

THE IMPROVED SHORTHORN.

NOTES AND REFLECTIONS UPON SOME FACTS IN

SHORTHORN HISTORY,

WITH REMARKS UPON CERTAIN PRINCIPLES OF

BREEDING.

BY

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INTRODUCTION.

THE choice of a title so nearly resembling that of the Rev. Henry Berry's work of 1824, may need explanation.

My aim here is to treat the Shorthorn of Coates's Herd Book as a breed *improved from its antecedents and surroundings*; therefore, one which needs the exercise of skilful care to *support* its improvement.

So long as Shorthorn breeding was mainly in the hands of men whose rent and profit depend upon the produce of the farm, there was little danger that the attention of breeders would be diverted from a practical object. But it is become a fashion and a fancy.

With those who deplore or fear the influence of increased wealth in the Shorthorn interest I have no sympathy. I hold that some of the wealthiest owners are far from being the least intelligent or the least practical of breeders; and that in this class are those who, by their education and brains, as well as by their purses, make the pursuit of their fancy productive of benefit to the public.

Still, as many of the best Shorthorns have passed

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out of the possession of men of the *necessarily* practical class, and as fashion sometimes curbs the exercise of private judgment, I venture to offer the following suggestions, in connection with recorded facts, to the notice of the well-wishers and admirers of the Shorthorn.

27, SOUTH STREET, THURLOE SQUARE,
LONDON, S.W., *February*, 1876.

THE IMPROVED SHORTHORN.

WE sometimes meet with people who are well versed in the intricacies of Kirklevington relationships, and as often, probably, with those who have made Killerby and Warlaby pedigrees their special study. The difficulty is to find lovers of Shorthorns sufficiently inquisitive (uncharitable observers might say sufficiently *liberal*) to extend their researches beyond the particular group to which they give their adherence. It is probably no exaggeration to say that the generality of Shorthorn breeders are unacquainted with what is contained in the genealogies of the larger portion of the breed. Their attention, indeed, to the remoter antecedents of even their own special favourites, often appears to have been imperfect.

If the majority were better grounded in the rudiments of their subject, should we not see—I cannot say, and do not wish, less appreciation of old-established good sorts, but—a more just recognition of the merits of many sorts now too much neglected? There is yearly, I maintain, a great national loss, an immense waste of properties and power that might be made available for the general improvement of farm stock, owing to the contempt that has grown

for pedigrees with no "catch," no "weight of fashion," about them. How many a good cow or heifer the constant attendant at sales must have noticed going into careless hands, to become the dam of inferior stock, just because her pedigree doesn't "*read well*"? Yet, if that pedigree were impartially searched, it would prove rich, perhaps, in ancestors of noble character, whose distinguishing merits, inherited by the unfashionably bred descendant, might be perpetuated, and transferred to any sorts that lack them.

For examples of the use that fearless breeders have made of specialties, it is needless to go further than two or three familiar facts. Fifty years ago, the Rev. Henry Berry saw in a heifer of Sir John Ramsden's a depth and fulness of "twist" (between the rounds and over the udder) that he greatly admired. He bought the heifer (Actonia), and from her bred animals excellent in at least one point that is too much neglected.

More than sixty years ago, Mr. Richard Booth saw, in the cow by Burrell's Bull, the "fore-flank" (cushion of flesh behind the hoxter) he wanted his cows to have. He mated her with Agamemnon; the offspring, White Cow, with Pilot, and the result was, in Isabella, a fore-flank of enormous substance, which by intermixture of his families he got into the whole of his herd. This, again, was very strongly developed in her descendant, Bridecake; and Mr. S. E. Bolden, by using Prince Imperial (15095), a son of that cow, decidedly improved the fore-flank of the Duchesses. Forty-five years ago Mr. Bates seized the head of Belvedere, with all its meaning of vigour and activity,

and made the properties of Belvedere, head and all, eminently notable in his herd ever afterwards. So it was, indeed, some ninety-five years back, a timely perception of special excellence in Hubback (whose value, nevertheless, seems to have been under-estimated, even by Mr. Charles Colling) that gave us, may I not say, the largest measure of rapid improvement known in the history of Shorthorn cattle? And so, moreover, to Mrs. Charles Colling's determination to secure for her husband's herd the addition of Lady Maynard, we owe the existence and helpful influence of Favourite (252).

It is, I apprehend, the prevalent indisposition to treat Shorthorns *as Shorthorns*, the tendency to prize some particular formula of descent, to the exclusion of other orders, that mainly causes the waste to which I have alluded, and hinders men from following the example of the breeders who founded, and the breeders who have preserved, the Improved Shorthorn.

I purpose devoting in the following pages some attention to those early Shorthorns which are at the foundation of all improved tribes and registered pedigrees (rather, however, in the hope of stimulating further research, than under any pretence of dealing exhaustively with so comprehensive a subject); and, having analysed the breeding of some of the originals, I shall then ask the reader to consider with me how families and tribes of eminent note are built up; to look at them not as so many single lines, but as broad-based edifices, composed of multitudinous parts.

Much discussion took place about fifty-five years

ago relative to the breeding of Hubback; and the authoritative contradiction of Major Rudd's notion as to Kyloe descent on the dam's side is on record; so also is the express testimony of Mr. Charles Colling, and that of Mr. Alexander Hall, who remembered the dam of Hubback and described her appearance. As these facts seem to be overlooked by some inquirers of the present day, a recapitulation of the main evidence may be not out of place here. Major Rudd wrote to the *Farmer's Journal* of Sept. 15th, 1821:—

“With respect to Kyloe descent, I can assure your correspondent that I have not given my account from mere conjecture, as he supposes. My information was derived from a most worthy and respectable person, who assured me he had it from Mr. John Hunter, of Hurworth, bricklayer, to whom the dam of Hubback belonged, and who bred Hubback by sending his cow to Mr. George Snowdon's bull. Mr. John Hunter is now dead, and therefore this evidence is the best that can be had, unless some living person knows the pedigree of Hubback's dam and can attest it.”

There *was* one person then living who knew probably as much as was known in Hubback's day of the breeding of Hubback's dam, and who, within one year after the date of Major Rudd's letter, *did* certify his belief that she was a pure-bred Shorthorn. That was Mr. John Hunter, of Hurworth, the son of the breeder of Hubback. His well-known attestation, appended to Hubback's pedigree in the first volume of the Herd Book, under the number 319, is in

the following words, addressed to the editor of the Herd Book, Mr. George Coates:—

“ I remember the cow which my father bred, that was the dam of Hubback. There was no idea that she had any mixed or Kylvoe blood in her. Much has been lately said that she was descended from a Kylvoe; but I have no reason to believe, nor do I believe, that she had any mixture of Kylvoe blood in her.

“ JOHN HUNTER.

“ HURWORTH, NEAR DARLINGTON,
July 6th, 1822.”

This, written nearly a year later than Major Rudd's assertion, may be said to *answer* it. But an answer had appeared before this. In the *Farmer's Journal* of Nov. 19th, 1821, was a communication from Mr. George Baker, of Elemore Hall, who wrote:—

“ I have the authority of Mr. Charles Colling to say that he always considered Hubback a thoroughbred Shorthorn bull. Mr. John Hunter, of Hurworth, says his father bought Hubback's dam of Mr. Stephenson, of Ketton, and that she was a pure-bred Shorthorn. Mr. Alexander Hall, of Sherraton Hill Top, who lived in the neighbourhood, and remembers her and her calf Hubback perfectly well, says she was a beautiful colour and handler, and when she got on to good land near Darlington, she got so fat she would not breed again.”

The pith of the curiously constructed, rambling pedigree of Hubback in the Herd Book, 319, is simply this: Hubback, yellow-red and white (punctuated—yellow, red, and white), was calved in 1777,

bred by Mr. John Hunter, of Hurworth, and got by Mr. George Snowdon's Bull (612); his dam, bred by Mr. John Hunter (and derived from the stock of Sir James Pennyman, and these from the stock of Sir William St. Quintin, of Scampston), was by a bull of Mr. Banks's, of Hurworth; and his maternal grandam was bought of Mr. Stephenson, of Ketton. [So that Mr. Baker has skipped one link in the chain, when he states his impression that Mr. Hunter, the younger, had said the *dam* of Hubback was bred by Mr. Stephenson, and the Herd Book pedigree accords with the certificate—"the cow that my father bred."]

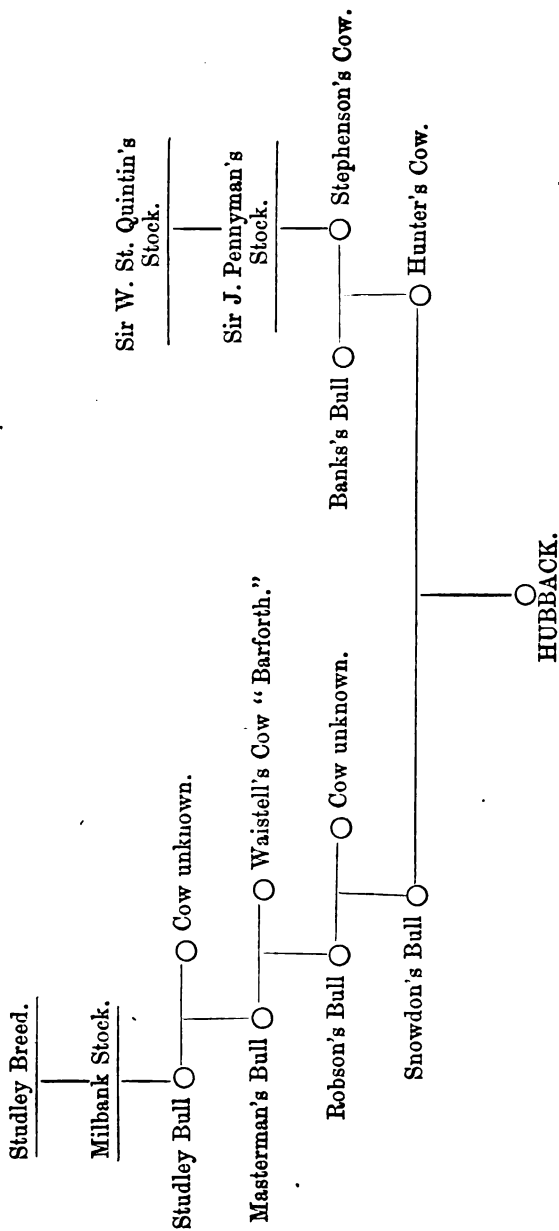
This is as far as the direct female line is traced. Mr. George Snowdon's Bull (Hubback's sire), the record proceeds to set forth, was by William Robson's Bull (558). Here the parentheses become complicated; but the legitimate construction is that William Robson's Bull, Hubback's paternal grand-sire, bred by Mr. Waistell, of Great Burdon, near Darlington, was from Mr. Waistell's roan cow, Barforth, and by James Masterman's Bull (422), who was bred by Mr. Walker, near Leyburn, and got by the Studley Bull (626), the latter bred by Mr. Sharter, of Chilton. Under number 626 we find that the Studley Bull was red and white.

