

THE INDIGENOUS LIVESTOCK OF SOUTHERN AFRICA

D J DU TOIT

*Curat oves omniumque magistros
Virgil*



STANDING RAM - National Museum Afghanistan

*1st Century
Gold 5.2 cm x 4 cm*

I had an opportunity to deal with the migration of livestock through Africa to Southern Africa at a Round Table discussion on 24 June 2008 in Paris, France. Dr J. J. Lauvergne of Clamart organised this event and the South African Embassy kindly made available their Conference Room for this meeting.

Before I focus on the migration of livestock to Southern Africa, I would like to refer to the topics discussed at the UN Food and Agriculture Organization's first summit on animal genetic resources, held at Interlaken Switzerland, in September 2007. At this Conference scientists warned that many African and Asian indigenous livestock breeds face a 'meltdown' because of the relentless march of high-yield breeds:

Researchers warned that many of the world's rare species of livestock face extinction unless conservation measures are taken now. They said modern agricultural methods had overlooked the benefits of genetic traits that have evolved in breeds found in developing countries. Drought- or disease-tolerant attributes would become increasingly important to farmers in the future. The developed world has largely adapted the environment to suit high-producing animals. There are barns, optimum diets, health care and vaccinations. You can get high output in a very controlled environment by optimising a lot of the parameters.

They warned that Uganda's indigenous Ankole cattle could become extinct within 20 years because this breed was being displaced by the Holstein-friesian, which was able to produce more milk. They said that some farmers had lost their entire herds during a recent drought because the Friesians were unable to walk long distances to reach the nearest water supply.

Similarly, the Red Masai sheep of East Africa, which developed genetic resistance to a common parasite, have almost disappeared since the introduction of Dorper sheep from South Africa 15 years ago.



Marie-Antoinette's Dairy at
Rambouillet

As a prelude to the Round Table discussion, Dr Lauvergne arranged an excursion to the Rambouillet Estate near Paris. This estate has a long and illustrious history dating from the late 14th century. Louis XVI bought the Estate in 1783 and built a grand dairy for his wife Marie Antoinette and established an experimental sheep farm. Napoleon 1 also had a great love for the Estate and after the revolution carried on in the footsteps of Louis XVI. The castle on the Estate is now one of the presidential residences and is used to host meetings for foreign heads of state. The castle is surrounded by beautiful gardens and parks.

Rambouillet Estate is also home to the famous Rambouillet merino flock at the *Bergerie Nationale* (National Sheep farm). Louis XVI obtained permission from Charles IV of Spain to "import from the celebrated Spanish flocks, a flock of sheep of the finest quality wool". The original flock consisted of 334 ewes and 42 rams. The flock left Segovia in Spain on 15 July 1786 and arrived at Rambouillet on 12 October after a 3-month journey on foot. The original flock consisted of the following families: Perales 58, Perella 50, Paular 48, Negressi 42, Escorial 41, Alcola 37, San Juan 37, Portage 32, Irunda 20 and Salazar 17. Ever

since then, the flock has been kept pure. Breeding has been carefully planned to avoid deleterious inbreeding. The current breeding programme for this breed is based on the principle that “mating must not take place between animals with a common ancestor within the last 4 generations”. In order to adhere to the breeding programme it has not been possible to retain the strains which originally existed and the mating is planned individually. Research into ancestry and the checking of relationships are now computerized.

One can only applaud the flock-masters of Rambouillet for this extraordinary feat in livestock conservation which has been taking place for more than 2 centuries. Rambouillet will host an International Merino Congress in 2010.



An early drawing of the Merinos at Rambouillet

In this presentation I would like to focus on the sheep and goats that migrated down through Africa with their herders, eventually reaching Southern Africa. I will also discuss the influence other imported breeds had on our indigenous livestock.

The Afrikaner Sheep.

By 7 500 years ago cattle were widespread throughout much of the Sahara, which was much greener then. Around 4 500 years ago the Sahara started to dry up and domestic animals started to move south into West and East Africa. These animals and their herders had to adjust to new diseases such as sleeping sickness spread by the tsetse fly and fatal to cattle. There is evidence that sheep were more adaptable than cattle and initially moved faster and further south. Livestock most probably migrated through the tsetse-free corridor running from the grasslands of Southern Tanzania through the highlands of the central part of the continent to northern Botswana and Zimbabwe.

