

sale), describes the Wild cattle, and continues:

A cross has been recently made, for the second time, with a bull of these Wild cattle on a pure Short-horn cow, with the following result: In the first cross, the marks of the Wild animal were partially obliterated, while the second cross removed all stains and marks; the nostrils, horns, and all being what should be required in a pure Short-horn. If so, this shows that the latter breed is more prepotent than the former, and would be an argument in favor of asserting that the Short-horn was the more ancient race of the two. But this is scarcely possible, and has never been admitted, so far as I know.

There is evidently a misunderstanding of the facts (not having the *Gazette* before me I cannot say where), and I think I can throw some additional light upon the matter, which will make it more clear to Mr. Allen, and your readers generally. Mr. Allen continues:

I suspect the *Gazette's* correspondent was not sufficiently critical in his observations of this second Wild cattle cross, and that a closer and more minute observation would have shown more traits of the Wild form and points than he reports.

He then refers to the account of the Wild cross upon the Short-horn in the late Rev. John Storer's work. The bull calf described in that very interesting book is the same animal which figures in the foregoing extract as the result of the first cross between the White Wild bull and the Short-horn cow; and he, not a pure Wild bull, was the sire of the second-cross animal, which was from his own dam. The first-cross bull calf, the offspring of the King bull of the Chillingham Park herd, and a white Short-horn cow, was exhibited as a two-year-old bull, named Adam, at the Kilburn International Show of the Royal Agricultural Society of England, in 1879. As he was there seen by many Americans, I may appeal to some of your readers for confirmation, when I say that the traces of the Wild breed were strongly marked in him. Modified they were, in some degree, no doubt, by the female parent; but that they were even partially "obliterated" would be difficult for any one to maintain within sight of the bull. Still, with this case strong in my recollection, I could not qualify what I said in the same number of *THE JOURNAL* (by a curious coincidence Mr. Allen and myself, on opposite sides of the Atlantic, hitting upon the same subject, at the same time), "My own observation of the results of crossing wild original races and domesticated breeds, does not support the notion that 'prepotency' is usually with the former." There are such facts as individual prepotency, in excess of the average potency of a race or breed; superior influence of the male parent in some, of the female in other particulars; accidental circumstances and various other factors in the reproduction of animals and plants, all of which must be taken into account in estimating the comparative potency of various breeds. The rule, that the more ancient breed predominates, is true enough in the rough, general sense; but an ancient breed may be weakened, a modern breed invigorated, and its power of transmission increased by various means, until, when the two come into conflict, as by the union of their respective representatives, the old breed is overpowered by the new. Our opinions must not be founded upon a single instance, nor upon manifold instances, unless we have good reason to believe that our evidence is a fair sample of the aggregate of existing evidence upon the question.

The following are the circumstances of the second cross at Chillingham, as authoritatively related to me: The bull Adam, white, with the markings, form, and horn of his Wild sire, was suckled by his mother, a pedigree white Short-horn cow, of Booth and mixed blood. With her he ran loose until he was well grown. The cow, a few months afterwards, produced another white bull calf, this time without the colors of eye, ear, and nose which mark the Wild breed. The half-bred bull, unquestionably, was his little brother's sire. The offspring of the second cross—really the second cross of Short-horn, not the second cross of the Wild breed—has become a magnificent Short-horn bull. Booth men and Bates men alike give him highest commendation. They say

that his style and grandeur, as well as his form and flesh, leave nothing to be desired. His dam, being of a sort more notable for good, solid substance than for imposing appearance, must yield some credit to the Wild breed, not as the more prepotent breed, but for the power to impart a very majestic outward character, which we may take to be the visible sign of robust constitution, and improved vital powers in general. Adam, neat in frame, looked meagre, almost mean, beside the ponderous Short-horn bulls at Kilburn. His brother-son is described as all richness and masculine beauty, with ample weight. A Short-horn breeder of long-established reputation, the owner now, as he was many years ago, of a high-class Bates herd, headed by a costly Duchess bull, attended the Chillingham sale, and, on May 4th, the week after his return from Northumberland, wrote to me (his letter is at this moment before me), describing that second-cross animal as "the grandest white bull I ever saw." What a breed, massive, yet active, the bull's descendants should make for American ranches! What traveling powers they should inherit! Does it not seem a pity that herd book rules prevent the free use of such a bull, by excluding his progeny for four or five generations? It is to be hoped that the experiment may be continued upon a larger scale, and extensively repeated by other crosses between the two breeds, so as to fairly try whether permanent improvement may be got out of the union of the Short-horn with the Wild breed of Chillingham.

