

head and straight top line. The price we learn is 100 gs. Baron Rosedale, a bull bought at the Birmingham autumnal sale, has also been sold to Capt. T. W. Pinder, Harlaxton.

We hear that Mr. R. T. Bailey, of Alkington, near Derby, has refused a high price for the roan heifer calf 11th Duchess of Alkington. She is by Baron Worcester 2nd, bred at Elmhurst, and inherits largely through her sires on the dam's side the blood of Duchess 114th. The red yearling, 10th Duchess of Alkington is bred similarly as the above-named calf.

A correspondent of the *Melbourn Leader* has been inspecting the stud farm at Mount Aitken, the property of Mr. Henry Beattie. The stock comprises 250 head of cattle, 4,000 sheep, and a few horses. Regarding Mr. Beattie's recent additions to his Hereford herd our contemporary says:—"In 1889 Mr. Beattie visited England, and after inspecting most of the principal herds of Herefords, he purchased two bulls and three heifers, which safely arrived in the Colony, and are now located at Mount Aitken. These cattle were exhibited at the recent show of the Royal Agricultural Society at Flemington, and were much admired. A young bull that would attract attention anywhere is Figaro, bred by Mr. Jas. Rankin, Bryngwyn,

the sale of the late Mr. W. McCombie was taken out by Mr. George J. Walker, Portlethen. Adonis for two years in succession carried off first honours at the Royal Northern Agricultural Society's Show at Aberdeen, and this year he was reserve for the championship of the breed.

Animal Physiology: the late Mr. Chas. Darwin.

I SHOULD feel very happy to write, in compliance with your gratifying request, something regarding my acquaintance with the great naturalist. Mr. Charles Darwin, and the subjects which I discussed with him, but that, in approaching the task, a serious difficulty is presented to me. I see that I shall be compelled to say much about myself—a very objectionable and unpleasant thing—but as it is inevitable in relation to the writing of this paper, which must deal with the reasons which induced me to seek the acquaintance of the great philosopher, I trust I shall not be charged with a desire to be egotistical.

The first and chief subject which it was my privilege to discuss with Mr. Darwin was in relation to in-and-in breeding of Shorthorns, and this was one to

horns," one of the most fascinating books of the kind which was ever penned.

The old herds at Killerby and Studley had long disappeared, but the Warlaby herd was then flourishing, and Mr. Carr brought to the task of describing the splendid animals there all that wealth and beauty of language for which he was so distinguished. He also brought poetry to the aid of his elegant prose, in order to lend it a further charm.