Sheep arrived at the Cape of Good Hope about 2 000 years ago. This is based upon evidence found at an archaeological site known as Kasteelberg, situated on the West Coast about 120 kilometres north of Cape Town and 4 kilometres from the sea. The date was established by radiocarbon dating of bone fossils found at the site. These sheep were herded by the Khoi, an ancient tribe inhabiting the central and south-western parts of the present-day South Africa at that time. It is now generally accepted that the Khoi migrated from Northern Botswana and that they brought their sheep and pottery along as well. We are fortunate that the San, a hunter-gatherer people, co-inhabiting parts of the same area, painted these sheep on the rock faces of their rock shelters in the Cederberg Mountains. From these paintings we can deduce that the Khoi herded a type of fat-tailed sheep.



A San rock painting of sheep herded by the Khoi



This unique drawing provides a look the Khoi and their livestock at the Cape about 300 years ago. This is one the earliest realistic illustrations of the original inhabitants of the Cape and it is prized for its accuracy and vitality. An important and authentic record of life at the Cape, this work makes a major contribution to the knowledge and understanding of the 17th century inhabitants of the Cape of Good Hope.

Artist unknown

with the East. These trading ships desperately needed fresh supplies as they rounded the Cape and they started to barter sheep and cattle from the Khoi. In 1652 the Dutch established a permanent replenishment station at the Cape in order to produce vegetables and livestock. The indigenous fat-tailed sheep at the Cape then became known as the Afrikaner Sheep.

South Africa was the first country outside Europe to obtain Merino sheep, jealously guarded by the Spanish Royal House. In 1789 six Merinos, a gift from Charles IV of Spain to William of Orange (Holland), were sent to the Cape (then under the rule of the Dutch East Indian Company) as they were not thriving in Holland.

Two years later a letter from Holland requested their return as they had been sent to the Cape in error. The commander of the Cape garrison, Colonel Robert Gordon, returned four ewes and two rams. However, by that time there was a flourishing flock of Merino sheep on the State farm at Groenekloof, near Darling. Some of these sheep were also sold to ships on their way to Australia and it was from these sheep that the Australian Merino industry was developed.



The cover of the brochure published at the bi-centenary celebrations of the Merino in South Africa

By crossing the Merino with the Afrikaner sheep, the Van Reenen brothers, farming in the Groenekloof area, rapidly increased numbers, while producing almost pure Merinos.

A prosperous wool industry soon developed and by 1840 wool was the country's most important export commodity. It was later replaced by diamonds and gold, which were discovered in the second half of the 19th century. The merino sheep by the beginning of the 20th century almost totally replaced the indigenous Afrikaner sheep at the Cape. The Merino has therefore played an important role in the South African livestock industry, and continues to do so today.

It is a real pity that the Afrikaner sheep are now on brink of extinction. Many centuries of genetic adaptation will be lost in the process.

The second wave of sheep came with Bantu-speaking farmers and we can identify two breeds namely the Pedi and the Zulu sheep. The Pedi breed can still be found in the Northern Provinces of South Africa especially in the Soutpansberg region and these sheep were herded by the Bapedi tribe. Today the Pedi breed is still to be found in the Northern Provinces of South Africa in relatively small numbers. The Zulu sheep breed is, however, on the brink of extinction and one can only hope the conservation efforts of Kwa-Zulu Natal farmer, Richard Haigh, will save this breed. This breed is adapted to this high rainfall region of South Africa and it can tolerate the parasites endemic to this region.



Afrikaner sheep in the flock of Deon Vlok of Calvinia
Photo: Dawie du Toit

The Damara Sheep Breed:

We can now turn our attention to the third wave of sheep into Southern Africa. In the 19th century missionaries and explorers became aware of the Damara sheep in Northern Namibia, an area known as the “The Koakoveld”, where it was, and still is, one of the main sources of livelihood of the Himba tribe, an Herero-speaking people. The Himba settled in the Kaokoveld during the 15th century with their Sanga cattle, Damara sheep and goats. The Himba have been described as Africa’s most successful pastoralists.

Like its wild progenitor, the Asiatic Mouflon, the Damara has an outer coat of stiff glossy hairs and a short woolly undercoat which only grows in winter. This undercoat is shed in summer.

The Damara over centuries survived a long and perilous migration through Africa and its genes have to a large extent been shaped by *natural selection*. The Damara had to survive for many centuries without veterinary support in a hostile environment and had to adapt to these conditions. It was only in the middle of the 20th century that commercial farmers became aware of the unique characteristics of the Damara. The Damara can therefore thrive in a wide range of environments without expensive support systems. The unique genetic traits of the Damara ensure that it is a most prolific mutton-producing breed.