ENGLAND.

WM. HOUSMAN.

FEEDING STEERS IN ENGLAND.

TO THE EDITOR OF THE JOURNAL:

I note in your last issue some shrewd remarks on the "Early Feeding of Steers." This is a system I have ever strongly advocated, with pen and in practice. It is certainly a noble sight to see, as we do now, on the borders of Herefordshire, the round-built, big two and three-year-olds turned out upon the meadows for final feeding. A grand lot, filling the eye of the proud owner, they will be; but consider how much it has cost him already to bring them to that size, and what a hole in the profits would the death of one make. It is a far more paying plan to keep the calf's flesh on from the beginning, the milk it takes cannot be reckoned at more than £7 or so, from commencement to end of suckling; for to do right well, the youngster need by no means drain the udder of its dam (in Essex each cow is reckoned to rear several purchased calves), but can afford to spare the dairymaid one side the bag. It should be kept in its box, and not allowed to run out with its dam; a very little meal suffices, with nice picking of hay, roots and grass, to keep it on in the course of steady growth. As much change as possible of dainty feeding, perfect cleanliness, its bed of straw, laid on closely-packed faggots, or sparred boards, frequently replaced, an occasional washing all over with carbolic soap—a process that wonderfully supple the skin—will bring your lot out at about 16 months old quite the *cyrenaire* of the market, and you may safely reckon upon an average of £24; at least that has been my practice and profit. A yearling prepared for the Smithfield Show made £35, but £24 is the usual run of ripe, kindly, well-bred and carefully-fattened steers. And this may assuredly be looked upon as good pay. Wonderful, too, is the difference in the effect of manure so produced over ordinary stuff. You will find it in the thicket, even, heavy-headed crop. Quite the finest looking, and by far the most productive breadth of barley I ever grew, was the year after a Short-horn sale, off land enriched with their dung. It was on rented land, which, for his own purposes, my landlord, had valued that season. The professional agent, who came down for the purpose, was full of admiration at the sight. There is the great comfort, on the other hand, of knowing that for the stock's mere health's sake, there must be a limit to the meal

given. Seven pounds a day was the outside measure. At one time the feeder piled them, in his anxiety, with more, and they became quite "grain-sick," hard to touch, and out of sorts; not to mention the damage my pocket experienced.

ENGLAND.

COLONUS.

POLLED ABERDEEN OR ANGUS CATTLE.

ORIGIN AND EARLY HISTORY.

(Continued from page 317.)

TO THE EDITOR OF THE JOURNAL:

