What is a Devon Introduction.

Jeremy Engh

As many of you know I/we have been attempting to merge the two breed organizations (NADA &ADCA). It kills me that the precious records of Devon Breeding in the U.S. are not contained in one herdbook. I have met with NADA president Jeff Moore and spent countless time on the computer and phone with directors of both organizations trying to work something out. There are many things that had to, and have to be, worked out in order for us to unite and once again have all American Devon breeders working together towards a common goal. There has however, been one issue that has stopped progress and that issue is the, "purity" issue. Members of both organizations have issues with animals in the others herd book. In fact, I too have issues with animals in both herdbooks but, I maintain the philosophy that all animals need to be treated equally and while mistakes have been made, I do not feel animals can be removed from the herdbook unless they fail to meet breed standards, are not who their owners claim them to be, or throw adequate progeny not meeting breed standards to constitute an inspection. So, I have spent a great deal of time trying to explain the purity issue and trying to enlist the help of other breeders around the world to do this.

So, I wrote the premier breeders in the world to ask for help in explaining the breed's history without discrediting its stock or breeders. Some breeders ignored my email, some offered words of support for the unification, but little in the way of explanation. Then I received,"BullDust"(issue 2-2011 Number 75) while reading " Bulldust", I came across an article written by long time Aussie breeder and friend Peter Knight. Peter's article does what no one else was able to. So without further ado, I present you Peter's Article. I hope that after reading it, you will gain a better understanding of what has transpired during this breeds history. If you have questions after reading it, call me and we will attempt to sort it out.

What is a Devon?

Peter Knight

With there being much debate in certain parts of the world as to the purity of the Devon genome it is interesting to ponder the question "What exactly is a Devon?" Or perhaps the question should be "What is any breed of cattle?" Or for that matter any group of animals of a similar type. Also of interest is the influence of man on the type of cattle that are now seen as the modern animal and whether this is good for the ultimate survival of the species.

All breeds of cattle can breed with any other breed and all cattle are roughly similar in type. This means that at some point in the past they must have all come from a common genetic base. However, the path of evolution over many generations has allowed the environment to direct the type of cattle that would suit the particular situation they were living in. So therefore Mother Nature determined that there would be a large variation in the type of cattle with particular traits that were more suitable for living in particular environments

In the tropics animals with smooth, thin skin and big ears and humps performed better in the hot humid conditions so they dominated and became the type for that region. In the colder northern regions

animals needed thick woolly coats to survive the bleak conditions so that type dominated into their own style. And these are only the most obvious traits expressed, there were many others that helped particular animals adapt to each environment and form dominant groups.

As the original animals expanded in numbers and spread out in search of new pastures some moved into areas that would keep them isolated from outside genetic influences and they would develop traits that would define them as being different from other populations. It was purely the animals that performed the best under those conditions that thrived. Should a trait develop that gave a group of animals some advantage then they dominated. Should an outside trait be introduced and prove to be successful then it would be adopted. Over many generations this tended to develop groups of cattle with particular traits that would be the basis for the future description of lines of cattle as a unique breed.

Given that all animals within a region, say Europe including Britain, would have common ancestry not that far back in its genetic history, it is reasonable to conclude that all British and European cattle are relatively closely related even though there is a great variety in type. Having said that, it is obvious that there is also a great variety in type within most breeds, even allowing for the individual characteristics that define a breed in modern terms.

The influence of man did not come into play until well down the evolutionary path, when a lot of distinct populations had long established themselves. Mankind tended to select animals that had found favour with him for whatever reason, be it performance, colour, horns etc. Some traits rose in favour, some dropped out altogether depending on the wants and needs of their human masters.

The idea of maintaining a registry of animals with similar traits and forming them into distinct breeds has only been around for less than 300 years. The oldest breed known to have been formally recorded is the Devon, with most British breeds following suit in the eighteenth century. Most other breeds have a lot less history than this, with many European breeds only being formalised in the twentieth century. This means that, even with Devons, at the most there could only be 150 generations of recorded history and more likely only around 100. This is a very small slice of an animal's genetic history when compared to the thousands of generations involved with the whole evolutionary process.

Modern man has considered it fit to describe the particular qualities he has deemed desirable for particular breeds. In most cases this is done via a "Standard of Excellence". Some breeders try and insist that this must be a document that is very objective in its descriptions of the various attributes and that only animals that match this standard are acceptable as representatives of that breed.