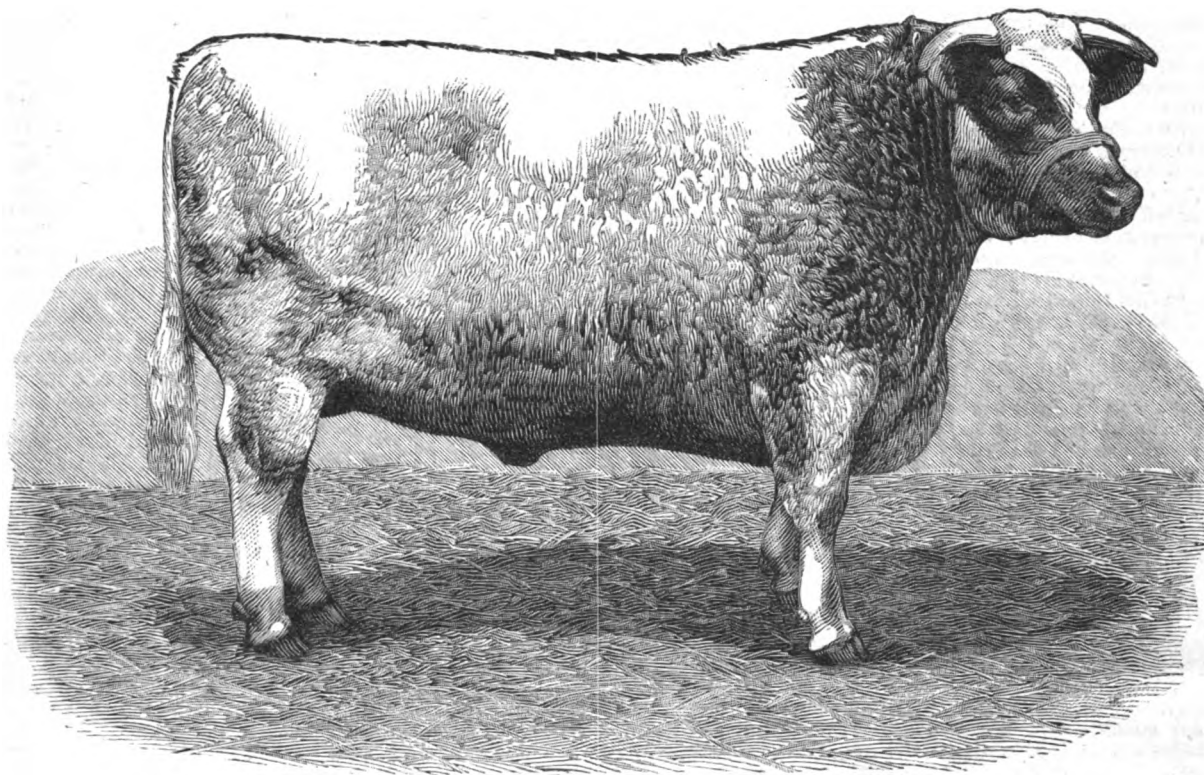
"Queen of the Ocean," he says, "is a superb Short-horn—a queen of cows," and referring to Queen Mab and Queen of the Vale, which differed in colour, he invokes the Muses:—

"Yours is, he said, the nobler hue,
And yours the statelier mien,
And till a third surpasses you,
Let each be deemed a queen."

Grouping Queen of the May with the cows above named, Mr. Carr says:—"The very mention of them calls up a vision of beauty; the month of love, with all its flowers; the Fairy Queen with all her elves, tripping o'er hill and dale, forest and mead,"

"Or on the beach'd margin of the sea."

Towards the close of his book Mr. Carr alludes to the in-and-in breeding pursued at Warlaby, praises that system, and quotes the opinion of Mr. Richard Booth,



SHORTHORN STEER.

Champion at Norwich Fat Stock Show.

The property of Mr. John Cridlan, Great Malvern.

Herefordshire. He was the first-prize yearling at the Royal Show at Windsor, 1889, there being thirty-five competitors in the class. He is a wonderfully taking bull, of the true Hereford type, beautifully marked, and is undoubtedly the pick of the imported stock. He has all the characteristics of a good sire, and should make his mark in the herd. His companion, Alfonso, was bred by Mr. E. Green, Kington, Herefordshire, and was highly commended at the Windsor Show. He suffers somewhat by comparison with Figaro, but is, nevertheless, a fine young bull, and is worthy of a place in any herd. The imported heifers form a splendid trio, which for quality can scarcely be surpassed. Two of them, Staunton Cherry and Princess Alice 5th, were bred by Mr. Stephen Robinson, of Kington, Herefordshire, and one, Beatrice 9th, was bred by Mr. John H. Arkwright, Hampton Court. The latter was awarded first prize as a three-year-old at the recent Flemington Show, and all three heifers were highly commended at the Royal Show at Windsor, previous to coming into Mr. Beattie's possession."

A United States contemporary describes as a successful sale of Shorthorns an auction at which the average was about £20. It is said that there was not a breeder present that had not sold out his stock of young bulls as soon as they were ready to go, and at very satisfactory prices. For this reason they wanted to buy well-bred cows.