In my last letter I briefly described the origin of Scotch domestic cattle, and furnished reasons for the belief that the three existing native breeds—the horned West Highland, the Polled Galloway, and the Polled Aberdeen or Angus—are the descendants of the aboriginal stock of the country. The two species of wild cattle—the *Bos urus* and the *Bos longifrons*—were both supplied with horns, the former having long horns, and the latter short horns. This is sufficiently proved by the fossil remains that have been discovered of these animals. It therefore becomes necessary, if their derivation from these is admitted, to account for the departure from the ancient order of things in the two hornless Scotch breeds. Various ingenious theories have been advanced in support of the different opinions entertained on this subject. Some contend that the peculiarity of wanting horns existed among the aboriginal wild cattle, and the only evidence against this assertion is the fact that no fossil remains have been found of polled specimens of these early species. Another theory is, that the peculiarity was originated, and has been spread, by the introduction into Scotland of polled varieties. Polled cattle have existed from a remote date in Norway, Poland, Iceland, and elsewhere, and it has been contended that some of these foreign cattle were imported to Scotland, and by crossing them with the native horned races, the polled breeds were produced. There is no evidence of these alleged importations; and besides, it seems a very circuitous method of explaining the origin of the variation to assert that it was necessary to resort to any outside means in order to bring it about, inasmuch as, so far as known, no causes existed in Norway, Poland, or Iceland calculated to deprive animals of horns, that did not, in an equal degree, prevail in Scotland. The true explanation of the absence of horns among Scotch cattle appears to be, that it occurred spontaneously among the native breeds. Mr. Darwin, in his able work on "Animals and Plants under Domestication," says he "often speculated on the probable causes through which each separate district in Great Britain came to possess in former times its own peculiar breed of cattle;" but he confessed that he had not been able to arrive at a confirmed conclusion as to how the horns may have disappeared, and how the hornless breeds may have sprung up. He thinks "it is probable that some breeds" and "some peculiarities, such as being hornless, etc., have appeared suddenly, owing to what we may call, in our ignorance, spontaneous variation;" and that through selection in breeding, the results of these spontaneous variations have come to possess a powerful hereditary tendency.

I have been privileged with the perusal of an unpublished letter from Mr. Darwin, dated Jan. 23, 1882—three months before his death—in which, responding to an inquiry for information as to the probable cause of the loss of horns, this distinguished naturalist wrote:

I have not had time, during several years, to attend to the very interesting subject of domesticated animals. No one can give any explanation—although, no doubt, there must be a cause of the loss of horns—any more than of the loss of hair, both losses strongly tending to be inherited. It is, I think, probable that the loss of horns has occurred often since cattle were domesticated, though I can call to mind only a case in Paraguay, about a century ago. Is there not a sub-breed of the so-called Wild Park cattle which is hornless?

Dr. John Alexander Smith, Vice-President of the

Society of Antiquaries of Scotland, and author of a series of valuable "Notes on the Ancient Cattle of Scotland," also expresses his belief that the absence of horns in certain breeds of cattle "is an accidental variety or peculiarity, which might occur in any domesticated herd." Professor Low, in his well-known work on the "Domesticated Animals of Great Britain," apparently regards the absence of horns as a departure from original conditions.

There is [he remarks] nothing in the phenomena of nature to which the term accident can be justly applied. The characters were doubtless the result of some organic change proper to the animals in which they appeared, and their transmission to their progeny is only the exemplification of a law common to other cases of transmitted characters. In the case of the domesticated animals, we find evidence of the wonderful permanence of characters once acquired and imprinted on the animals. In certain breeds of oxen and sheep, the animals retain, from generation to generation, their distinctive marks, the presence or absence of horns, the length and peculiar bending of these appendages, and even the minutest variations of color, as spots of white and black on certain parts of the body.

A further proof of the accuracy of the explanation given above of the absence of horns, is afforded by the frequent occurrence of the peculiarity in remote and separate districts. We have the testimony of Dr. Samuel Johnson to the existence of polled, or, as he terms them, "humble" cattle in Skye (Scotland), in 1778. The herd of semi-wild cattle belonging to the Duke of Hamilton, at Cadzow Park, Lanarkshire (Scotland), although now horned, was formerly polled. Pennant mentions that in 1769 the cattle in Sutherlandshire (Scotland) "were very frequently without horns." Some of the Galloway cattle were polled about the middle of the last century, and so also were the cattle of Buchan and Angus. Besides the Norfolk and Suffolk Polled cattle, several of the semi-wild herds of Park cattle in England were polled, notably those at Somerford Park, Cheshire; Wallatin Hall, Nottinghamshire; Whalley Abbey, Lancashire; Middleton Hall, Lancashire, etc. Youatt refers to the Devonshire nats, or polled cattle, and the Northern or Yorkshire polled cattle. Polled cattle existed in Ireland hundreds of years ago. Prince Leichtenstein owns a herd of red polled cattle in Austria, that has been in existence from time immemorial. Darwin tells us that a polled bull was born in a horned herd in South America, in 1770, "that, having been preserved, formed a hornless breed." Herodotus states that the domestic cattle of Scythia were hornless. Other examples might be cited, but enough has been said to show that rarity cannot be claimed for the peculiarity of the absence of horns.