Other breeders take the view that it must be able to take into account the desires of the individual breeders and have the ability to move with the times and accommodate trends in the whole beef industry. This could mean that the modern beef animal could very well be a totally different animal than what was originally described a couple of hundred years ago.

The situation with Devon cattle in America is a classic case. Devons were the first breed to arrive in America. They were a multipurpose animal, the cows were milked, the bullocks were used as draught animals and then for meat when they had finished their working life. So the type of animal favoured tended to be much more maternal, later maturing and did not develop a beefy profile early in life. As the modern beef and dairy industries took on a more industrialised form and specialist breeds developed, the need for multipurpose animals diminished and the breeds that filled that role either had

to change the type of cattle in that breed by selecting animals suited to the modern industry or become irrelevant.

The Milking Devon has remained true to the type of the original animals introduced to America but it is a vastly different type of animal than the modern beef Devon. Most people would regard the Milking Devon as nothing more than a historical relic with no place in the modern beef industry. But it could also be justifiably argued that the Milking Devon has stayed closer to the original type that was so valuable in the early days and as such represent the purest gene set within the Devon breed.

So how pure is the Devon gene set? It is generally accepted that it is the purest of any breed. And yet there are still anomalies, even after so many generations. Take for example the issue of black noses. A black nose is regarded as not being acceptable in the "Standard of Excellence" and is regarded many breeders as a sign of impure breeding. There has been a conscious effort by most breeders for many generations to breed out black noses and yet they still keep occurring. There is no genetic explanation for this phenomenon.
Another more commercially important trait is the poll gene. It is accepted that the classic Devon is a horned animal. But early in the development of the Devon breed there was a polled strain. However, it was regarded as inferior and faded out of the scene very early on and the Standard of Excellence for Devons has been based on it being a horned animal.

Genetic theory states that the poll gene is dominant so that means that any animal that has the poll gene will be polled. So theoretically the Devon gene set should not contain any polled genes. But within the Devon breed there are far more naturally occurring poll mutations than chance dictates there should be and this does tend to follow particular bloodlines. This indicates that perhaps it is possible that there could be residual polled genes floating around in the Devon gene pool. But for this to happen the gene would need to be recessive, which is against the accepted genetic wisdom which understands that the poll gene is dominant.

An explanation for this could come from the distinct possibility that at some point in the breeds distant past there was some influence from African cattle. This may explain why it is that Devons can handle hot conditions better than other British breeds but it may also account for why there are random polled animals occurring. The only known recessive polled gene in cattle is in certain populations of African cattle. Maybe this gene was introduced at some early stage and maybe the remnants are still to be found in the modern Devon's gene set.

In Australia the Poll Devon was largely developed from so called "Sports", a genetic mutation that throws hornless stock out of horned parents. Some breeders, notably the legendary Janet Officer, actively sought out these animals and used them to build their polled herds. One such bull was Newstead 1673 who was polled out of two horned parents. Most people say that if this happens then there had to have been a visit from a neighbour's poll bull. But in this case there was no chance of that as the Newstead herd had no neighbours who ran cattle. Also the sire of this animal, the imported bull Halsdon Model 3rd, threw another poll bull from a totally different cow. It appears that there was something in this bull that meant that he threw the odd poll calf. This is totally against any accepted genetic theory.

There are other similar cases and it does suggest that there is a residual poll gene floating around in the Devon gene pool. So how far back we do we go to the point where we set the Devon gene set? And

what do we do with the random genetic variations that may have been present at the time and yet not expressed in the form of a “Standard of Excellence”?

There have been deliberate attempts to introduce new genes from other breeds into the Devon gene pool, notably the Poll gene. In most countries it was done in a controlled way via an upgrading program, based on the English one, to develop the Poll Devon. However, the fact that one gene was specifically selected in these programs suggests that it may not necessarily be the only gene that made its way through the system.

There have been some programs designed to deliberately introduce other new genes to alter the type of the Devon. There is criticism in some quarters suggesting that such introductions dilute the gene pool of the breed and that these animals should not be accepted as still being Devons.

With all these in mind, claims that one Devon gene set is more pure than others need to be viewed carefully. There is no doubt that the overall Devon gene set is as pure as any breed. However, it still has outside influences and it is unlikely to ever be rid of them. There can be no such thing as a “pure” breed. It does not take that long to build up an acceptable genetic package for any particular purpose. But we will never be able to fine tune that package so that it doesn’t throw the odd surprise. That is the way genetics works, it has for thousands of years and it is not going to stop just because man wants it to.