As result of this process of natural selection, the following outstanding characteristics of the Damara have been researched and reported:

- It is a low-maintenance sheep: no shearing or tailing;
- High resistance to worms, flies and blowflies;
- High tolerance to most sheep diseases and parasites;
- Strong flocking instinct – easy to muster – protection for young lambs within the flock;



A Zulu ewe and her lamb in the flock of Richard Haigh

- Tolerate climatic extremes. A Woollen layer, which protects it in winter, is naturally shed in summer;
- Can survive under poor nutritional conditions, but will flourish under good conditions. It can survive on a limited water supply;
- Feeds in a non-selective manner on a wide variety of grass, bush, shrubs and trees. At the Omatjenne Research Station, Otjiwarongo, Namibia, it was established that the Damara utilizes 60% browsing material and 40% grasses on a monthly basis over a year. The Damara can therefore be used to combat bush encroachment;
- Damara Rams are virile with a strong libido. Ewes have a high fertility rate and long productive life and will on average lamb every eight months. They are very good mothers and protective of their lambs;
- Under extensive conditions and on average a Damara lamb will reach a live weight of 36 kg at between 7 to 9 months;
- Independent scientific research has shown that Damara meat is of an outstanding quality and that the Damara has the best skin for the production of leather of 10 South African sheep breeds tested.
- The average weight of an adult ewe is about 50 to 55 kg and that of an adult ram about 75 to 80 kg.



Damara Ram

Photo Dawie du Toit

It is, however, the *cumulative effect* of all these genetic traits in one breed that makes the Damara one of the world's most valuable sheep breeds. The Damara is only one of the few sheep breeds in Southern Africa, that over millennia walked all the way down Africa with its African pastoralists. The Damara is therefore ideally suited for the harsh South African conditions, and can be farmed both commercially and in a communal set-up.

The future of the Damara is relatively secure because there are a number of dedicated farmers in South Africa and Namibia that farm with Damaras commercially. In recent years some Dorper Sheep breeders started to worry about the fact that this breed has been improved to such an extent that it is no longer adapted to harsh extensive conditions in South Africa and some of them are using the Damara to cross-breed with the Dorper. This new cross breed is called the Meatmaster. One of the requirements of this breed is that it must have a certain percentage of Damara blood in it. There is nothing wrong *per se* with crossbreeding but it is important not to neglect the breed that underpins the new cross-breed. I trust that South African farmers will appreciate the importance of maintaining the Damara as a viable commercial breed.

At the Interlaken Conference, Dr. Chanda Nimbkar warned:

However, very often, crossbreeding has been indiscriminate and the local breeds that underpin the crossbreeding programme have been lost because of a lack of understanding by authorities, companies and/or farmers involved that these pure breeds must be maintained to support the system.

Roger Lundie of New Zealand who has studied and researched the coat colour sheep

for almost 3 decades was so impressed by the coat colour and patterns of the Damara that he paid a visit to South Africa in July 2005. He summarised his impressions of the Damara as follows:

For more than 25 years I have been studying the genetics of coat colour in sheep whilst running my farm. This visit to see the Damara sheep is my first real contact with a hair sheep breed. Within the hair sheep, because of the fibre type, the colouring shows up in a more vivid way as the contrasts between the tan, black and white are more spectacular. This was even more memorable as the breed has not been selected for any particular colour and so there was this wonderful range of colours, patterns and markings to be seen.

Phil Sponenberg a Professor at the Virginia-Maryland Regional College of Veterinary Medicine, in the United States of America also visited South Africa and he made the following interesting observations regarding our indigenous livestock:

A handful of important breeds in South Africa still vary greatly in colour, which stands in stark contrast to most standardized breeds of these three species where a very limited variation is allowed. The Damara Sheep, Nguni Cattle, and the Indigenous Goat all have still retained the variation that characterized them for centuries.

One interesting aspect of the variation in these breeds is the wide range of colours that occurs in each of them. The colour variation in these breeds has several important aspects. One of these is the cultural heritage of these breeds, which have been raised by African stockmen for centuries. Colour variation frequently had a ceremonial and symbolic importance, and can remind the present-day breeders of the traditionally strong ties between stockman and livestock. In addition to the importance of cultural tradition is the current demand for pelts that are tanned with the hair on, for use as rugs, clothing, and home furnishings. Being able to predict and generate specific colours has taken on a new economic aspect as these uses have increased recently. In addition, certain colours or pigmentation patterns (such as pigmented skin beneath white hair) can be helpful in adaptation of animals to harsh conditions of high solar radiation.



