



# Your Living Environment

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## BRITAIN -- STUD FARM OF THE WORLD -- WHY?

What do the names Hereford, Durham, Devon, Angus, Ayrshire, Jersey and Guernsey, mean to you? What about Hampshire, Dorset, Suffolk, Cheviot, Shropshire, Leicester, Southdown, Romney Marsh and Lincoln? To most people they are merely geographic locations in the British Isles. But to animal breeders these names represent the heart and core of the international livestock industry!

Now quite obviously these cattle and sheep have derived their breed names from the area in which they originated. But not so obvious is why the tiny British Isles should be responsible for originating and developing so many of the world's major breeds of livestock. Why have not an equal number of Dutch, French, German, Italian, Russian or Spanish breeds become as popular?

Also why should the leading livestock breeders of the Western World find it necessary to regularly import high-quality cattle and sheep from the British Isles -- long after colonial influence has ended? Surely the verdant grasslands of America, Argentina, Australia, Canada, New Zealand and South Africa are capable of producing even better animals than tiny fog-bound Britain. But judging by the annual trek of overseas buyers back to Britain's top livestock shows and sales, this is not the case! Indeed, the reducing or dispersal sale of a famous British cattle stud has been known to attract more overseas buyers than local ones. And every year, nearly all the top-priced animals of Britain are exported!

But why? Why has Britain been so long regarded as the Stud Farm of the World? This issue of the Research News probes the development, and influence of British livestock to find the answer -- an answer that heralds the need for major revisions of our thinking about the "laws" of genetics and animal breeding.

### Why British Animals Conquered The "Colonies"

British livestock spread around the world as the British Empire grew. British settlers encountered vast untapped grasslands at every

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turn. To exploit these areas they naturally imported their own improved breeds of animals. Like the Patriarchs and the Israelites, the British have been dedicated breeders of livestock and have taken them wherever they have gone themselves, (as in Genesis 12:5, 13:1-5 31:18, 46:6 and Exodus 12:38).

Soon the Jerseys, the Herefords, the Angus and the Shorthorned cattle from Durham had spread across most of the world's temperate grassland. So too had the sheep of Leicester, Dorset, Hampshire, the South Downs and Romney Marsh. And every farm was stocked with horses from the Clyde, or Suffolk and Shetland. Later on every ranch and race-track owed a debt to the original breeders of English thoroughbreds!

But as the imported animals reproduced, the transplanted British stockmen and their descendants in America, Argentina, Australia, Canada, the Falkland Islands, New Zealand, and South Africa noticed a strange phenomenon. Their animals began to change, without any introduction of outside blood!

A former Professor of Agriculture at Aberdeen University has correctly observed that:

"The Shorthorn, particularly in the Argentine...tends to lose type; that it tends to grow more leggy and rangy in SUCCEEDING GENERATIONS, losing thereby the low-set, blocky and massive beef confirmation of the original breed, and that this deterioration can be checked by returning to the breed's original home for fresh stock and that it can be prevented in no other way." (Beef Cattle Husbandry, p. 59, Dr. Allan Fraser). Emphasis ours throughout.

This is not a unique opinion. It is virtually the unanimous observation of generations of pedigree stock breeders! And has its expression in the multiple millions they have spent at British livestock auctions!

All breeds of imported livestock are affected to some degree and it is for this reason that most top breeders return to this country to buy animals. Different environments produce different changes in the same breed type. It may take a few generations to become obvious -- but they do CHANGE!

All these changes are not necessarily bad, but because the pedigree breeders' fixed mental image permits little variation, most changes are regarded as undesirable. They may or may not hinder the animal's meat or milk producing ability, but the rigid Herd Book system does not allow the stud breeder to ignore these variations.

What causes these changes? And more important -- why is it that only imported cattle and sheep from Britain correct the

deterioration? There is no reason to assume that the new blood carries better genes than the original importations. Yet it is indisputable that fresh blood imported from the United Kingdom will bring the stock back toward their original type.

Why? Are environmental effects heritable after all -- despite the teachings of modern geneticists? It would seem that most established overseas breeders are actually purchasing live in-built British environment in their subsequent importations!