Mr. Darwin, as we have seen, says there is a strong tendency in the loss of horns to be inherited. The variation having occurred, all that was necessary to preserve it and impart to it the fixity of an original character, was to practice selection in-breeding. As Mr. Darwin puts it:

When animals and plants are born with some conspicuous and firmly-inherited new character, selection is reduced to the preservation of such individuals, and to the subsequent prevention of crosses.

This has been done, at first rudely and imperfectly, and latterly with the greatest system and skill, in the case of the polled breed that forms the subject of these letters; and I now proceed to examine the facts we possess in reference to the origination and development of the Polled Aberdeen or Angus cattle. It is necessary at the outset to remark, that the early records of this breed, as indeed of all breeds of domestic cattle, are vague and unsatisfactory. Prior to the dawn of improvement in agriculture in Great Britain, which, for all practical purposes, may be said to have commenced only at the beginning of the present century, writers on rural affairs devoted little attention to the subject of live stock. Their descriptions of breeds of cattle are brief and imperfect, and the phraseology used by them was itself so indefinite as to be, in its bearing on this inquiry, absolutely misleading. The term cattle was applied indiscriminately to bovine and equine animals, and the words usually employed to distinguish cattle from horses were "black cattle,"

and "horned cattle." Even so late as 1797 we have a striking example of this confusion of expression. The Rev. Mr. Playfair, one of the contributors to Sir John Sinclair's "Statistical Account of Scotland," writing of the cattle in the parish of Bendochy, which borders on the county of Forfar, one of the *habitats* of the Polled breed, says: "There are 1229 horned cattle of all ages in the parish. I have no other name to them; but many of them are *dodded—wanting horns*." Thus, Mr. Playfair, a man considerably in advance of his time on the subject of natural history, actually employed the term "horned cattle" when he meant to convey the information that many of the cattle in Bendochy were hornless! After this example, it will not be wondered at if the early records of cattle breeding in Scotland are provokingly inexact and misleading.

From the earliest glimpses we obtain of the cattle in the Northeastern portion of Scotland, where the Polled Aberdeen or Angus have their headquarters, it appears that there were two descriptions of stock—the horned Highland breed, occupying the high grounds, and the polled, prevailing near the coast districts. In the latter there were also horned Highland animals—these probably in larger numbers than the polled. The period I refer to would be about the middle of the last century; and doubtless the two varieties were mixed, for it was not until 1750 that Bakewell began to teach the important principle that animals could be improved by the careful selection and combination of the best specimens of the same breed, the system previously pursued having been that of promiscuous crossing. In the case of a race of cattle possessing as its distinguishing feature the absence of horns, there was, however, an inducement to avoid crossing that did not exist as regards horned breeds. Thus, it may be presumed that even prior to Bakewell's time, owners of Polled cattle practiced a system of selection. The first time that I find Polled cattle mentioned in Forfarshire, is in 1753. In an account book kept by Mr. Grahame, of Balmuir, near Dundee, occurs the following entry: "Account of oxen bought June 9, 1753. To one humble ox from James Cramond." Entries of "dodded" oxen also appear in the same manuscript, in 1757. I should mention that for these facts I am indebted to a pamphlet recently published by Mr. James C. Lyell, Monifeth House, Forfarshire. The late Mr. Fullerton, of Ardovie, an eminent breeder of Polled cattle, states, in an unpublished document left by him, that the father and grandfather of Hugh Watson, of Keilor, had the Polled breed as far back as 1725; while I believe Mr. Watson's family are in possession of evidence giving the stock a still greater antiquity. We have seen that in the parish of Bendochy there were many Polled cattle in 1797. As regards Aberdeenshire, the direct evidence of the early existence of the breed is not so conclusive, but it has certainly been there from time immemorial. In a letter written, in 1833, by the late Mr. Macpherson, Huntly, to Mr. Youatt, author of "Cattle, their Breeds and Management," it is stated that in the Buchan quarter of Aberdeenshire a variety of the Polled cattle is the principal breed. Mr. Macpherson remarks, that in the rest of the county "the Aberdeenshire horned is the ancient, and is still the preponderating stock." He adds, that "these two kinds have existed time out of mind, and their origin is believed to be equally obscure with that of the other animals, wild and tame, which abound in the land." The value of this testimony is very great; for when Mr. Macpherson committed it to paper, he was 68 years of age. His own recollection would thus have gone back to the latter part of the eighteenth century, and even then the Polled breed had existed in the Buchan quarter of Aberdeenshire "time out of mind." It is quite unnecessary to multiply evidence of this kind, the facts I have brought forward proving the Polled breed to have existed contemporaneously in Angus and Aberdeen from about the middle of the last century. They were not "intro-

