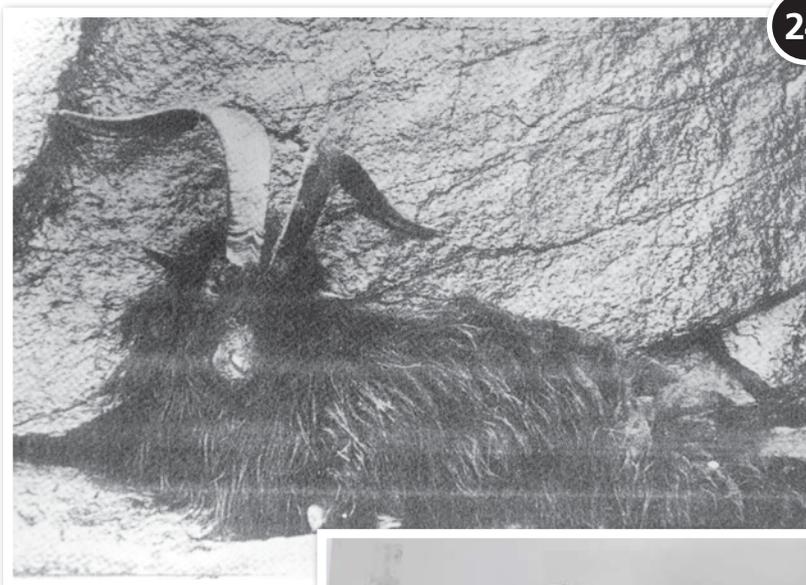
21



22



23



24



25

25



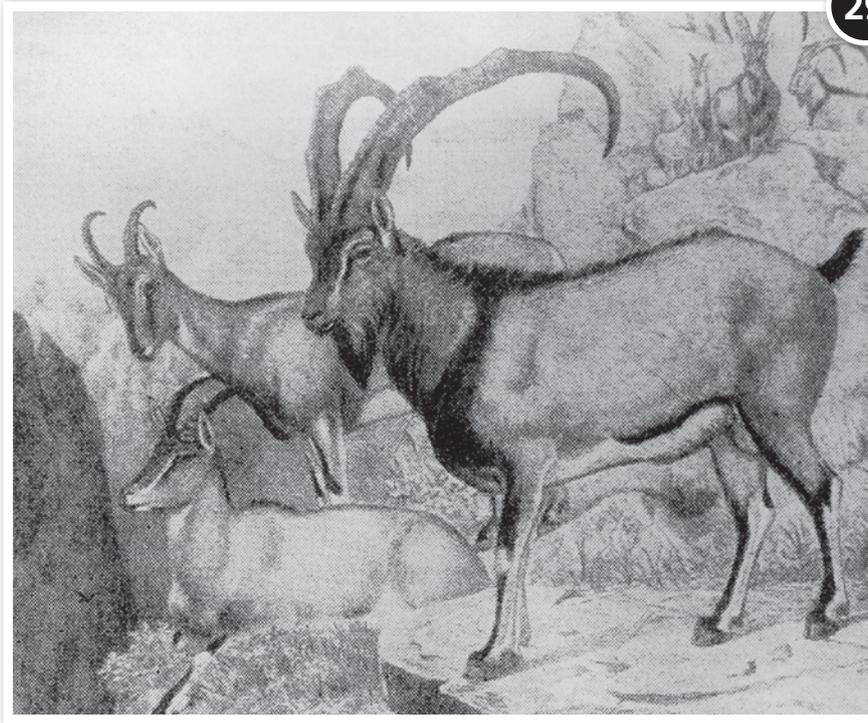
26



27



28



30



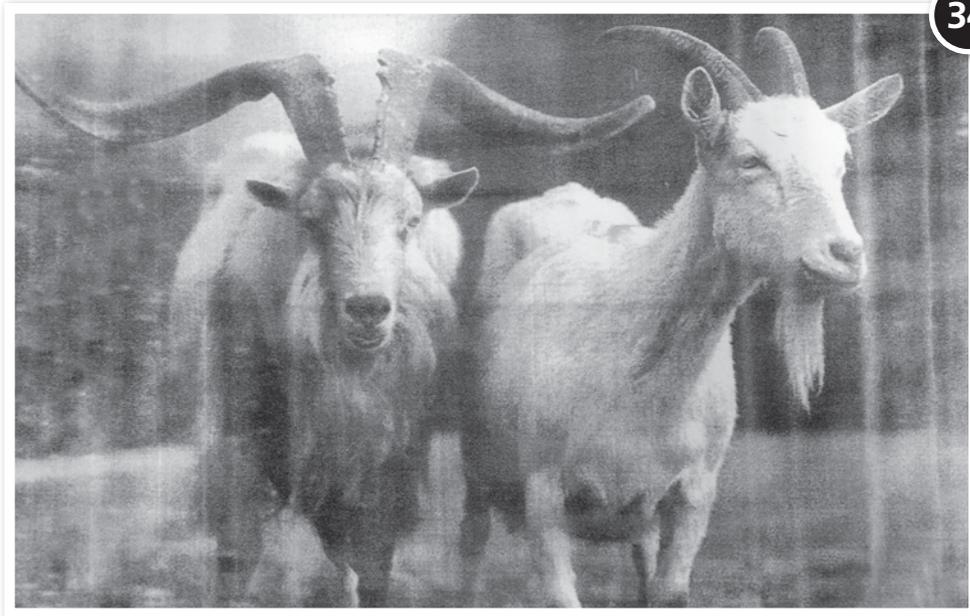
31

32



33





34



35

Appendix 1: Photographs of the first 10 goats entered in the herd book, along with goat number 45 and goat number 28

Number 1: Unknown ancestry. not used in the breeding programme

Number 2: Unknown ancestry. Possibly the last male of the pair that was saved in 1958

Number 3: Male sired by number 2, dam number 11

Number 4: Male sired by number 2, dam number 10

Number 5: Male sired by number 2, dam number 10

Number 6: Unknown ancestry

Number 7: Sired by number 6, dam number 13

Number 8: Unknown ancestry; the “Toggenburg”

Number 9: Sired y number 8, dam number 15

Number 10: Unknown ancestry. Possibly the last female of the pair that was saved in 1958