#### CHANGES -- NOT ONLY INTERNATIONAL

Environmental differences change breed types even within a nation. For example:

"Hampshires, (sheep) found in the Eastern section of the United States tend to be somewhat shorter of leg, lighter in colour and to have a little more wool on their faces than those found in the West...Breeders have long observed that if Western type sheep are moved to the East, or vice versa, within a generation or two, the type seems to assume the characteristics of sheep native to the area." (Modern Breeds of Livestock, p. 431, H. M. Briggs).

#### WHAT CAUSES THESE CHANGES?

These examples appear to indicate a build-up of environmental effects over generations as distinct from genetic changes. Yet those effects of environment are not new facts. Breeders have understood this overall principle for more than a century, as the following quote proves:

"Local circumstances -- such as the quality of the soil and the peculiarities of climate -- influence the development of these animals; and thereby we have local breeds established especially suited to certain districts... Thus, where the soil is luxuriant we have large native breeds; where the land is hilly, we have smaller and more active animals;" (Journal of The Royal Agricultural Society, p. 262, Vol. XXII, 1865. Henry Tanner, M.R.A.C.)

This concept -- that an animal, a plant, or even a human, will -- over a period of generations in the same area, tend to assume the characteristics of the local native genera is most intriguing. If correct, it would explain why British livestock change type when sent overseas. And also why pedigree livestock breeders, addicted to a particular breed type, have found it necessary to continually import more livestock from the United Kingdom.

DOES ENVIRONMENT EQUAL BREED TYPE?

A Yorkshire farmer recently observed that -- "If you feed Jerseys and rear them in the North, they tend to grow larger," (Farmer's Weekly, U.K., p. 24, May 2, 1969).

Jersey is basically an island of rock with a thin layer of soil and a very favourable climate. Its perennially low plane of nutrition has produced a small, fine-boned breed of cattle. Put that same small animal in Yorkshire, a county with many acres, high in inherent fertility, and the breed type becomes larger.

It is from this very Yorkshire-Durham area that the Short-horn breed originated. These cattle came from the fertile valley of the Tees and have been one of our breeds of greatest size. Interestingly enough, these same Tees water Shorthorns have been the basis for the Lincoln Red breed. As the name indicates, the cattle were produced in the county of Lincolnshire -- which encompasses some of the "strongest", most robust soils in the British Isles. Is it any wonder that the Lincoln Red cattle are perhaps the biggest breed in England at this time?

The same is true of sheep. As Tanner indicated, it must be more than coincidence that the chalky Sussex hills just south of London, with their light, but fertile soils would produce the smallest breed of sheep, the Southdown. On the other hand, the large sheep breeds, such as the Hampshire, Suffolk, Oxford, Lincoln and Leicester come from the deep fertile soil areas.

In fact, it is not too difficult to trace this same relationship between soil, climate, breed size, conformation, meat value, wool type, etc., in nearly every breed of domestic livestock.

Humans Too!

Dr. Allan Fraser even suggests that it might be applicable to humans also. In his later book, Animal Husbandry Heresies, p. 79, he offers a possible example:

"In the Scottish clan system, there is abundant contemporary evidence to show that while the stature of the common clansman was severely stunted, the gentlemen of the clan were particularly well grown. [No doubt the gentlemen attributed their superior physique to their gentility (or noble genes) rather than to access to a better diet for several generations]." (Animal Husbandry Heresies, p. 79 Dr. Allan Fraser).

Do we need to state that there is a limit to the effects of environment? We are not implying that environment will turn a black pygmy into a six-foot 'great' Dane! Neither will any number of generations turn a black Shetland Pony into a white Clydesdale!

### HANDLING ENVIRONMENT

Though environment has affected men, animals and plants, it is possible to select for or against these effects. This, man has done to a marked degree in plants and animals (with varying degrees of success). But should we not question the wisdom of repeatedly crossing the oceans to purchase specimens selected against a different environmental background? Once we have the bloodlines located in another environment, would it not be more reasonable to either accept what that environment produces, or modify the environment?