In his "History of the Short-horned Cattle" (page 29), Mr. Allen, editor of the American Herd Book, says of the Studley Bull, beyond the record contained in the English Herd Book,—“He was calved in 1737, and of the Barmingham Milbank stock, which came from Studley, where they had existed many years. He is described, by one who often saw him,

as having possessed wonderful girth and depth of forequarters, very short legs, a neat frame, and light offal." Further, Mr. Allen remarks of the same bull, "His blood was well known and popular, and being of the Milbank stock, was probably as pure in descent as any then in existence." From this and the Herd Book record (accepting the latter as authoritative, and Mr. Allen's supplemental statements as derived from evidence which he has doubtless reason to consider authentic), Hubback's pedigree stands as displayed on page 12.

Like the personage familiar in our nursery days as Elizabeth, Betsy, Bessy, and Bess, William Robson's Bull (558), Waistell's Bull (669), and Harrison's Bull (292) were one and the same; and James Masterman's Bull (422) was the same entered afterwards as Walker's Bull (670). These *aliases* are rather perplexing to young students of Shorthorn history.

From the imperfection of early records, it is difficult to ascertain the exact number of Hubback's daughters that became the foundation dams of Herd Book tribes, or of his sons to whose offspring Herd Book pedigrees may be traced. In some genealogies we find "a son of Hubback," or a "grandson of Hubback," without any clue to identification. I do not remember more than two bulls registered in the first volume of the Herd Book as certainly sons of Hubback, but am under correction if I have inadvertently omitted any. Those to which I allude are Broken Horn (95), and Lamé Bull (358), both Mr. Robert Colling's, and both are by Hubback, out of Hubback's own daughters. Charles (126) also (not Mason's Charles), is entered as by either



Hubback or Foljambe. There was a difference of ten years between the age of Hubback and that of his grandson Foljambe; the one calved in 1777, the other in 1787. My research as to Hubback's daughters,—not, perhaps, exhaustive,—shows not more than a score of cows, which I think may be considered different animals, by Hubback. In tracing them we meet the difficulty, to which I have above alluded (owing to the imperfect state of some early entries), in distinguishing one from another; and sometimes we are inclined to say, like the son of Erin, perplexed in counting the guests he had met at dinner,—“The two Maguires is *one*.” There is the grandam of Mr. Charles Colling's Fortune, unmistakably. From this cow several modern tribes proceed, for she and her offspring were prolific. The Bright Eyes sort of Mr. Robert Colling is from certainly another cow by Hubback. That cow was the great-grandam of Old Bright Eyes. The Duchesses proceed from the Stanwick cow's daughter by Hubback. That daughter was grandam of the first of the tribe possessed by Mr. Bates, Duchess by Daisy Bull, who was grandam of Duchess 1st, by Comet. For the sake only of beginners, I need here explain that the Duchess name, without enumeration, had been given for several generations before Mr. Bates adopted the sort, retaining the name with the addition of distinguishing figures. From the Daisy-Bull Duchess he had failed to breed a family, so he bought her granddaughter, then called Young Duchess, but since known as Duchess 1st, at the Ketton sale in 1810.

Hubback was the sire also of the grandam of Daisy

Bull (186)—so that the first Duchess cow bought by Mr. Bates had his blood through both parents,—and of the grandam of Old Daisy, and of the grandam of Carlisle (115). Can any one say authoritatively whether or not the *same* Hubback cow was the grandam of all these three? Carlisle has the same sires in exactly the same order as Daisy and Daisy Bull have them—Favourite, Punch, Hubback; but in Carlisle's pedigree we have a clue to something further by the addition of dams' names, which were often indifferently omitted or inserted in the early pedigrees, while sometimes the whole tail of a pedigree was omitted in the entry of one animal, and inserted in that of another of exactly the same family. Foljambe (263), moreover, was out of a daughter of Hubback, but this was the same cow that bred the dam of Carlisle; and I have suggested, as worth inquiry, whether Daisy and Daisy Bull were not of the same descent.

Princess by Favourite, her dam by Favourite, was the granddaughter of a Hubback cow which seems to have been distinct from any of the foregoing, unless Bright Eyes was from the same.* The Princesses, Tuberoses, Elviras, Gwynnes, and all other branches of this stock are thus directly descended from one and the same cow by Hubback. Mr. Robert Colling's Red Rose, from whom we have the Red Roses, Cambridge Roses, and Roses of Sharon, was great-granddaughter of a cow by Hubback. Ben (70) was the

* Mr. Allen says (Hist., p. 29) that from the dam of Mr. Pickering's "Tripes," who was bred by Mr. Stephenson, of Ketton, in 1739, the Princess tribe originated. On p. 58 I have drawn, side by side, the pedigrees of Foljambe and Princess.

grandson of the same or another Hubback cow. The dam of Broken Horn, and the dam of Lame Bull, were daughters (or was a daughter) of Hubback. The similarity of origin (cow from Mr. Watson's, of Manfield,) would lead to the inference that one daughter of Hubback was the grandam of both Lame Bull and Broken Horn; but an additional (though nameless) step in the pedigree of Lame Bull *may*, not necessarily *must*, induce us to accept the alternative.

Col. Trotter's cow Russell,* the earliest registered ancestress of Sylph, and the Sweethearts and Charmers, was granddaughter of a cow by Hubback.

The great-grandam of Mr. Wetherell's Cora (vol. i., p. 244), and the grandam of Cora in the pedigree of the same Mr. Wetherell's Shannon (584), was or were by Hubback. If we have but one Cora, the name of Irishman (329) is either by mistake inserted in the cows' entry, or erroneously omitted from the bulls'. If we must take it that Mr. John Wetherell, of Brampton, had *two* Coras, bred alike except in regard to one generation, Hubback must be credited with two daughters † in this instance. I have searched somewhat carefully through the Herd Book entries of cattle bred by Mr. Spours (a Northumbrian breeder, who used the same bulls that occur in Cora's pedi-

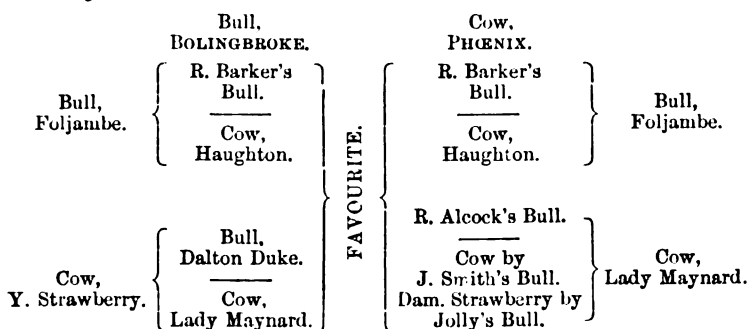
* H. B., vol. i., p. 482, or Cows of vols. i., ii., iii., p. 687.

† Compare Ceres, vols. i., ii., pp. 219, 263, (or see Cows, of vols. i., ii., iii., pp. 120, 151, 162), with Cora above. That Cora, two years old when Ceres was born, could have been her dam, so far as dates are concerned. It seems highly probable that the Cora in question bred more calves than the two pairs entered to her credit—two bulls and two "free-marten" heifers; otherwise she did not breed until ten years old.

gree), hoping to trace some explanatory connection ; but without success. I find in Mr. Spours' possession several cows—Blossom, Jane, Lively, North Ruby, Mottle, Sarah—descended from a Hubback dam or Hubback dams. Differences in some particulars suggest the plurality of Hubback cows. Unless we are to gratuitously assume the existence of inaccuracy, I think we must in this case credit Hubback with at least two daughters, perhaps more than two ; but the want of names, in the female line, makes very difficult the task of identifying or distinguishing animals.

The dam of Mr. Robertson's Signior (588) was by Hubback ; and the great-grandam of Mr. W. Robinson's Nonsuch. The dam of Mr. Charles Colling's Old Cherry was another Hubback cow, likewise the grandam of his Yarborough (705). And so was the grandam of Mr. Robert Colling's Wildair. And the great-grandam of Marquis (407) ; and the great-great-grandam of Mr. R. Colling's Marske (418) ; but is not the latter of identical blood with the Bright Eyes tribe ? If so, he wants Waistell's Bull at the root of his pedigree. This the editor of the American Herd Book gives him (under the *alias* of " Harrison's Bull " (*Hist. Short. Cattle*, p. 53), and adds, moreover, the Studley Bull. So the lineages of Marske, of the Bright Eyes tribe, and of the Princesses, are made exactly alike. Were they *one* ? Robert Colling's White Bull (151) I believe to have been own brother to the original Princess. Except one or two less noted cows, I do not remember any more by Hubback which may not be identified with one or another of those already mentioned.

Hubback has been called, and perhaps justly, the father of the Shorthorns. In one sense he is so, inasmuch as all Shorthorns of the present day, that have recorded pedigrees, trace their descent from him, either directly through his daughters, or indirectly through his sons or the male offspring of his daughters and the tribes derived from them. But to suppose that all improvement of the breed is due to the merits of Hubback would take us, surely, very much beyond the truth. Hubback was a very good stock-getter, no doubt, and exceedingly useful in his day; but contemporaneously with him, and long before he lived, there were capital Shorthorns bred by such men as Maynard and Waistell. The cow by Jolly's Bull was a fine Shorthorn; her daughter by Jacob Smith's Bull was a fine Shorthorn: and her granddaughter, Lady Maynard or Favourite, by Ralph Alcock's Bull, was good enough to be an irresistibly attractive object of fancy to Mr. and Mrs. Charles Colling. Yet what had Hubback to do with the breeding of any one of these cows? None of them were descended from him. Favourite (252) owed three-eighths of his blood to Lady Maynard (called also Favourite), and one-eighth to Hubback. The following table will enable me to show this more clearly than words alone.



