

These are *races* as distinguished from the *breeds*: we may talk of the Devons as a race, but the term cannot, with propriety, be applied to the Shorthorns; it requires only a glance at a herd of the former to see that, from their colour and general conformation, they have never been mixed with other stocks, whereas, the latter bear evident marks of having been, so to speak, created by the wit of man out of an amalgamation of selected specimens of various kinds, until a type, previously fixed upon by each separate improver, has become fixed and determined.

I need hardly say, that the first person who formed the idea of originating a *breed* of domesticated animals which should be superior to the native *races*, the *aborigines*, was Robert Bakewell, of Dishley. He began with the sheep; which, rough and ragged, small and ill-shaped, as was the stock then bred from, he succeeded, by patient selection and considerate matching of parents, in improving into the "New Leicester." The horned cattle of his neighbourhood, for he wisely chose the animals nearest to his hand, next felt the magic touch of his genius, and became the modern "Longhorns," still highly esteemed in the pastures about Leicester and Rugby; prizes being still given by the Royal Agricultural Society for the best specimens of the breed.

Stirred up, we may well suppose, by the fame of Bakewell, the brothers Colling next appear on the scene. They, fortunately for us as for themselves, had better and more abundant material to work upon than had their predecessor. Contemporary with the Collings, but working quite independently of them, came Thomas Booth, of Warlaby. Somewhere about 1790 this gentleman having observed that the valley of the Tees was depastured by a fine, roomy stock of cattle, conceived the idea of improving them. The defects which he aimed at suppressing were an undue prominence of hip and shoulder point, a general "soda water bottle" appearance, too much *daylight* under the belly, and a want of uniformity in laying on flesh evenly and firmly all over the frame. Selecting a few cows from the herd of a tenant of Lord Harewood named Broader, of Fairholme, and coupling them with moderate sized bulls, Mr. Booth succeeded in laying the foundation of his son's still celebrated herd, many of the most illustrious families of modern Shorthorns owning their descent from the Fairholme purchases. In pursuance of his plan of moderating the general looseness of build, then one of the most observable defects in these Teeswater cattle, the founder of the Warlaby herd was greatly aided by bulls hired from the brothers Colling; amongst others to *Hubback*, *Albion*, and *Twin Brother to Ben*. We shall see, presently, how these animals were bred, and what was the effect of their peculiar line of blood.

The principle upon which all these earlier breeders went was the well known one, that "like produces like"; an un-failing principle, truly, but one which admits of a far more general application than is generally allowed, and should be regarded not only in the coupling of the sexes for the propagation of the inferior animals, but also in the continuation of the human species. If more attention were paid to this rule by our heads of families we should not have so many idiots and consumptives among us. Nature always avenges an infraction of her laws.

But, while it is perfectly true that "like produces like," there is another rule that steps in to teach us caution; and that is the tendency of all animals to "throw back" to some remote ancestor, whose probably forgotten points suddenly make their appearance in one of his descendants. This is called "Atavism," and is frequently observed by the breeders of white pigeons, who, in spite of all their pains to keep their birds pure in colour, find constantly, to their trouble, that

black feathers will show themselves in the youngones. (1)

Here then we find the rule established; that it is not sufficient that the immediate parents be of fine shape, good colour, and robust constitution, but they must be descended from families, who, for generations, have boasted of these desirable qualities, if we are to hope for an offspring that shall not disappoint our expectations. This point we shall have occasion again to touch upon when we come to speak of in-and-in breeding.

The form aimed at by all breeders is the solid figure known to mathematicians as the parallelopipedon. A carpenter's pencil will give a good idea of this figure to non-mathematical readers: it is contained by six sides, each of which is a parallelogram. Its proportions are not only beautiful in themselves, but they contain a large capacity of contents within small dimensions. As to colour, that is generally a mere matter of fashion, though, probably, red indicates robustness of health, and, in cows, to a certain extent, richness of milk; but there is no rule, as many a Shorthorn breeder will testify. The strangest thing is that, although there is no doubt that the early breeders crossed their stock with the Galloway, and although there is more than a suspicion that the herd of one very prominent Durham-man was indebted for its rugged coat and peculiar horns to the Kyloe, the appearance of a black nose would throw great doubt on the purity of the descent of a modern Shorthorn. We say nothing about the black hair for, of course, they were to canny to cross with any but dun-coloured Galloways and Kyloes, of which there are plenty.

And now comes the question, how did the originators of our new breeds propose to keep up their improved herds, or what was their practical work in the matching of their animals? And this brings before us the whole subject of the two opposite systems—breeding *in-and-in*, and *crossing*; a subject of deep interest to us at all times; but, now that we may expect a permanent demand upon our fields and sheds for meat of good quality for exportation to Britain, it may truly be said to involve the question of riches, or continued poverty to this Province.

Let us see then, in the first place, how Bakewell proceeded. It is notorious that, after he had succeeded in establishing the type he set out in search of, he could never be tempted to make use of a strange animal, however enticing might be its form or quality; he bred entirely from his own stock.

Mr. Booth's reply to the advice of a friend of the writer who had recommended him to introduce foreign blood into his herd was conclusive: "I will, if you will tell me where to find as good." What do we see in the breeding practice of the Collings? Take the before mentioned bull *Albion*, for instance; he was got by a bull who was both the son and the grandson of *Favourite*; his dam was by a son of *Favourite*, and his grandam by a son of *Favourite* out of *Favourite's* half sister!

"Charles Colling's bull *Bolingbroke* and his cow *Phœnix* were brother and sister on the sire's side, and nearly so on the dam's side. They produced the bull *Favourite*, and he, put to his mother *Phœnix*, so nearly related to him on the sire's side, got *Young Phœnix*. To this heifer *Favourite* was again put, and, she being his daughter and his *more than sister*, the calf was—*Comet*!" (2).

Here we have in-and-in breeding with a vengeance! Many a man would say that sterility must ensue, and so perhaps it might if the practice were continued, or if the signs of a falling off in the masculine character of the bulls were neglected. But in the hands of such breeders as I have mentioned there was no fear of this taking place.

(1) Darwin.

(2) Storer—*Comet* was the first "Thousand guinea bull"