Mr. Hugh Wilson, Milton of Noth, has secured the Aberdeen-Angus bull Adonis of Easter Skene, which at

which I had myself for years devoted much attention, having closely watched the results obtained from that system of breeding when opportunity offered.

It has been my good fortune to enjoy the acquaintance of most and the friendship of many of the leading breeders of Shorthorns in modern days, and it was my privilege to have thus afforded to me opportunities of inspection, under favourable circumstances, of the best herds, as well as of free discussion on the subject of breeding with the owners of many of those herds.

The result was that by the year 1870 I had fully come to the conclusion that the system of long-continued close breeding, which was then in strong fashion, was wrong, and that its progress should, in the interest of the Shorthorn breed, be arrested; that otherwise many of the best tribes would soon be ruined or entirely lost, and that this would involve serious detriment to the breed.

It is most difficult to realise now the heated feelings upon these questions which were at that time prevalent, the wild lengths to which the supporters of the fashion went in the efforts to maintain their particular views, and the bitter rivalry which was constantly, and sometimes rather painfully, made conspicuous between the allies of the Bates and of the Booth strains.

A catalogue issued by a leading admirer of the Bates blood, who is now dead, had upon its opening page, "Good wine needs no bush: Bates and no surrender."

In 1867 the late Mr. William Carr published "The History of the Killerby, Studley, and Warlaby Short-

which was given in answer to a suggestion that the herd might require an infusion of fresh blood.

Mr. Booth said:—"It is clear that the only consideration which would justify me in having recourse to a cross would be the discovery of a tribe, which besides possessing in an equal degree with my own the good qualities we have mentioned, are superior to them in utility and symmetry. Where is it? The result of the last three crosses upon which I ventured—Water King, Exquisite, and Lord Stanley—has made me distrust the policy of any further step in that direction; nor have the results I have witnessed of the experiments of others in crossing animals of my blood with the most fashionable bulls of other strains tended in any instance to remove that distrust."

This expression of opinion on the part of so eminent a breeder as the late Mr. Richard Booth—the head of the Booth party—had, of course, a far-reaching effect, and guided the action of most of the admirers of the Booth strain.

Mr. Carr gave also a copy of a letter written in 1864 by Mr. J. Grove Wood, of Castlegrove, in which he expressed approval of the principle that continued relationship in blood gave character to a stock, and fixed its qualities, either good or bad, according to the skill and perseverance of the breeder.

"If there be, then," Mr. Grove Wood said, "an error in breeding in-and-in from good animals—and I confess I think there is—it can only be in carrying the practice to an extreme, and continuing to breed from

the closest affinities; but I do deny that to breeding in-and-in is to be attributed the want of fruitfulness which is so generally complained of by breeders of what are called improved herds."

Mr. Carr's contention was that these grand animals at Warlaby were the creation of this system of close breeding, and that, upon Mr. R. Booth's dictum, no fresh blood was to be taken. I must, however, say, in justice to the claims of Mr. R. Booth as a breeder of eminence, that I was informed by the late Mr. Unthank, of Netherscales, that Mr. Booth did not at all deny the probable utility of a new cross, but felt that at his advanced time of life it would not be judicious for him to take a new departure.

There were, however, breeders of repute, and even of eminence, among the Bates and Booth parties who did not share the opinions of the advocates of, so to speak, exclusive breeding.

The late Mr. Thomas Barnes, of Westland, co. Meath, was one of the few in a leading place who, in the high days of fashion and pure pedigree, left the beaten track and outraged the feelings of the "purists" by sending his best pure Booth cow, Sylph, for service by Mr. Bolden's Grand Duke III. This event caused quite a storm among the supporters of the Booth blood, for it was an admission by a man of undoubted ability and great experience that, in his opinion, good was to be obtained from an infusion of blood from the rival strain—that favoured by the great party in opposition.

Mr. Barnes died in 1871, many years after the bold step in crossing had been taken. His herd was announced to be sold, and there was much excitement as to how the pure Booth Mantalini and those which were crossed with Bates blood would respectively sell. The "pure" yearling heifer Mantalini fetched 750 guineas, while the highest price for a crossed animal of the same tribe was 335 guineas.