I have here quartered the pedigrees of his sire Bolingbroke and his dam Phoenix, thus parting Favourite's pedigree into eighths. Four of these, or one-half, belong to Foljambe, Hubback's grandson, and four to Lady Maynard and her daughter, young Strawberry, in neither of whom was any blood derived from Hubback. Two-eighths, or one-fourth, belong to the cow Haughton (Foljambe's dam), who was by Hubback, making a proportion of one-eighth Hubback, as before said, in Favourite; just as much of Hubback as Mr. Bolden's Third Grand Duke had of the Booth, or as Mr. Booth's Bride Elect had of the Raine blood. There were, however, ancestors of Hubback, otherwise than through Hubback, in some of Favourite's progenitors—the Studley Bull, for example, in Dalton Duke; but one degree further off than appears in Dalton Duke's entry under No. 188, for upon reference to his amended pedigree, entered later under No. 691, we find that his dam was by the Studley *White Bull*, a son of the original Studley Bull.

For my own part, I could readily suppose that the fraction of Hubback in Favourite, or rather *two fractions, meeting in him from both sides*, was influential for good to an extent much beyond its numerical proportion. We often find the influence of a remarkably good and impressive bull, as Hubback assuredly was, coming out in renewed power when we thus unite his descendants. The physiological reason I do not attempt to suggest; but the fact, I think, must have struck every one who has been long, attentively, and thoughtfully acquainted with the subject of Shorthorn breeding.

By-the-bye, is it not both true and remarkable, that the merits of some of the best sires that have lived have not been fully recognised until the animals have been put away? Even by eminent breeders, the great superiority of the stock of certain bulls has passed unnoticed until the offspring arrived at ripe maturity, when probably the sire was past much further service, if not already sent to the butcher. The fact, if granted, is significant in connection with the sort of prophetic vision and conjuror's touch sometimes supposed to belong to the more sagacious judges of Shorthorns. Let us own that while a naturally quick eye in full practice can pick out a "promising" young or lean Shorthorn that a slow or untutored eye would fail to admire, and while the tips of judicial fingers can detect qualities that the ordinary hand is unable to perceive, there is no extra-natural gift in the art of seeing or handling Shorthorns. Perhaps the most enviable and least easily acquired faculty of a stock-breeder is that, which some few men pre-eminently have possessed, of knowing *how to mate* their animals—recognising by something like intuition the fitnesses of similarity and of dissimilarity. I remember a much-respected and successful breeder (not now living) in whom this gift excited my great admiration. "*That cow,*" he would say, "*must run with that bull.*" If asked why, "I cannot say," he would answer; "but I know that *the result will be right.*" And so, invariably, it was, when his judgment was used *sincerely*, that is to say, without bias from external considerations of fashion and profit.

Might not this *right result* be more often obtained

if breeders would remember that they are dealing with an IMPROVED BREED, liable to reversion, yet capable of *maintenance in its improved state*, and of still *progressive improvement*?

An admirer of Shorthorns may have—I own I myself have—a special liking for certain types of the breed; and may—as I do—look upon the preservation of certain strains of blood, distinct, as a most important safeguard of those types; but as too much of a good thing may prove an evil, the custom of *breeding for pedigree* may overshoot the mark, and fail to ensure that for which pedigree is valuable. The registration of Shorthorn pedigrees is recognised as an inestimable boon to the Shorthorn interest, and the Herd Book as the most serviceable directory; but its uses, assuredly, are misapplied if we make it only a pattern-book of pedigrees.

The perceptible ebb and flow of merit in various lines of Shorthorns, in the course of their history, should demonstrate the necessity of attending mainly to the *personal qualities* of our stock. This is the only way to make the breed as serviceable as possible to the country; and for a commercial speculation any other system of breeding must fall, sooner or later. No sort can long hold the market after loss of the special characteristics that gave it popularity. How seldom do we see equality of merit retained in one direct line through many generations. States rise and fall; arts flourish and fade; and “every dog has his day.” Shorthorn families, between the elevating power of care and keep, and the reverse influence of their unimproved origin, are constantly fluctuating between the extremes of improvement

and of degeneracy. While no part of creation can escape the law which says, like Policeman X, "Move on," the *improved* breeds are subject to more rapid change than the *wild* races of animals, inasmuch as their condition is abnormal. As the waterspout finds its level in ocean again, when the atmospheric power that raised it is withdrawn, so the animals, artificially altered for the particular requirements of civilization, drop to the level of the originals, when man's vigilance in their culture abates.

From old tribes in which deterioration has begun, the very finest new sorts, doubtless, may be extracted. We occasionally see a new, and vigorous, and true-breeding sort, springing from the fag-end of a stock out-worn; rising as it were out of the very ashes of the old. Mix a little of the old with some fresh, healthy, and not incongruous material, and the ancestral improved forms reappear. The scion has a young root to support it, and begins to bear once more the fruit of the parent tree.

Sometimes we see the old tribes themselves arrested in their decline by the bold admission of fresh elements; but it requires a master's hand to do this. An unfortunate experiment hastens their destruction.

A judicious variation in the use of old material may in certain cases effect all that could be gained by the addition of new. Families from one origin, say, diverge and are kept asunder until in course of time they are virtually strange to one another; so that the renovating effect of a "cross" is obtained by their reunion, although the amount of really fresh blood, if any fresh blood be present, may be trifling.

There is one mode of breeding that produces,

almost unaccountably, a wonder of excellence, now and again—oftener *once* than *again*—and that is “ham-sam,” or “higgledy-piggledy” breeding; the jumbling together of any sorts that happen to come to hand, without any other reason than either ignorance or indifference. One has felt almost astounded on seeing the style, hair, form and flesh of some offshoot of mediocrity, some sport from the most ordinary parentage. Usually there is a little good blood that has been in abeyance somewhere, in animals that so vastly surpass their immediate antecedents. It may be that some accidental mixture has proved a “hit.” I scarcely need repeat that the lucky accident is not to be trusted to reproduce its superiority; yet, who can say we are not greatly indebted to lucky accidents for the “improved Shorthorn”? The majority of the produce of the low-bred beauty would probably revert to the average of their own ancestry, but for all that, a rise of merit has happened, which might be turned to profitable use by very diligent selection. In the early days of the Shorthorns, anything extra good was worth cultivating, however derived. Now, we have so much well-descended stock, possessing personal excellence of a high degree, that for those who desire a high place among breeders it would be foolish to waste time in beginning afresh from unimproved animals when they have more trustworthy material ready made. We may more prudently make our established sorts increase and multiply, and aim to *improve them*, than spend our energies in trying to raise a Ribston Pippin from a hedgerow crab. The building up of new families and tribes by the use of improved-upon ordinary

stock, is quite another matter, and is no less commendable, from a national point of view, than the careful preservation of the old sorts, those densely charged reservoirs of food-productive power.

Still, while the necessities of the country urge the improvement of all our stock to the utmost possible extent, we must take care I would maintain, not to dilute our older strains of Shorthorn blood too freely. I would rather avoid, entirely, taking crosses from what in America would be called the "grades." Surely there is no need for this. We have plenty of long-established varieties; and at *their* foundation we have quite as many brindles and black noses as are desirable. Why take pains to introduce more of plebeian, or alien, or unknown elements?

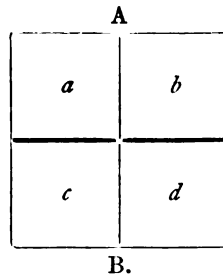
Now we say that these brindles, etc., are "a long way off." So they are, in point of time; but how often they recur! You count up the generations, and find that perhaps eighteen or twenty occur between your lovely heifer, "One hundred and seventy-fifth Duke of Sebastopol's Sugarplum," and the thick, useful, mellow-handling Foljambe, with his dark face. But tabulate her pedigree, and see how often she is descended from Foljambe, and from Dalton Duke, a brindled red and white bull, and from Richard Barker's Bull ("Dicky Barker's Blacknose"), to say nothing of that now almost ubiquitous * grandson of Bolingbroke and his "doddie" (polled) grandmother. A genealogy comprehensively displayed is not a mere line, or a flight of steps; it is a network. Upon page 59, displayed in tabular form, I have given an analysis of a pedigree into sixty-four parts—that

* Grandson of Bolingbroke. See remarks upon this cross, p. 41.

is, back to the animal's sixth dam and sire, or great-great-great-grandparents.

In a series of articles contributed to *The Farmer* in the year 1866, under the head of "The Breeder," I submitted that the power of any element was not necessarily proportionate to the quantity of that element in a pedigree; but that the actual proportion of any one element might be ascertained by calculation. The latter proposition was illustrated by a sort of fractograph.* As a necessary part of the same subject, I had occasion to show that the true and full analysis of a pedigree introduces many lines. These converge like the ribs of a spread fan, and centre in the animal whose pedigree we analyse. As we, diverting the order of time, *ascend* the various lines, we find the ancestors multiplied according to the law of geometrical progression; so that while at

* The following will serve as a simple illustration of the plan:—



A, the sire; B, the dam; *a*, the paternal grandsire; *b*, the paternal grandam; *c*, the maternal grandsire; *d*, the maternal grandam. Example:—FREDERICK 11489; A, Duke 9032; B, Bessy; *a*, Mehemet Ali 7227; *b*, Hartforth Cherry; *c*, Thick Hock 6601; *d*, Barmpton Rose. Of these four animals, in equal proportions, Frederick is compounded. The subdivision of the fractograph may be continued to any practicable extent.

the first generation there are only two parents, and at the second four grandparents, the doubling process gives us rapidly a large number of progenitors. We have at the eighth generation 256 ancestors (128 of either sex), and at the sixteenth remove we have no fewer than 65,536 male and female ancestors, all of one generation. This principle of reckoning has been ingeniously used by Southey to show the probability of forgotten human relationships, the not very remote family connection of almost everybody to everybody else. In pursuance of our own inquiry, let us take the figure 1 as representing an animal whose breeding we wish to trace, 2 its immediate parents, and so forth; and here we have the numbers of its progenitors in each remove—1. 2. 4. 8. 16. 32. 64. 128. 256. 512. 1024. 2048. 4096. 8192. 16384. 32768. 65536.