duced" to these districts, but doubtless originated, as I have already observed, by "spontaneous variation" from the aboriginal stock of the country.

SIGMA.

DUTCH-FRIESIAN CATTLE.

TO THE EDITOR OF THE JOURNAL:

It would be a work of much difficulty to forecast the future of Friesian, or Dutch-Friesian cattle. I will not attempt such a work; yet, I will give some things that must materially affect that future.

My observations in this country lead me to attach much importance to the extreme conservatism of the Friesian farmers. It is difficult for the people of other countries to fully appreciate the strength and influence of this conservatism. As an illustration of this conservatism, I will say, the Friesian farmer admits of little if any innovation upon the manners, customs, or dress of his ancestors. He does not intermarry with the people of other countries, or even with the inhabitants of his own towns and cities. He still uses the old Friesian dialect, though his books and newspapers for many years have been mainly printed in Hollandische. This extreme conservatism has produced the Friesian breed of cattle, by the aid of the soil and climate, and his uninterrupted following of dairy pursuits for ages. And this conservatism will continue to guard the purity of this breed with a greater degree of vigilance than statute law could possibly enforce.

From Friesland, as a centre, this breed has been disseminated, to a greater or less extent, over all the Lowlands of Northern Europe. It has become extensively mixed with the cattle of Belgium, and with the cattle of large portions of France and Germany. It is everywhere gaining ground, and to-day, upon the Continent of Europe, it is what the Short-horn breed is to English-speaking countries—the most noted and the most valued breed.

The extreme conservatism which produced this breed now operates, in the country of its origin, against the rapid adoption of new measures for its improvement. The Friesian farmer will not allow himself to think of such a thing as close inbreeding; hence he is producing no special strains or families of cattle. To him they are all of one family; and he would as little think of going to an adjoining province for a bull or a heifer of a different strain, as he would to South Africa to look for a wife.

In North Holland the case is quite different. The inhabitants of this province are the Yankees of the Netherlands. The farmers of this province import heavily from Friesland. In some localities they have mixed a little Durham blood with the Friesian, though not to an extent to destroy the thoroughbred character of the cattle generally. About 19 years ago, the Netherlands Herd Book Association was organized. It was started mainly by the influence of the breeders in North Holland, who thus united together to keep a common Herd Book of superior cattle of all the breeds in their possession. There was no mixing of the breeds by this Herd Book, as in every instance of registry the breed or cross was distinctly stated. Much has been said, in America, against this Herd Book, by parties interested in deprecating registry in this country. This Herd Book was, in truth, a grand step forward, and the cattle it contains are the aristocracy of the breeds owned in the provinces of North Holland and of South Holland.

In 1878, a charter was obtained from the King for an exclusively Friesian Herd Book. No one can read its by-laws and forms for examination and registry without being impressed with the value of this organization. A high standard of individual merit is required, and great carefulness observed against the admission of cattle not up to the standard. In consequence of this, the registry has increased slowly. The entries for the third volume closed with the first of last January. It brings the number of registered cattle up to 120 bulls and 663