A Damara ewe with an attractive pattern

Photo: Dawie du Toit

All three of these factors (tradition, utility, and adaptation) combine to make colour important for breeders of these three breeds, and unravelling the details of colour genetics can be useful to them. Colour genetics is complicated, and has a rich heritage in South Africa. Much of the pivotal pioneering work on sheep-colour genetics, for example, was accomplished by Prof. Nel who worked with South African Karakul sheep in an effort to generate and then standardize colours of pelts for commercial use. Similar work can now prove useful for the three breeds currently under investigation.

Damara sheep vary in base colour, although this usually is red or black. A few rare sheep combine these with both red (tan) and black areas. The white spotting in Damaras is striking, and includes belts, piebald spotting, and several patterns that are typically African. These include the Persian pattern (dark head and white body, but also darker variants such as white along the sides, or a white body and coloured head and legs.

The Turkish pattern is similar, but leaves a white body with coloured eye-patches, ears, nose, feet, and navel. A pattern that may be unique to Damaras is flecking along the belly, lower body, and neck to provide a very dramatic pelt. Various types of roan also occur in the Damara, including one that looks like the animal was in a snow storm, and one that is more flecked and looks like raindrops. The “skilder” pattern puts small round spots into the white areas that are determined by these other pattern genes, and results in striking patterns.

Sponenberg and Lundie suggest that the following well-known colour variations and patterns are present in the Damara:

At the *Extension Locus*: *dominant black and wild*;

At the *Agouti Locus*: *tan; badgerface ;black and tan; grey, swiss markings; eye patch; nonagouti*; and at The *Pigmented Head Locus*: *wild; persian and turkish*.

The mahogany, roan and grey colours in the Damara are also particularly spectacular.

The coat colour of the Damara is therefore important for geneticists because the research done on the coat colour of the Damara can assist them in their understanding of the coat colour of the woolled breeds of the world.

The Persian Sheep are not indigenous to Southern Africa but they most probably originated from Somalia in Africa. The Dorper sheep breed of South Africa was developed out of the Persian and Dorset Horn.

The first Karakul sheep were imported into Namibia in 1907 and this breed dominated the small stock scene in Namibia for most of the 20th century. The best Karakul pelts in the world are presently exported from Namibia.

THE INDIGENOUS GOATS OF SOUTHERN AFRICA

Goats also followed in the wake of sheep to Southern Africa. The following 4 types of goats can be identified in Southern Africa:

The Xhosa Lobbed Ear Goat. This type of goat is found in the Eastern Cape Province of South Africa and is a fairly large framed goat.

The Boer Goat and Kalahari Red Goat were developed out of the Xhosa Lobbed Ear Goat. The Boer goat has been exported to Australia and the US and is now spreading throughout Africa. The Boer Goat is farmed commercially on a large scale in South



A typical indigenous South African goat

Photo: Dawie du Toit

Africa and Namibia. I am, however, of the view that the Boer Goat has been improved too much and as a breed has lost a lot of its adaptive traits and maternal instincts.

The Cape Skilder Goat. They were mainly found in the Northern Cape. The Skilder

Goat is a medium- to large-framed goat with large drooping ears.

The Mbuzi or Nguni Goat. They were mainly found in Natal and the North of Southern Africa. They are generally a smaller-framed goat than the other types of goats. They are also the most numerous group of goats in South Africa.

The Goats of the Himba of Namibia. These goats are medium- to large-framed goats. With their slender legs they are well adapted to the harsh climate of the Kunene region in Namibia.

Dr. Phil Sponenberg also had look at our indigenous goats and he describes their wide range of colours and patterns as follows:

The Indigenous goats reflect their varied background with a wide range of colours. Base colours still include red and black, but in goats it is more common to find dramatic combinations of black and tan areas with striped faces and legs. One important pattern is “moonspots” which are round pale tan spots in kids, but quickly fade to silver. Another pattern is “flowery” which has white flecking on the lower body and neck, and varies from dark to very pale. Roans are also present, if rarely. Another pattern of white resembles the Turkish pattern of sheep, but also includes small coloured flecks throughout the white areas. The small round spots of “skilder” also occur in goats.

All of these variants in colour should be noted and celebrated, but should also be guarded by the breeders to be certain that all of them can be available to future breeders. Past breeders bequeathed this wealth of variation and adaptation to the present generation – and it is important that each generation guard the resource and present it to the next generation as a useful and viable genetic resource.

In Southern Africa the situation is therefore not quite so hopeless. The Damara sheep breed has proved itself as a viable commercial breed. Over the past few years there has been a renewed interest in our indigenous goats and I believe that their gene pool will also be saved for future generations.

Indigenous South African Goats
Photo: Dawie du Toit