Just like we do in mankind we should be encouraging our cattle to be innovative. We can have all the goals in the world but there will be no way that we will ever get there if we stifle innovation, be it in thought or genes. Reproducing the same genetic package, say in the extreme case of the “perfect” animal that has been cloned, means that there can be no genetic variation that might lead to new traits that may be more beneficial. There can be no genetic advancement.

For the time being the future of the genetics of most of the bovine genus is now firmly in the hands of influences that have little to do with the natural determination of what is the most suitable genetic package for the survival of the species. Mankind has deemed himself to be a better judge of what is required and so the traits that he deems important will be selected for to the detriment of others. Some strains of cattle will dominate while others will disappear altogether. Some genes will also be lost and the genetic diversity of cattle inevitably will contract.

How long this will last and what effect it will have on the overall genetic makeup of all domesticated species will depend on how long mankind manages to survive and what mess he leaves when he is removed from his now dominant position on Earth. It would be of interest to speculate what would happen if the influence of man was removed from the continued existence of cattle. They would then revert back to the selection of the fittest that was the criteria for the many thousands of generations before mankind took the place of the environment in dominating this process.

In a few short generations man has managed to radically alter the type of cattle that we see now as the modern beef animal. But how effective would this animal be if it had to fend for itself without the help of mankind? How many generations would it take for this type to revert back to the way they were before man started to interfere in the selection process? What sort of animal would be the type to dominate?

A possible insight into what may happen is the Chillingham herd of wild cattle in the UK. This herd has been run without any outside influences or intervention by man for over 700 years and now resides in a

365 acre parkland at Northumberland. The only management is some hay provided over winter so Mother Nature must determine the number and type of animals that can survive within the boundaries of the park. No males are castrated, no veterinary treatment is ever performed and no culling is ever done.
The herd now numbers only about 80 but if that seems a low number then it should be noted that in recent times the number had dropped to a low of 13 individuals after the particularly hard winter in 1946/7. So the level of inbreeding should be catastrophic according to genetic theory. But they do survive and a unique type has evolved. They bear little resemblance to modern cattle that have been managed by mankind. They are very much a type that was common in the early stages of the development of modern beef breeds. Perhaps the most similar breed would be the Milking Devon.

Mans impact has been massive as far as setting the type we see today, but in real terms he has been a minor influence when compared to the overall length of time the cattle genotype has been developing and it seems to many that the influence of man on the modern type of animal may not be in the best interest of the long term survival of the bovine species. His manipulation of this gene set is aimed at creating a type that produces more of the product he wants rather than to the passing on of particular genes to the next generation.

While this may be OK whilst man is around to artificially support these animals there are indications that the modern type of animal is becoming quite dysfunctional as far survival is concerned. So how long can cattle survive the influences of man and how long will it be before a more functional set of genes will need to be selected for? One more in tune with Nature rather than the whims of mankind.

Finally, we should perhaps ponder exactly what it is that we are trying to base our “Standard of Excellence” on. The images we have built up suggest animals that are vastly different from the type that are the accepted standard for modern cattle. However, the simple fact is that we do not know exactly what the cattle of 300 years ago actually looked like. We have the written word and we have drawings but we do not have actual images. If they are indeed an accurate description of the cattle of 300 years ago then these are the types that we theoretically should be basing our breed standards on. Devons have a proud past, the future needs to understand that but should it be beholden to it? And at what point do we decide what a Devon actually is?

So what is a Devon? A Devon is merely a collection of genes put together by Mother Nature in a package that has been described by man as a breed. Mother Nature by her very nature is not very pedantic about the aesthetics of an animal, she is only interested in producing the best package that will survive to pass on those genes to future generations. It is mankind who has decreed that the look of an animal is more important than its functionality and, for better or worse, it is now mankind who decides what genes are to be passed on.

We have inherited this magnificent animal from Mother Nature, but we have also been given an opportunity to make something wonderful even better. The future of Devon cattle lies with its human masters, for the time being at least, and we must never take for granted the basics that made it so good to start with. It is an awesome responsibility and perhaps we should not be so arrogant to think that we know better. Go forward for sure but be aware of the countless generations of gene selection that has made the Devon breed what it is that we admire. Work in tune with Mother Nature so that the resultant animal is highly functional for all who have an interest in the survival of both the Devon breed and mankind. It does appear that many other breeds may not get this opportunity and that they might be

bred into a genetic corner from which there may be no escape. The Devon gene set is too good to deserve this fate.