The "purists" went away rejoicing; the sale test had, they thought, scattered to the winds the pretensions of those who believed in the desirability of crossing the pure strains.

I had known Mr. Barnes, whom I often visited and with whom I discussed the question of infusing fresh blood into closely bred tribes. He was a very able breeder of great experience. I considered that he had done right in taking the Grand Duke III. cross, and I bought at the sale one of the heifers which had the cross for 310 gs.

In 1872 I ventured to publish a preface to the private catalogue of my herd, in which I took the liberty to defend Mr. Barnes' course, and I endeavoured to show that the fashion of "pure" breeding was unsound and bad, and contrary to the practice of the most eminent breeders in the past.

Prior to publication I submitted the brochure for examination to the late Rev. John Storer, of Hellidon, and to Mr. Grove Wood, of Castlegrove. Both gentlemen wrote to express approval of the views put forward, the latter stating that he was "perfectly satisfied that Shorthorn herds—if they had not degenerated—had certainly not improved for the past thirty years." He had altered his opinions since he wrote in 1864 the letter copied into Mr. Carr's book, which has been already referred to, and had then no doubt that close breeding produced infertility.

My preface was by many coldly received, as I had expected, and by some in rather a hostile spirit, though it was meant to do them good.

In the press I received no support save from the Shorthorn Intelligence in *Bell's Messenger*.

The review given in one paper contained a thinly-veiled sneer, but there was no effort made by the writer to refute the arguments adduced.

While engaged in writing his "History of the Booth Herds," and in marshalling opinion in favour of close breeding, Mr. William Carr was not aware that there was "a rod in pickle" for him. It happened that at the very same time Mr. Charles Darwin was engaged in writing "Animals and Plants under Domestication," a work which was published in the same year (1867) that Mr. Carr's book saw the light.

In this remarkable production, Mr. Darwin says at once that the prevention of free crossing and the intentional matching of individual animals are the corner stones of the breeder's art; but he adds that, with the evidence before him, he is convinced that it is a great law of nature that all organic beings profit from an occasional cross with individuals not closely related to them in blood; and that, on the other hand, long continued interbreeding is injurious. He was aware that throughout the whole organic world elaborate provision had been made for the occasional union of distinct individuals.

Mr. Darwin knew that close interbreeding may with some animals be carried on for a considerable period with impunity by the selection of the most vigorous and healthy individuals, but sooner or later evil followed; the visibility of the ill effects was not in such cases readily recognised, because the deterioration was gradual.

It will thus be seen that there were at the same time put before the world the conflicting opinions, upon the subject of breeding, of Mr. Richard Booth, the owner of a great herd, and of Mr. Darwin, one of the greatest of naturalists. Fully agreeing with Mr. Darwin's views, which coincided with the knowledge acquired in my experience, I felt anxious to give him the results of my observation. I wrote to him in the autumn of 1873, enclosed a copy of the little treatise I had written in the preceding year, expressed my adhesion to his views and my desire to visit him, so that I might have from himself his opinions upon various points, and that I might put before him what I knew of the injurious results of long-continued close-breeding in Shorthorns.

In his reply, Mr. Darwin said: "I have been much gratified by your letter; it is in the highest degree satisfactory to me to find that a man with such

large experience as yourself agrees with what I have deduced to a considerable extent." He invited me to visit him at his home in Kent—Down, a secluded retreat, four miles from Orpington Station; although within an hour of London, it was quite a place far from the madding crowd, and suitable for the enjoyment of study and contemplation.

The day was appointed for the visit, and in October, 1873, I found myself in the home of the great naturalist, quietly discussing the then burning question of close breeding in Shorthorns.