Britain's role as Stud-master to the world has long been that of selecting for particular characteristics against the background of her own micro-environments like Herefordshire, Hampshire, etc. The results have been exported throughout the nation and overseas, but now the future of the Stud industry is seriously challenged. How? First by the massive increase in commercial CROSS-BREEDING and secondly by the increased capacity of a single bull to beget calves through artificial insemination!

Add to this the fact that the "flood-gates" are now open into Europe and more British livestock breeders than ever are turning their backs on the historic nucleus of their own industry. These men, (especially cattle breeders) are currently scrambling over each other to import French and Swiss livestock.

Are not the British themselves now doing exactly what their ex-colonial areas and Argentina have done for generations? Why? Is our environment not capable of producing the qualities that we are now importing from Europe?

The only way to prove this is to demonstrate that the illusive qualities of the Continental cattle, (principally Charolais and Simmental) have previously existed in Britain.

What are those qualities, when were they evident in British cattle and how did we come to lose them? First let's take the French Charolais -- what do they have? Nothing except their old-fashioned English shorthorn bloodlines and the kind of human selection that has allowed the environment to naturally produce large-framed and heavy-boned animals. (Of course this can be done ONLY if the environment will permit it). But many British cattle had this quality at one time -- especially the shorthorn breed. At that time they were the most numerous in Britain and in fact the whole world! How ironic that Britain should now be buying instead of selling cattle. And doubly ironic that our suppliers are those considered to be backward European "peasants".

### THE LATEST TREND -- IN BRITAIN'S ANIMAL INDUSTRY

Now the trend is toward the Swiss Simmental breed -- so what have they got? Something that British breeders abandoned even

earlier than "size" and "bone". THEY ARE DUAL-PURPOSE ANIMALS! Simmental cattle, (regardless of what British buyers may be doing with them) have a unique ability to fill the joint role of dairy cow and beef producer -- without ANY cross-breeding! They have this capacity to a degree that has not been seen by most of the world-wide British-based cattle industry for 50 years!

Few young men have ever seen it, but the British Shorthorn had this dual-purpose quality above all the other breeds in this country. That was one of the important reasons that made them the most popular breed in the world. In little more than 50 years the highly specialized Friesian totally supplanted the Shorthorn in the dairy industry. And in less time, the more fashionable Angus and Hereford supplanted the Shorthorn in the beef industry.

Today the Scotch Beef Shorthorn is a miniaturized version of its ancestors, but the breed has "missed the boat" because the industry is already moving back toward the old-fashioned type. The Simmental fulfils that demand NOW. It will take time to rebuild the Beef Shorthorn. They have not only lost their size, but also their milking ability! These changes were not the result of environment, but rather John Bull's personal selection.

John Bull has continued as Stud Master to the world because his "sons" were convinced that Britains livestock were the best in the world! As long as this conviction remained, they believed they must return to their homeland for regular replacements. These new animals were necessary only because the "colonial" environment was different.

This continuous stream of replacement animals was necessary only because John Bull's own offspring could not, or would not duplicate the environment of Britain. Where it is similar, changes in the livestock were slow and limited. Where environmental differences were pronounced, changes were more rapid and dramatic.

We have indicated big changes took place in various breeds of stock within Britain, but these were mainly due to human selection. Nevertheless even these changes were faithfully copied overseas. In other words Britain has long dictated fashion in animals, just as Paris has in clothes!

#### NOW -- AT AMBASSADOR COLLEGE

In Bricket Wood, the Shorthorn was selected for the Agriculture Programme four years ago. It seemed to lend itself better for breeding back to a DUAL-PURPOSE type, without the confusion of cross-breeding (Lev.19:19). We were unwittingly ahead of the current trend.

We have been mating a Beef Shorthorn bull with our Dairy Shorthorn cows and allowing them to suckle their own calves. Now our environment is having its effect on these calves. But Hertfordshire's gravelly land is a far cry from the original Teeswater environment of the Shorthorn (back in the days when it was ONE breed, not two). Can you see now why there has never been a Hertfordshire breed of cattle, or sheep and why we are so insistent on building soil fertility?