Given, therefore, the ninth dam in a pedigree, and required the proportion of blood which her ninth descendant owes to her, the answer is $\frac{1}{512}$, or one five-hundredth-and-twelfth part.

It is clear that if the Shorthorns sprang from a mere handful of cattle in Teesdale and the neighbouring parts of Yorkshire and Durham, those that have eight, or ten, or more generations in descent from the Teeswater stock, must be *repeatedly* descended from the same animals.* So that the

* Mr. B. F. Vanmeter, of Stock Place, Kentucky, analysed the pedigree of his cow Poppy 5th, calved in March, 1867, and found her 338 times descended from Favourite (252), whose name occurs only once in her direct line, as the sire of her 11th dam. Being thus 12th in descent from Favourite, Poppy 5th owes $\frac{1}{4096}$ part of her blood to him. Take, however, all the 338 fractions derived from

chances of stain from Foljambe's dark face, or Barker's Bull's black muzzle, or Dalton Duke's brindle, are multiplied.

If the descent from certain animals be not thus repeated, so much the more of utterly unknown material must we have; for the number must be 65536 in the sixteenth generation, either by repetition or in separate individuals. Knowing the indiscriminate and often hap-hazard mixtures that take place in the breeding of common farm cattle, can we doubt that it is safer to accept, as it has reached us, the little sprinkling of black and blue* that we have in the old sorts (inheritors of "blue" blood in more senses than one), than to dilute it with the new material? Suppose we determine to eradicate from the Shorthorn breed those colour-stains which still bear testimony to the early mixtures: no doubt it could be done; but at what sacrifice of good material! Would the country gain or lose by the condemnation of every dark-nosed calf to the butcher? Much might be effected, unquestionably, by less violent measures. An animal showing the stain might be usefully turned to account in the improve-

Favourite, and suppose them to average 12 generations in distance, and we have $\frac{3 \cdot 3 \cdot 8}{4 \cdot 0 \cdot 0 \cdot 8}$, or about 8½ per cent. of the blood traced from Favourite. For another analysis, see p. 59.

* In cattle, the mixture of black and white into a grey is technically called "blue," or "blue-grey." There is also (and I have seen it in Shorthorns of long registered descent on all sides) the "blue-roan," which is a composite of red, black, and white. This kind of roan is often of a very inky hue. I doubt whether the rich purple roans, which are quite different from the blue roans, very beautiful, and very much desired, are not indebted to some remote dash of black in the ancestry.

ment of common stock ; but to effectually purge the old tribes of those ills that Shorthorn flesh is heir to, we must weed out unsparingly everything that outwardly manifests the inheritance of the blot.

I take the Shorthorn breed to be compounded of various breeds, made distinctly *one* by selection extending over a long course of years : this selection, partly deliberate, careful, and—if I may be allowed the compound—fore-thoughtful, but more generally fortuitous. Each farmer took that which was best suited to his purpose, and thus, in days when there were no railway arteries to circulate the products of a district, the cattle of Teesdale became a distinct and an improving breed, possibly much indebted to some previously good breed, wild or cultivated. The same circumstances that gave the Shorthorn its distinctness, tended to educate the stock-breeder ; and thus, with their herds gradually developing the properties of an improved breed, were men trained, who by *studied* selection helped the process that was going on, chiefly in the Vale of Tees and neighbourhood.

When the best cattle of the district were brought together, and their offspring generously reared, important results occurred. The aptitude of the Shorthorn to milk deeply, to continue the yield of milk over many months, and to turn the food consumed into beef instead of milk as soon as the drain of the latter was stopped, gained strength by intelligent cultivation. Enormous productions of milk and butter, and great weights of beef, are upon record, to the credit of early Shorthorns. These doings brought the breed into general notice, and for these properties the Shorthorn was sought and bought

by breeders in distant counties. Among the early owners of Shorthorns away from the native pastures of the breed, were, in Worcestershire, the Rev. Henry Berry, the Shorthorn historian; in Gloucestershire (which has become one of the strongest counties for the Shorthorn), the Misses Strickland; Somersetshire, Mr. Cottrell; Northamptonshire, afterwards famous in connection with the name of Sir C. Knightley, had the Right Hon. Charles Arbuthnot; in Lincolnshire Mr. Ostler took an early lead; Nottinghamshire could boast the herds of the Hon. J. Simpson of Babworth, of Mr. Champion of Blyth, and of Messrs. Rose and Fisher, (and the name of Booth of Cotham must be here respectfully remembered); Warwickshire had its Bellamy; and several other counties gave early adherents to the Shorthorn interest. The cattle, besides going long distances in small detachments, advanced circle after circle into the districts surrounding their first home. Northumberland became one of their great strongholds; and the neighbouring counties, west and south, received them readily, except that in Westmoreland and Lancashire the old Longhorn stoutly disputed the ground with them. Among the earliest friends of the Shorthorn in those Longhorn provinces were the late Mr. Jonathan Binns, author of "The Agriculture of Lancashire," in which he introduced a portrait of his cow Elvira, by Phenomenon, out of Princess by Favourite; a near relation of my own, Mr. Bradshaw of Halton Hall, who, about the year 1820, introduced the blood of Mr. Charge, Sir Henry Carr-Ibbetson, and other Yorkshire breeders; and Mr. Bradshaw's agent, Mr. Webster, who occupied the

Beaumont Grange Farm, where at this day Mr. W. W. Slye has his well-known Shorthorn herd. By the increase and influence of these herds, the old-established breed of the neighbourhood was in a few years supplanted by the Shorthorn. I know one herd in Westmoreland of excellent cattle, whose pedigrees, if written and certified, would be amply qualified for registration in the Shorthorn Herd Book; yet their foundation dam was a true-bred Longhorn (whose portrait I have seen), a prize-taker of the purest and best blood of fifty or sixty years ago. Their owner, however, a successful sheep-breeder, is of opinion that one rule should apply to herd and flock alike—to “draw from known good sources that suit you, but never bother with pedigrees”! I have not once detected in his stock any reversion to the original Longhorn. Of course most of the Shorthorn herds which replaced the old breed were founded by the introduction of Shorthorn dams as well as sires, and were as pure as those of the Yorkshire and Durham breeders.

Scotland, always alive to worth, took up the breed which had made such rapid strides in the race of improvement, and which was elbowing its neighbours on all sides. I shall presently have occasion to examine the practice of some noted early Scotch breeders, and will therefore mention here, as among the foremost, only the names of Mr. Robertson, of Ladykirk, in Berwickshire; General Simson, of Pitcorthie, Fifeshire; and Mr. Taylor, of Kirktonhill, near Montrose. The practical advantages that our North British brethren have got out of the improved Shorthorn have been very considerable, and continue to

increase. Nowhere, probably, is the breed turned more thoroughly to useful purposes. If we had no other guarantee for its maintenance up to a high standard of merit, the demand in Scotland for *useful* bulls would afford assurance that the Shorthorn will not be allowed to degenerate by neglect.

Ireland, too, was timely in the field of competition; and upwards of fifty years ago, Mr. Fortescue, Mr. Adamson, and other breeders were multiplying Shorthorns in the fair Green Isle. Messrs. Pollock, Holmes, and Lee Norman, and Sir P. Nugent, were also among the early buyers,—Mr. Pollock purchasing from Capt. Barclay in Scotland. The illustrious names of Chaloner and Barnes were also long since added to the roll. The taste of Irish breeders has inclined chiefly to what is now known as the Booth type of Shorthorn—that which, under the controlling selection of Mr. Thomas Booth of Killerby, his sons, Messrs. John and Richard Booth, and his now living grandsons, has grown out of the Colling, Cradock, Raine, and other materials, combined in the Killerby, Studley, and Warlaby Shorthorns. Many animals, therefore, derived from these sources have found their way westward across the Irish Sea; but a great partiality has also been evinced towards the old tribes of Chilton, especially as grafting stocks for the Booth sorts. The Shorthorn *influence*, in Ireland, is set forth in very great improvement among the common stock of the country; Shorthorn *progress*, in the establishment of many fine and pure-bred herds, which contain specimens of breeding stock of the first quality. From these herds, reared upon a different soil, and in a climate

somewhat varying—however slightly—from our own, English breeders might wisely, perhaps, take an occasional dash of fresh blood. This indeed has been done in some instances.

Besides their increase and extension in the British Islands, the Shorthorns gained a footing in America also, where at first they found small favour. Their merits were, however, at length duly recognised; and the exportations to Kentucky in 1817, and Col. Powel's purchases from the Greenholme tribes seven years later, were among the most prominent of the events which led the way to a considerable, and, I hope, lasting trade in Shorthorns, between the American continent and Great Britain. It is probably to the Transatlantic demand for certain strains of blood that we owe the vast lead gained by some two or three of our sorts over all others.

American prices gave an impetus to both business and breeding here; and it was impossible to mistake the renewed vibrations felt in this country when the sale at New York Mills in the autumn of 1873 caused an upheaval of the business there. This new force, doubtless, as I may be answered, extended to all, or nearly all, classes of Shorthorns; but the influence was by far the strongest upon those tribes that had previously got the lead. It affected their market value, as compared with its influence upon the market value of less fashionable sorts, much as the motive power of clock-work makes one hand describe the whole circle, and the other hand only one-twelfth of the circle, in one hour. I do not purpose entering into any discussion here of the high-price question, but will return to the

consideration of Shorthorns simply as *Shorthorns*, without reference to the elevation or depression of any particular kind at any particular period. One word, however, while glancing at America's connection with Shorthorn history. Americans select from what they consider, and what some of us also consider, our best tribes. When they get them across the Atlantic, they deal with them just according to their own pleasure, never heeding British notions of fitness. In fact, they have *their own breeders*. Take, for instance, the Roses of Sharon as bred in Clark County, Kentucky. If you express surprise to an American that Mr. Renick should have put such a weight of the Greenholme upon the Kirklevington material, he probably tells you, "Abram Renick put those crosses on, and I reckon you and I have got to *accept* them." The American public regard the name as of equal authority with that of Thomas Bates—

"Their's not to reason why ;
Their's not to make reply"—

when an innovation is backed by such a name ; and indeed it would seem that on our side of the Atlantic there is a strong disposition to endorse the judgment of eminent American breeders.