The genial presence, the modesty and simplicity of manner of this wonderful man were very remarkable. "I could not think," he said, "it would be worth your while to lose a day in London for the sake of having a talk with me." This was a modest tone to be assumed by one who was not able on one occasion to make it convenient to be at home to see the Emperor of Brazil, who was anxious to visit him, and who had done a good deal in the way of assisting scientific researches in his own country.

Mr. Darwin had the art of making a stranger speedily at ease, and he at once proceeded to discuss with me the matter of consanguineous relationships. He mentioned that his deductions as to the evil results of close breeding had been combated by some who said that he was a mere theorist, but that they, practical men who had long experience in breeding cattle, differed from him. He was particularly pleased when I explained that there was at the time a certain fashion prevalent and that this fashion insisted upon what was termed "pure" blood.

I also told him that I had known barrenness and abortion to have been frequent in some closely-bred herds, that cases of blindness came to my knowledge, and that I had seen calves got by a bull—much in-bred—from cows related to him, which were affected with brain disease so badly that they were slaughtered while very young. The calves from cows by the same sire, but not related to him, were not so affected. He had heard of pigs born idiotic and without sense even to suck, and when attempting to move they could not walk straight. I gave instances of consumptive tubercular disease, which came under my observation. The animals were very closely bred, and for some years looked healthy, but when the disease had attained a certain height, they rapidly broke up and died. I saw their lungs, which were very much perforated with tubercles.

In "Animals and Plants" Mr. Darwin had stated that animals may seem robust, but yet may be unfertile from in-and-in-breeding, and he was anxious to know if I had seen such cases, to which question I was able to reply in the affirmative.

But perhaps there was nothing upon which he spoke with such lively interest as proving the value of the infusion of a fresh element, as the result of a trial with plants which he had not very long since made. One plant was fertilised by pollen from the same flower, the other by pollen from a distinct plant of the same variety. He did not expect that the results would exhibit any remarkable difference, but, to his astonishment, the young seedlings from the latter or crossed seed were twice as tall as the seedlings from the self-fertilised seed, both seeds having germinated on the same day.

This striking result surprised him. Indeed, it seemed to him incredible that such a result could be due to a single act of self-fertilisation, and it was only in the following year, when precisely the same result occurred in the case of a similar experiment, that his attention became fixed upon it, and that he regarded it as of great importance. Until then he had always supposed that no evil effects would be visible until after several generations of self-fertilisation, but now he saw that one generation sometimes sufficed to make a great difference, and the existence of dimorphic plants and all the wonderful contrivances of orchids were quite intelligible to him. He afterwards published his book on "The Effects of Self and Cross Fertilisation," the result of eleven years of experimental work.

At the time of my visit to Down Mr. Darwin's health was by no means good. He had lately been ill, and his doctor urged him not to excite himself by much conversation. If he did so his rest at night would be disturbed; but he was able to do a good deal of scientific work in his study free from any excitement. For the past thirty years he had not enjoyed real health, and yet what work he had accomplished!

Before leaving, in the afternoon, I promised to send Mr. Darwin two letters which I had written in *Bell's Messenger*, one upon "Fashionable Breeding," and the other upon "Type Maintenance," as well as some manuscript notes on certain of the points which we had discussed.

I had the satisfaction to receive from him this letter:—

"Down, October 25th.

"My dear Sir,—Your two letters in *Bell's Messenger* strike me as quite excellent, and I have read them and your MS. notes (for which I am greatly obliged) with the highest interest. I enjoyed my conversation with you, and it has done me no harm. Heartily wishing you all the success you deserve,

"I remain, my dear Sir,

"Yours faithfully,

"C. DARWIN.

"I have copied the conclusions to your second letter." It was in this year, 1873, that the extraordinary sale of Bates cattle took place at New York, U.S.A., when Mr. Campbell's herd was dispersed. He bred the Duchesses to suit the fashion of the time, became an enthusiastic admirer of the "pure strains," determined to cater for the market and to pin his faith to "pure Bates." The success of the New York Mills sale surpassed the wildest expectations. Eleven Duchesses averaged £3,889 each, one of the "purest" of the lot

being sold for £7,274. Many of the animals came to England.