Number 45: Male sired by number 5, dam number 12

Number 28: Unknown ancestry. Has the look of a pygmy goat

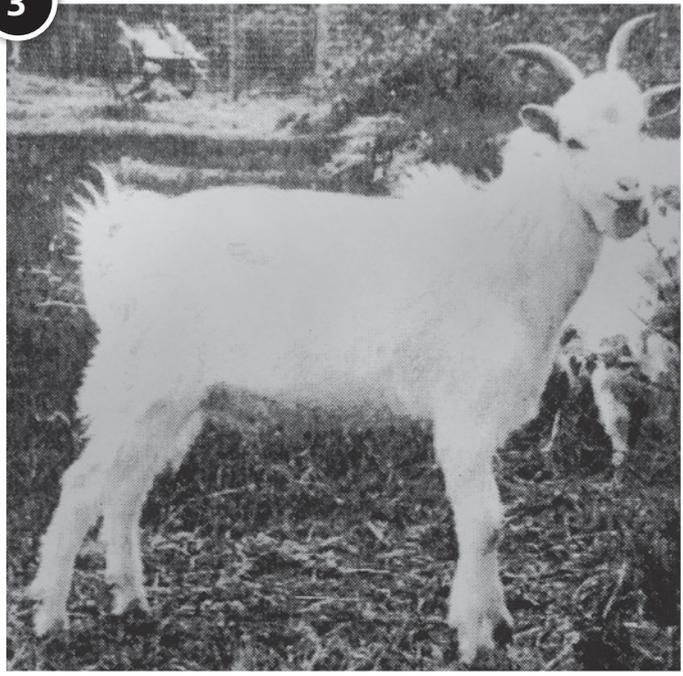
1



2



3



4



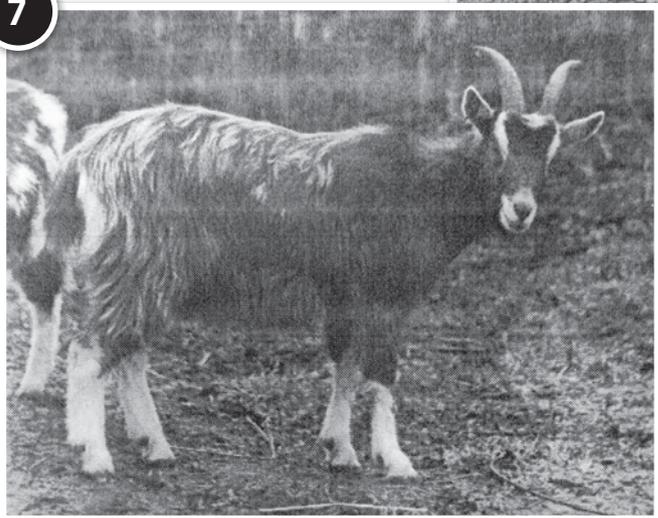
5



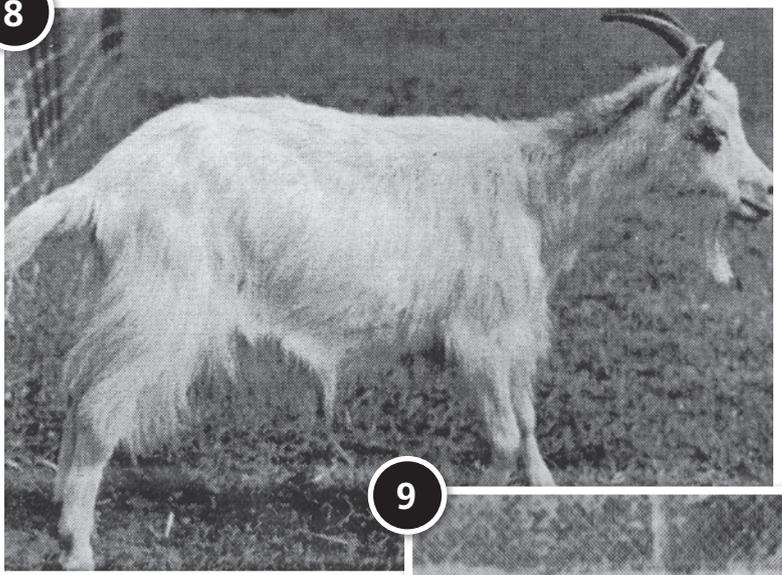
6



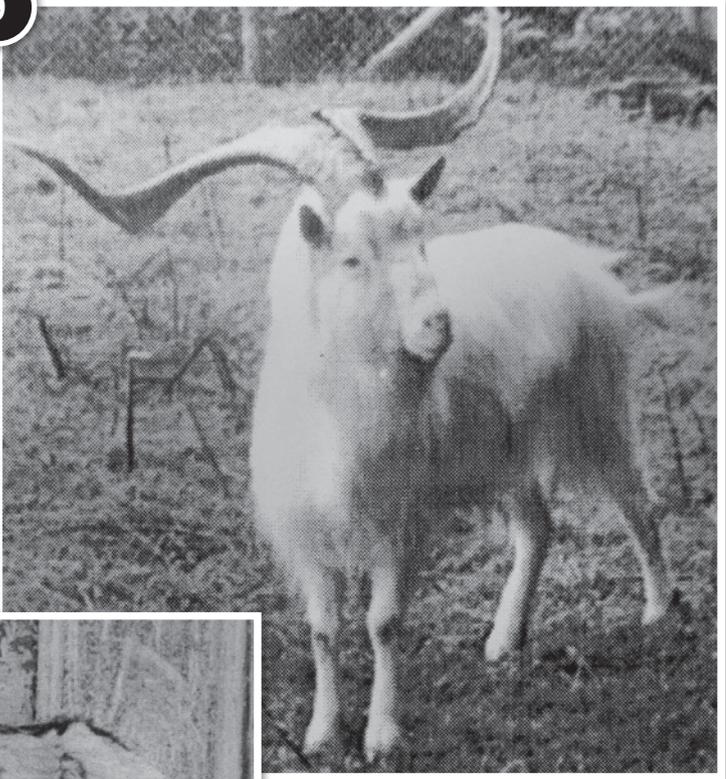
7



8



9



10