Having alluded more than once to the Shorthorns of Mr. Whitaker of Greenholme, I may here take occasion to avow my belief that whenever the full history of Shorthorns is written, the services of Mr. Whitaker to the cause of Shorthorn breeding will be recognised as incalculably valuable. He was the staunch friend of the Shorthorn at a critical

period; and as a breeder he ever kept in view the fact that the Shorthorn, rightly managed, is eminently qualified for dairy purposes. How many judges, how many breeders of the present day, make the bag an important object of attention? I have seen many prize-winners, in breeding-stock classes, which scarcely seemed qualified for competition, if all we have a right to require of a breeding cow or heifer were duly considered; a cow, for instance, that evidently, from the smallness and deformity of her udder, could not possibly give more milk than a ewe. Think of the destruction of useful properties that must follow if the son of such a cow went into a dairy district, or even into a herd out of which, from a good milker, a dairy-stock breeder selected a bull.

This is really a most important consideration in the education of one's own judgment relative to Shorthorns. What is our standard, what is our type to be? I must own that, right or wrong, my preference is for a neat, "clean"-shaped (if I may so call the most distinctively feminine mould) somewhat gay-looking, medium-sized cow; and a bull strong in the horn, with a short head, broad across the forehead, the horns set well back; and in addition to the everywhere recognised desiderata of form and flesh, I would have verily a round of beef on his neck. If told that we don't want beef grown there, I say it is not value per pound we are dealing with, but *the character of a male animal*. This is the *sire* we have before us now, not his emasculated sons, which will be none the less level as steers, nor the less massive in roast.

beef parts, because their father was a true specimen of his sex in its natural perfection. Neither will his daughters be coarse because he is powerful, but the reverse. Let us see, however, in male and female, a clear throat: in the bull, the muscular development kept well back from the joining of head and neck; in the cow, something of elegance, almost amounting to lightness, where head and neck join, not further back. A fold or two of loose skin, as a matter of eye-pleasing, in either sex (with or without fat, according to the condition of the animal), is more than permissible, I fancy: is it not *desirable*? We do not want that lightness, that excess of refinement, which makes Shorthorns horse-headed.

Of late years the Shorthorn has spread over large areas in various parts of the world; and it is yearly (in small companies, like those which, in the early part of this century, found their way into districts of England remote from the valley of the Tees,) making inroads into fresh countries. The opening out of the Western States presents an enormous field for the increase of its numbers on the North American continent, and must cause a vast drain upon the herds already established there. This will also, no doubt, tell favourably upon the British market. Canada, whither some of the pick of the rival fashionable sorts have been exported, will necessarily profit by the Shorthorn exodus westward from the older parts of the Union; her geographical position, and the admirable judgment that has been displayed in the selection of stock for that country, combining to turn towards her the attention of buyers in the neighbouring States.

On the European continent, Shorthorns have gone north-east I know not how far into the Russian dominions, and south-east as far as Constantinople; while nearer, and northward, Sweden* has Shorthorn herds (in which milk-yielding is a *sine qua non*), originated under Government control, in several districts; and to the south, France † has many fine herds, some of long standing. Between these far-distant points, the Shorthorns occupy many centres, whence proceed "runners" which occasionally strike root in congenial soil.

Australia and New Zealand have been long in the Shorthorn interest. In the former country, enhanced doubtless by the protective and obstructive policy of the last few years, prices "rule" very high. Fashion there (at least the fashion of America and of this country) has comparatively small sway. All sorts, of distinct or of miscellaneous breeding, that can establish a claim to public notice on the score of merit, are eagerly bought. Australians, in fact, are making fashions of their own.

* A purchaser for that country, some six or seven years ago, described to me the system adopted for the establishment of the Shorthorn, Ayrshire, and other imported breeds. Animals are purchased in Scotland and England by the Swedish Government; and on their arrival, a bull and small herd of cows—the breed chosen according to the wants of the district—are placed out with a farmer, who is bound after a certain lapse of time to restore to Government an equal number of animals. All in excess of that number, besides the milk-produce and the value of animals slaughtered, the farmer has for the cost and trouble of keeping the herd.

† Mr. Thornton recently informed me that he had seen in France a herd of *white* Shorthorns, purposely bred of that colour to cross with a well-known native white breed.

When we find the Shorthorns thus brought into world-wide notoriety, and consider the immense and growing demand for them in many lands, it is surely incumbent upon the Shorthorn breeders of that country which would command foreign custom, to inquire whether or not they are acting in the right way to maintain a reputation as producers of the choicest stock. Are the Shorthorns of our islands, to-day, as individual animals, equal to their progenitors of thirty, sixty, ninety years ago? In the aggregate, I think, that Shorthorns have *improved*, must be allowed. I am not so sure that if we could compare the best cow of to-day with the best cow of either of the two later of the periods above-mentioned, we should not have to confess some degree of decline. There is in one reflection, perhaps, a little reassurance for those disposed to think that we cannot match the best cattle of our fathers or grandfathers. It is, that when great merit was scarce, greater merit would stand out in bold relief; and, moreover, when men are young they look upon things with stronger and more eager admiration than they do when in the later years of life. It is not uncommon to hear a veteran breeder declare that the best he can find nowadays are nothing to those he remembers seeing when he was a boy; nor is it, perhaps, very seldom that we find in life's winter a lingering persuasion that the summer days of childhood were more sunny, the roses, carnations, wallflowers, and "lad's-love" of those days more sweet, than the days or the flowers of the last few miscalled summers. Possibly, therefore, we are apt, on the best testimony obtainable, to overrate the decline, if the reality of decline

must be admitted. Yet it is but fair to own that the oldest witnesses are not unsupported in their opinion by men in and scarcely past the prime of life, whose distinct recollection of particular Shorthorns extends twenty, thirty, or forty years back.

If a downward course from the highest point of excellence ever attained, has in truth begun (let us not shun the inquiry until very marked deterioration forces it upon our notice), the next question becomes seriously important,—*Can we, how can we, arrest the decline and regain the ground?* We may study, probably with advantage, the systems of breeding, or the special circumstances of breeding, that led to the production of the best specimens known in former days. Did the men who bred them do as breeders now are doing? If not, in what respect does present practice differ from theirs? I could mention half a dozen cows that I have seen within the last half-dozen years, each of them, if not equal to the best of bygone years, at least, in the opinion of competent judges, scarcely open to criticism. For six cows such as I here describe, I should be obliged to turn to three or four different strains of blood, none of them in the particular animal selected “purely” represented;—that is to say, there is in each cow some blood not adopted by the breeder whose name we should use in stating her class. Eighteen or twenty years ago, I could have found, I feel confident, six cows fully as good as these, *in one herd*, a herd then as distinct in type and breeding as any herd is now, but not long previously refreshed by the infusion of new blood. Recent introductions of virtually new, though kindred blood, into leading

herds in which breeding had been some time conducted upon the close system, induce, I know, many intelligent Shorthorn breeders to hope that we shall see presently a considerable multiplication of best specimens. We want, of course, not a wonder here and there from middling families, but excellent families, excellent tribes, an increase of excellence throughout the stock of the country; yet even granting that we have made progress in this, we should look to the maintenance of our *highest* standard; for the full current must run against us soon, if the highest waves are beginning to fall short of the tide-line already reached.

With regard to the vexed question of in-and-in breeding *versus* mixing, I am sure that no hard and fast line can be drawn. Admirable animals may be bred both ways—have been and are repeatedly bred both ways. Mixing may be done so well, by the use of homogeneous elements, and the selection of animals personally suitable to one another, that the results are as constant as those of the most judicious breeding within one tribe; * and, on the other hand, alliances of near blood-relations may be so badly assorted, as to prove worse than alien alliances. There is indiscriminate mixing, and there is indiscriminate in-breeding. Suppose the effects of the two errors appear equally bad, those of the latter are really the worse, if it is true that in-breeding intensifies hereditary potency. But, *per contra*, we may

* To those who remember them, the Shorthorns of the late Mr. Thomas Wetherell will admirably illustrate this constancy of excellence from mixed alliances—under the hand of a first-rate judge and skilful breeder.

assume, as a rule, that an unskilful breeder is less likely to make mistakes in uniting animals of kindred blood, than in bringing together sorts differently derived and descended.

The majority of herds must be managed by men of ordinary ability. We cannot expect many in any one generation to possess the special mental bent and acquirements which made Sir Charles Knightley,* for instance, master of the art of stock-breeding. Anything like defined rules for all Shorthorn breeders, must be, therefore, out of the question. The mode of breeding, successful under the genius that presided at Fawsley, would bring to speedy ruin many a man who, with less of originality but much of prudence, might breed useful and profitable Shorthorns.

With this hint that any principle here suggested must be applied according to circumstances, and not thrust indiscriminately upon every one, I will now take a brief glance at what has been done by some distinguished breeders in former times.

Passing over the elementary stage in which Wais-tell, the elder Maynard, and their earlier contemporaries appear in the foreground, and coming to the brothers Colling, we find that their work was collect-

* I take this eminent example as one between, and aloof from, rival parties. Sir Charles Knightley selected pedigree cattle from various sources, and bred with so steady and so true an aim that he formed a herd of almost unparalleled equality of merit, pleasing to the eye, and famous for practical utility. The worth of his cattle was attested by very gratifying success in showyard competition, and by an average which at the time of his sale, 1856, was the fourth in amount, I believe, upon record, exceeded only by those of the two Collings' and of Earl Ducio.

ing, sorting, sifting, and interweaving. They evidently did not consider that any one man had the best breed of Shorthorns in the world; but they saw that by scouring the country for the best that each man had got, breeding from unions of the best, related or unrelated in blood, and then mixing again and again the pick of their own herds, discarding the misfits (a system which forced them to breed in-and-in, otherwise than by choice of that system as in itself desirable), they could breed animals surpassing the best that had been previously produced. Laying broad foundations, they *built*. Up to the dates of the distribution of their herds, each brother was engaged in carefully raising a structure which should be indissolubly associated with his name. That they interchanged material is true, yet there are some distinguishable differences between the families of Ketton and those of Barmpton. We have more numerous foundations at Barmpton than at Ketton. The inbreeding at Barmpton was rather, in many cases, by the repeated use of one bull, than by the intermixture of Barmpton lines. Ketton bulls were freely used, and in several families Favourite (252) occurs three or four generations consecutively. Of the Barmpton tribes that have come to the front and left memorable names, the most prominent are those of Wildair (own sister to Phenomenon 491), Bright Eyes, Red Rose, and Princess, the two latter especially famous. There is a host of minor families—Maria, Cecilia, Eveline, Lily, Golden Pippin, Clarissa, the two Daisy lines, White Rose, and others descended from the stock of Mr. Hill of Blackwell, besides several which it is needless to mention by name. The tribe that pro-

duced Punch, is identical, probably, with that of Golden Pippin, and certainly with that of Clarissa. That of Yellow Cow and the celebrated travelling White Heifer should not be omitted. Charlotte's, although latterly bred at Barmpton, originated at Ketton, and had only two generations bred by Mr. Robert Colling.

Mr. Charles Colling's principal tribes were the Phœnix, obtained from Mr. Maynard, the Duchess, derived from the Stanwick cow, those of Fortune, Cowslip, Daisy, and Old Cherry, the Haughtons from Mr. Alexander Hall, Magdalena (not to be confused with Magdalene, who was of another line, that of Miss Washington), and the Johannas. There were Phœbe and Ruby too, but I need not enumerate the less distinguished lines. It was from Old Johanna, put to the half-bred Son of Bolingbroke, that Mr. Charles Colling bred Grandson of Bolingbroke (149 and 280), thus introducing the Galloway alloy.

It is not uncommon to find among generally well-informed persons an impression that "the alloy" descends to Shorthorns of the present day *only* through Mr. Charles Colling's Lady. This is a mistake. One other channel will be found in Mr. Drinkrow's Daisy (H. B., vol. i., p. 264, or Cows of vols. i., ii., iii., p. 195), through whose son, Neswick (453 and 1266), it was distributed among many herds, passing largely into those of the Hon. J. Simpson of Babworth, Mr. Allison of Bilby, and Mr. Champion of Blyth.

As bearing upon the disputed question of what the public thought of the alloy in Messrs. Colling's day, I may ask attention to the fact that the only animal

bought by Mr. Robert Colling at his brother's sale in 1810, the yearling heifer Charlotte, *had* the alloy, through Washington (674), the sire of her dam. The price of Charlotte, 136 guineas, was no insignificant sum in those days, even at that great sale.

Whether reluctantly, advisedly, or indifferently, the cross of the red-polled Scot was introduced by Mr. Charles Colling, and, as it would appear, was accepted by his brother.

It does not appear that, after they had fairly begun to build, either of the Collings admitted unknown Shorthorn blood into their select families.

Mr. Charge, partly contemporary with the Collings, and partly succeeding them, in like manner drew together the best materials, and inter-crossed them. Whether he did not carry the in-breeding too far, leaving to others to reap his reward (when fresh blood released the riches locked up by the close system of breeding), may be open to question. He had the Galloway alloy through Major, the sire of Western Comet.

Mr. Mason took the established Colling families, and bred from Colling bulls, intermixing his own tribes thus formed. There is the old rumour that he had some fresh blood, which does not appear in the records, in Jupiter (342), the reputed son of Comet, and son, "by the surer side," of Carnation; but if this was true, the fresh infusion was certainly undesigned, and its perpetuation effected unconsciously, so far as Mr. Mason was concerned.

About Mr. Bates so much has been written that to write much more here would be superfluous. He not only bred in-and-in, but observed, moreover, the

stricter method of doing it, by what is called in America "line-breeding." Occasionally he took a cross which might be called a "violent" one; but in each case analysis shows sufficient affinity to "take the chill off" the new ingredient. He then worked in-and-in again with all his might.

The same apology that applies to curtailment of remark upon the system of Mr. Bates, is equally forcible in respect of the principles observed by the Messrs. Booth. I must refer my reader to the charmingly told history of the Killerby, Studley, and Warlabby herds, by the late Mr. Carr; but as that very valuable contribution to the annals of live-stock improvement sets forth some variations from the practice of line-breeding pursued by Mr. Bates, I may here briefly observe that the foundations of the Booth tribes were laid upon stock of unrecorded descent, selected, however, with care, in a district where the Shorthorn had been long established as the monopolising breed. The assumption, therefore, that these foundation-dams were of virtually pure Shorthorn ancestry, more or less improved, is probably warrantable. The same argument may apply to the unknown portions of the ancestry of Mr. Bates's Matchem Cow; but as Mr. Bates was a more rigid purist than any of the Booth family, there is, further, some colour for the supposition that he knew the cow to be lineally of ancient improved descent—a suggestion never broached, I believe, in reference to any of the original dams of the Booth lines. In these, the power of the male appears to have been the chief subject of the breeder's confidence, coupled with calculation of proportions multiplied according to the principle of geometrical

progression, as shown in the foregoing remarks at page 24. Thus a certain type, the aim of the breeder, was reached; and this was fixed and perpetuated by in-breeding, just as the brothers Colling had established *their* special type. Afterwards, infusions of fresh blood (of old improved sorts) were taken in fractional proportions as occasion required, the results proving unsatisfactory when an overdose of the new was introduced, and the desired effects being delayed until the new decreased to the quantity of a minor fraction.

I abstain from continuing this inquiry to the present or very recent practice in the herds of the leading members of the Booth and Bates factions. An interesting chapter for Shorthorn history might be written upon the manner in which the traditional rules of either party have been observed or rejected by its leaders and adherents, and upon the results of the various systems adopted.

The names of R. and W. Jobson, T. and W. Jobling, the Croftons, W. Raine (an inveterate in-breeder), and many others, might be profitably introduced in any more extended research into the practice of old exemplars; but in the space of a pamphlet like the present, it is impossible to do justice to each. If I have brought forward leading authorities for each system described, I may be allowed to avoid multiplicity of instances. I have already referred to the services of Mr. Whitaker (p. 32), and with a short sketch of his doings I will close my extract from the list of examples left to us by representative men in England.

To enumerate all the tribes and families of which

Mr. Whitaker possessed representatives would require more space than I can afford. Those which seem to me to stand out in the highest relief are Mr. Charles Colling's Old Daisy sort (from Red Daisy and Alfrede, both bought from Mr. Hustler,) and the descendants of his Magdalena, whose granddaughter, Minerva, went to the Rev. Henry Berry, and was the grandam of his Minikin, the cow whose portrait is given at page 233 of Youatt's work on Cattle; Mr. Robert Colling's Bright Eyes and Golden Pippin; Sir Charles Ibbetson's Cora and Countess, and Sir Henry Carr-Ibbetson's Lavinia tribe (derived from the herd of Col. Trotter), and, through Sir Henry Carr-Ibbetson's Diana and Princess (the latter from Selina), the alloy branch of the Phœnix tribe; Mason's Portia; Major Rudd's Daisy; Mr. Gibson's Dandy; Mr. Charge's Simmon, Prettymaid, and Venus, from the latter of which sprang Venilia, the Enchanter cow sold to Mr. Maynard; Woodhouse's Empress; Mr. Jobson's Darling and Starville, the latter specially famous as the dam of Petrarch; Mr. John Booth's Fortuna (Moss Rose tribe), Phœbe (Valentine or Bracelet tribe), and Rosa; Mr. Richard Booth's Alexina; Miss Wright's Imogen; Appleton's Wildair; W. Wetherell's Rosanne, a Red Rose, of the American Cow's line; the Lingcroppers, one of which bred Sir John Sinclair, the bull sold to Mr. Holmes in Ireland; Ellis's Water Lady, of the Charge blood; Col. Trotter's Georgiana; the Jasmine and Lady Mary lines from Mr. W. Smith, of West Rasen; Beeswing (Tottenham's); Wilson's Lady; the Feldom tribe, celebrated for the excellence of the progeny of Fair Frances; Miss Fairfax (bred by Mr. W. Cooper, although ever asso-

ciated with Mr. Whitaker's name), the dam of Sir Thomas Fairfax, first winner at the Bristol Royal Meeting in 1842; Moss Rose, who bred, in Mr. Whitaker's possession, thirteen calves within the eleven years from 1816 to 1827 inclusive, when she completed her fifteenth year, having bred her first calf at two years old, twins once, and a single calf every other year—one of her daughters, Matilda, who followed suit in breeding yearly, and in breeding twins, and who became the dam of Fairfax, and was thus an ancestress of Sir Thomas Fairfax; and lastly, I may mention Nonpareil, the dam of Norfolk (2377), who was used by Mr. Bates upon the Duchess and Blanche lines. Nonpareil, who was bred by Mr. T. Robinson, became the property of Mr. Bates. She brought 102 guineas at the Burley sale in 1833.

Among the most noted of the bulls used by Mr. Whitaker (selected without reference to prejudice or unsubstantiated detraction), were Charge's Frederick (1060) and his sons, Bertram (1716), from Mr. Hustler's Red Daisy, of the Old Daisy tribe; Fairfax (1023), out of Matilda, as already stated; Columbus (903), own brother to Bertram; Charles (878), from Western Lady; and Prince Comet. Frederick* was by Hulton, whose sire and dam were both by Comet, and both of the Simmon tribe, with Comet's sire, Favourite, also in the direct line on both sides; Frederick's dam and grandam, both by Comet, and of Comet's and Favourite's lineage on the dam's side—the next dam by Favourite, and the direct line that of the Simmons. Here, then, we have extraordinary interweaving of the Simmon line of Mr.

* See analysis of Frederick's pedigree, p. 59.

Charge with the Colling-Maynard line of Phoenix, giving an enormous proportion of the blood of Comet and Favourite. Frederick was a very impressive sire. Of substance thus compacted, he, followed by his sons, became the chief quarry of Mr. Whitaker's building material. Mr. Bates's Enchanter (244), Ketton Third (349) and Second Hubback (1423) were all used by Mr. Whitaker. His Highness (2125), bred by Mr. Whitaker, was of Mason blood—sire Monarch, dam Chiltona. Marquis (408), the grand-sire of Fairfax, was a pure Ketton bull (sire C. Colling's Wellington, dam C. Colling's Magdalena) bred by Mr. Whitaker. The following excellent bulls were also used by him—Col. Trotter's Plato (505), R. Colling's Harold (291), Prospero (530), bred by Mr. Whitaker, of the Venus line, by Wetherell's Snowball, W. Jobson's Prince of Northumberland (4826), descended from General Simson's fine herd, and J. Woodhouse's Colussus (1847). Sir Charles Tempest's Dan O'Connell (3557) likewise comes, more recently, into some of Mr. Whitaker's pedigrees. Reference to the Herd Book entries of these bulls, for which I have not space here, will show the number of grand old sorts that Mr. Whitaker worked into his herd, and, not less interesting, the connecting links which made them suitable for mixing and massing together.

Turning our attention now to Scotland, we have Captain Barclay of Ury, whose principal early purchase was Lady Sarah, or No. 20, Chilton Sale, the highest priced female sold there—150 guineas. She was by Satellite (1420), and in calf to Mason's Monarch (2324). The offspring was a bull, which

bore his father's name, and is generally known as Captain Barclay's Monarch (4495). This bull was closely bred, both his sire and dam being by Satellite, and their dams both by Cato (119). He proved a great success. But a bull of still further in-breeding made a still stronger mark upon the Ury herd. Monarch (4495) was mated with his own dam, Lady Sarah, and the offspring was Mahomed (6170), of whom one of the principal Shorthorn breeders in Scotland writes to me, "Mahomed (6170) was calved in 1836, and was sold to a farmer in Rosshire. After the second herd [at Ury] was formed, he was bought back, and laid the foundation of some of the best Shorthorns that have been seen in the north of Scotland. After he had been in use for three years, the Second Duke of Northumberland (3646) was hired from Mr. Bates. He produced some passable heifers, but his bulls were bad, and he was very soon superseded by The Pacha (7612), a son of Mahomed." The breeding of Mahomed (who became the property of Mr. Ladds of Ellington, and Mr. Yorke of Thrapston) is set forth in the following table:—

Satellite 1420 ...)	} Monarch 2824	} Monarch 4495	} MAHOMED 6170.
Cow by Cato 119)			
Satellite 1420 ...)	} Lady Sarah...		
Portia by Cato 119)			
Satellite 1420 ...)	} Lady Sarah ...		
Portia by Cato 119)			

Besides Lady Sarah, Captain Barclay bought (among others) Rose by Satellite (1420), Lucy by Mars

(411), Magnet by Magnet (392), Rosebud by St. Leger (1414), Julia by Paganini (2405), Emily by Reformer (2509), and Mary Ann by Sillery (5131). Most of these animals are still represented by many descendants in the district. One of the earliest sires used was Invalid (4076) by a son of Satellite, and he was three times mated with the Satellite cow, Lady Sarah, the offspring being each time a heifer—Julia in 1831, Cecily in 1834, and Helen in 1835. Together with Invalid, Commander (3439) was in service. Then followed Monarch, Mahomed, Emperor (3716, another son of Monarch), and Young Commander (3443), a son of Commander (3439). The greatest measure of success appears due to recurrence to blood that proved suitable, and to the use, in the beginning of the herd, of sires closely in-bred. The Ury herd, or a considerable part of it, was sold in 1837. The correspondent quoted above, to whom I am indebted for valuable assistance in tracing the descendants of Shorthorns that went into Scotland, informs me that after the sale, ten heifers (including some of the females already mentioned) were bought for Captain Barclay by Mr. Wetherell. He adds, "At Captain Barclay's sale, most of the existing breeders in the district were buyers, and several beginners bought animals from which the bulk of their herds are descended; so that a very large proportion of Shorthorns at present in the north of Scotland trace back to the Ury stock; and there is no doubt that to Lady Sarah, and her closely-bred sons and grandsons,* most of the early improvement in Scotch Shorthorns is due."

* To her grandson, Emperor, a son of Monarch (4495), Lady

Mr. Grant Duff, of Eden, was the principal contemporary of Captain Barclay. He laid in a stock of cows from the herds of Messrs. Chrisp, Edwards of Market Weighton, and B. Wilson of Brawith, where his most important purchase was made, Brawith Bud by Sir Walter (2639). One of his earliest sires was The Peer (5455), bred by Mr. Crofton. He did not turn out very well, and was replaced by Mr. Bates's Holkar (4041), (by Belvedere, dam and grandam by Second Hubback), who became the sire of many remarkably fine heifers, and left a great reputation. To him succeeded Robin O'Day (4973), by Carcase (3285, Mr. Wiley's), from Well-o'Day, by Sir Walter (2639). This is said to have been the sire most successfully used at Eden. He was followed by Second Duke of Northumberland, who came from Captain Barclay's, but did not do well. Sir Thomas Fairfax Second (6493), Duplicate Duke (6952—the son of Second Duke of Northumberland, from Carnation, a Foggathorpe cow bought from Mr. Edwards, of Market Weighton), and some other bulls of his own breeding, were used previously to his general sale. Here again it would seem that the blood of Second Duke of Northumberland (an own brother to *the* Duke of Northumberland), was unsuitable for immediate fusion with strains of other than Bates descent, while Holkar, of a line not long in the possession of Mr. Bates (although owning the Duchess and Princess blood through his three nearest sires), and Duplicate Duke, in whom the interworked Princess and Sarah bred Pedestrian (4670), the bull sold to Messrs. Mason Hopper, and Rowe.

Duchess element of his sire was diluted by the Market Weighton and Castle Howard blood in his dam, proved thoroughly congenial crosses.

About the year 1835, Mr. Hay of Shethin began to buy well-bred Shorthorns. Like other North Country breeders, Mr. Hay owed a good deal to the Ury herd; one of his earliest bulls was Billy (8888) by Captain Barclay's Monarch. This bull was succeeded by his son Kelly (9264), whose dam was by Monarch (4495). Favourite (9116), a son of Kelly, came next, and in 1845 Mr. Hay bred a bull, Kelly the Second (9265), by Favourite (9116), from Mr. Lovell's Marion, who had a double dose of the long-lived Anthony (1640). This bull, Kelly the Second, and his son The Hero (10934, bred in 1848), were the sires of a large number of extraordinary heifers, and it is generally thought that the Shethin herd at this time was the best in the district. The reader will observe that every bull used was closely connected with the one preceding. At Mr. Bates's sale, Mr. Hay bought Grand Duke (10284) for 205 guineas, the highest price paid for any animal on that day. Like his relative, Second Duke of Northumberland, Grand Duke proved unsatisfactory, and was soon sold to Mr. Bolden, in whose herd he became the sire of stock of uncommon worth. Among his progeny were the cows Bridget and Britannia, and the bulls Grand Turk and May Duke, all from pure Booth dams; the bulls, Duke of Cambridge (used by Sir Charles Knightley) and Second Duke of Cambridge, and the cows Grand Duchess and Grand Duchess the Second, all from pure Bates dams; and the cows Cherry Duchess and Cherry Duchess Second, from the Hart-

forth cow Brandy Cherry. Of these (I shall scarcely be open to question by any one who knew the animals), Britannia, Grand Duchess Second, the first Cherry Duchess, Grand Turk, and Second Duke of Cambridge were all animals of very superior personal merit; and the rest, if not equally excellent, at least take rank in the first class of Shorthorns. At Shethin the vacancy caused by Grand Duke's dismissal was filled by Red Knight (11976), bought at Killerby in 1852. Of this bull, also, the trial proved unsatisfactory—although well-known good descendants may be named. He was followed by the Fawsley bull, Bosquet (14183), a fairly good sire, and still later by Cherry Duke the Second (14265), a fine-looking animal, but no favourite in Scotland. Mr. Hay's son-in-law, Mr. Shepherd, sold off the herd, numbering 127 cows and heifers, in 1863. Among the most successful of Mr. Hay's earlier purchases of females were Marion (above-mentioned) and Margery by Bagdad, both bought at the sale of Mr. Lovell of Edgcott.

It is not my purpose to touch upon existing herds more than is really necessary. Altogether to avoid mentioning some of them is, however, impossible. Any account of Shorthorn progress in Scotland would be incomplete without reference to the old-established and immense herd at Sittyton, that of the Messrs. Cruickshank. This was formed nearly forty years ago, by purchases, first, from English breeders, and afterwards selections from the Ladykirk and Ury herds. The earlier sires were full of the Chilton blood of Lady Sarah. Then followed a long succession of brilliant names, most of them famous in connection

with showyard honours, and nearly all of them belonging to bulls owning more or less of the Booth blood. For some years past, Messrs. Cruickshank have bred their own bulls—a practice which the possession of so large a variety of good tribes as Sittyton can boast, would, *primâ facie*, justify, and which results *have* justified.

The history of Shorthorns in Scotland up to the present time would form a work of considerable magnitude. It has been some time, I believe, in contemplation, and, in very competent hands, is now in progress. I, therefore, will not encroach further upon the subject by examining, for instance, the principles observed by the late Mr. Stewart, at Southwick, or by Mr. Douglas, at Athelstaneford. The help afforded to Shorthorn extension by the Duke of Buccleuch, Lord Strathallan, Sir W. Stirling-Maxwell, and many other influential breeders; and the fine herds, of the rival houses, established respectively at Dunmore and at Rossie Priory, also lie outside the scope of my present purpose.

Ireland, more distinctly than any other country, has declared for the Booth Shorthorns. I wish to avoid party questions, and to take the examples before us simply as examples of practice in Shorthorn breeding, irrespective of the traditions or preferences of any faction. That a large measure of success has rewarded the labours of leading men on all sides, can scarcely be denied. It is by studying, impartially, the comparative results of various methods of breeding, that we are best able to gain the knowledge necessary to further success. The strong general bias, however, of Irish breeders in one direction,

spares me the trouble of much analysis. I may state one or two facts broad enough to cover the history of most herds which have come to the front in Ireland. Where cattle of Killerby or Warlabby descent could be obtained, they were secured; and bulls of the Booth tribes have been persistently used in the herds. I have already remarked (page 30), that the Mason stock, as a foundation, was also highly appreciated. Upon this, Booth crosses were laid, and bulls of Chilton origin with plenty of the Warlabby or Killerby element in the foreground are considered admissible into good herds. None but bulls of ancient lineage are deemed suitable for use upon old tribes. Concurrently with this rigid insistence upon antiquity of traceable origin, a work of "grade-breeding" has added much to the general improvement of stock in the sister island.

The principle of "line-breeding," however much truth may be found at its root (and I own I hold it to be one of the best safeguards of Shorthorn improvement), has unquestionably a tendency to lead to the system of exclusiveness. This, I am anxious to show, was not the system by which any of the greatest improvers have effected their greatest improvement, except, temporarily, in the very early stages of the work. That a great extent of in-and-in breeding is usually found wherever the clearest impression of excellence has been made, I think we must all allow. The difficulty appears to be, to honour the rule and yet to allow the exceptions. One eminent example to the contrary must be mentioned. The late Mr. Barnes, of Westland, introduced into his herd, through the cross of Third Grand

Duke (16182), the Duchess blood of Kirklevington, previously tempered to his purpose by admixture with the Booth, and further diluted, of course, as he worked it into his herd by the use of Royal Duke (25014), the son of Third Grand Duke, and of the Mantilini cow, Sylph by Hopewell. The result is recorded as having proved satisfactory to Mr. Barnes himself, a competent judge, assuredly; but beyond his own opinion, Mr. Barnes challenged the verdict of the judges at the Royal Irish Show at Dublin in 1867, and had the gratification of seeing Royal Duke carry the first honours in his class.

The examples I have selected are intended to illustrate the various modes of breeding that have proved more or less successful. I would commend them, and all other examples of success which my readers in their research may meet with, to the attentive notice of those who would maintain the character of the "Improved Shorthorn." My own inclination, after endeavouring for some years to study the question impartially, is in favour of the system which, in comparison with other systems, I described in an article upon "Fashion and Utility," published in the Shorthorn Intelligence of *Bell's Weekly Messenger* of November 10th, 1873—that of breeding from carefully bred, distinct strains; watching occasion, and, as a rule of practice, introducing fresh blood when necessary. The concentration of power by in-breeding, I submitted, is allowed to be greatly favourable to hereditary constancy of type, and to special instances of remarkable impressiveness, or individual pre-potency; while the occasional introduction of fresh material sustains the vigour of an in-bred tribe,

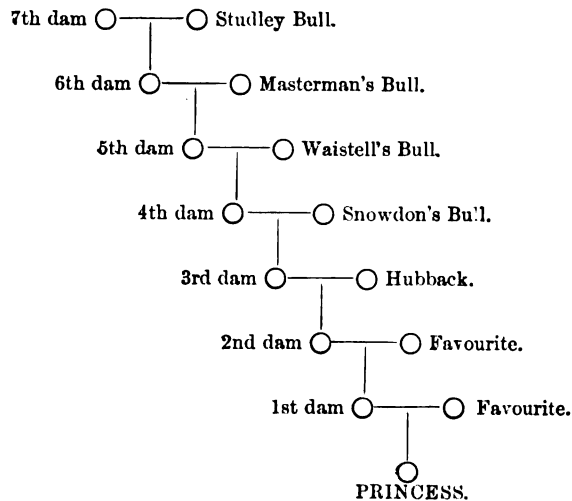
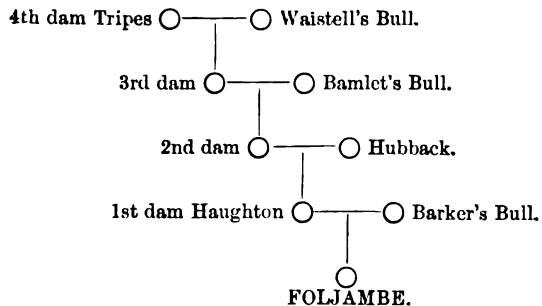
and, if the material is of a suitable sort, and introduced in small proportions, it neither destroys nor impairs the type. This is applicable, of course, to the breeding of the better classes of Shorthorns, from which we must draw our supply of bulls for purposes of general improvement. In "grade-breeding," I would still suggest that the best advances are made by continuous use of sires representing some one tribe or kindred-bred group, until the special characteristics of that tribe or group are established. At least, there should be similarity of *type*, and I, for one, should prefer blood-relationship.

Since the foregoing was in the printer's hands, I have received, from a Shorthorn breeder whose herd, a long-established example of success, is composed of mixed sorts, a letter from which I take the subjoined extract. I italicise one passage as emphatic testimony, from the owner of such a herd, in favour of what are called the "pure" strains of blood, one of which he has himself used largely. The words are not those of a mere theorist, or looker-on, but of one who knows by practice and experiment. He says: "My own maxim would be to try new blood as little as possible, and when you have to take a new cross, go back to the old again as soon as possible; and further, it is probably safer to take an out-cross through one of your own cows than through a sire. My own notion, therefore, is that without great attention to 'paper pedigree' no good can be done, but that there must be no slavish adherence to it; and without close affinities, no sire is to be depended upon. *The immense value of absolutely pure blood is by no means*

fictitious, as it is the only trustworthy means of getting a certain stamp of animal; but the very limited supply of this sort of blood will lead to dangerous results unless great care is used. A herd is probably in the safest condition when there has been an infusion of new blood some years before, but when the old current is again flowing into the veins of the cattle."

The question of food, and of the general details of management, necessarily must occupy a share of the breeder's attention, next to that of breeding. Niggardly keeping, for several consecutive generations, will undoubtedly curb the generous tendencies which selection and liberal nurture have induced, and at length destroy them. Over-forcing ruins milk-productiveness, weakens the constitution, causes disease, and impairs, often totally destroying, fertility. Under either extreme of management (and the approaches to each extreme, proportionately), the most sagacious judgment in the choice and mating of animals would be exercised in vain.

See Note, page 14.



According to Mr. Allen's statement, the 7th dam of Princess would be the 5th dam of Foljambe, and the 6th dam of Princess would be either Tripes or an own sister to that elegantly-named cow. The 7th dam of Princess would be the cow mentioned by Mr. Allen as bred by Mr. Stephenson of Ketton, in 1799.

Sixty-fourths.	Thirty-seconds.	Sixteenths.	Eighths.	Fourths.	Halves.
Old Simmon, Bartle 777.	Flecked Simmon.	Red Simmon.	Flecked Twin.	Splendour.	Orbit.
Phœnix, Bolingbroke 86.	Favourite 252.				
Phœnix, Grandson of Bolingbroke 280.	Lady.	Major 397.	Flecked Twin.		
Young Phœnix, Favourite 252.	Comet 155.				
Lady Maynard, Foljambe 263.	Phœnix.	Young Phœnix.	Comet 155.		
Phœnix, Bolingbroke 86.	Favourite 252.				
Lady Maynard, Foljambe 263.	Phœnix.	Favourite 252.			
Young Strawberry, Foljambe 263.	Bolingbroke 86.				
Daughter of J. Smith's Bull and Strawberry, R. Alcock's Bull 19.	Lady Maynard.	Phœnix.	Young Phœnix.		
Haughton, R. Barker's Bull 52.	Foljambe 263.				
Lady Maynard, Foljambe 263.	Phœnix.	Favourite 252.			
Young Strawberry, Foljambe 263.	Bolingbroke 86.				
Daughter of Mr. J. Smith's Bull and Strawberry, R. Alcock's Bull 19.	Lady Maynard.	Phœnix.	Favourite 252.		
Haughton, R. Barker's Bull 52.	Foljambe 263.				
Lady Maynard, Dalton Duke 188.	Young Strawberry.	Bolingbroke 86.	Comet 155.		
Haughton, R. Barker's Bull 52.	Foljambe 263.				
Descended from the Studley White Bull.	Old Simmon.	Flecked Simmon.	Best Twin.	Meteor.	Hulton 1121.
Descended from the Studley White Bull, Dalton Duke 188.	Bartle 777.				
Lady Maynard, Foljambe 263.	Phœnix.	Favourite 252.			
Young Strawberry, Foljambe 263.	Bolingbroke 86.				
Lady Maynard, Foljambe 263.	Phœnix.	Young Phœnix.	Comet 155.		
Phœnix, Bolingbroke 86.	Favourite 252.				
Lady Maynard, Foljambe 263.	Phœnix.	Favourite 252.			
Young Strawberry, Foljambe 263.	Bolingbroke 86.				
* 1st Lady, Favourite 252.	2nd Lady.	Lady Short-tail.			
Cow of C. Colling's, Cupid 177.	Johannot 1142.		Fanny.		
* 1st Lady, † Young Bartle 778.	Flecked Lady.	Grey Bull 872.			
Phœnix, Bolingbroke 86.	Favourite 252.		Comet 155.		
Lady Maynard, Foljambe 263.	Phœnix.	Young Phœnix.			
Phœnix, Bolingbroke 86.	Favourite 252.				
Lady Maynard, Foljambe 263.	Phœnix.	Favourite 252.	Newton 1271.		
Young Strawberry, Foljambe 263.	Bolingbroke 86.				

FREDERICK 1060.

NOTES ON PEDIGREE OF FREDERICK 1060.

* 1st Lady was by Bartle (777), dam Old Simmon.

† Young Bartle was by Bartle (777), dam not recorded.

ANALYSIS.

52 parts Favourite (252)	.	{ Plus the fraction of Favourite in Cupid (177).
4 „ Bartle (177)	.	{ By Dalton Duke, an ancestor of Favourite.
4 „ Old Simmon.		
1 „ Young Bartle (778)	{	Grandson of Dalton Duke, Favourite's ancestor.
1 „ Cupid (177)	.	{ By a son, and from a half-sister, of Favourite.
1 „ Grandson of Bolingbroke 280	.	{ Bolingbroke was Favourite's sire.
1 „ C. Colling's cow, the dam of Johannot (1142)	.	{ The only fraction not known to contain the blood of Favourite or his ancestors.

The 52 parts out of 64 are exactly equal to 13 parts out of 16—which is the proportion of his blood that Frederick owes to Favourite, exclusive of the fraction through Cupid, and of the blood of Favourite's ancestors in every fraction except $\frac{1}{84}$ th of the whole pedigree.