In the face of these extraordinary results in the sale ring, it was not easy for breeders to keep their sense, to hold in view the teachings of the "great law of nature," and to go against the fashion; but the believers in Mr. Darwin's views were soon to be gratified by the exhibition of altered practice among the owners of fashionable herds.

In 1875 the prudent purchase at the Ayleby sale of a dozen females to recruit the great herd at Warlaby was the sensation of the time. The Wetherby Duchesses were also receiving infusions of fresh blood, and there was an eager demand from owners of Bates herds for Mr. Oliver's Grand Duke bulls, which inherited Booth blood through the crosses taken by the late Mr. S. E. Bolden.

A great change has now taken place; paper pedigree no longer suffices to sell a Shorthorn, there must be merit, and that of no mean order, to secure buyers. It is, therefore, safe to say that at the present time the breeding of Shorthorns is generally conducted on sound and good lines; the man who has the skill to breed the best animals must come to the front, and the best animals are sure to come of good blood. This is as it was in former days, and as it always ought to be. May it ever remain so!

JOHN DOWNING.

White Shorthorns.

CAN anyone give an intelligible reason why white Shorthorn cattle are less valuable than reds or roans? I have been hoping that the prejudice was dying out, but in a recent report in the *JOURNAL* it was stated that a heifer "being a white, would probably fall a bargain to someone." I have been connected with white Shorthorns over a long series of years, and I never could find any satisfactory solution of this prejudice. I have put the question to many Shorthorn breeders, but never had a satisfactory answer, one saying that a belief existed that whites were uncertain breeders, but if you got one calf then they were all right for the future. Some aver that whites are more delicate than others. My own experience has been that they are, if anything, the best thrivers; as to breeding, they are fewer in number than the reds and roans, and if a white heifer fails to breed, the fact is more noticed than in the colours. During the past fifty years I believe more prizes have been taken in the principal prize-rings by whites than by animals of red or roan. As to delicacy, the last time I visited Thirlmere, Helvellyn, I found quite a number of cross-bred white Shorthorns on the pastures, some of them of a good old age, and regular breeders, and the owner had never found that the whites were less robust than those of other colours. Surely in this age of common sense it is time to divest ourselves of a foolish prejudice that might be classed under the category of a superstition, and under which the best class animals, if white, are depreciated in the sale rings by so many guineas.

SAMSON.

Cattle Feeding.

AT the dinner in connection with the Williton and Dunster Agricultural Association, Sir ALEXANDER ACLAND HOOD, Bart., presided, and in the course of one of his speeches said:—Going from corn to meat, not one farmer in a hundred knew how much he lost or gained by fattening stock. A very good article had been written by Sir Thomas Acland's steward in the "Journal of the Bath and West of England Society" on the question whether it paid to fatten stock, and when he mentioned Sir Thomas Acland's name he might say that they owed a deep debt of gratitude to him, for he was one of the best landlords in England, one of the most hard-working men and one of the kindest-hearted of men, and he was one of the men who resurrected the Bath and West of England Society. In that article it was stated that the fattening of stock did not pay. What did it cost to fatten a bullock? Taking everything into consideration, he thought it was 12s. 6d. per week. He (Sir Alexander) had asked many people how much meat in dead weight a bullock that was being fattened put on per week, and he got all sorts of answers from farmers, surveyors, and auctioneers. Some said a score a week, and others said 15 lb. a week, but the real fact was, and that was a thing which they owed to science, for farmers could not go into it well, that the dead weight was about 8 lb. per week. Supposing it was worth 8d. per lb., that would come to 5s. 4d. per week against the cost of 12s. 6d. It was all very well if they bought a bullock at 10s. per score and sold it at 12s., but if they tied it up when it was worth 11s. per score and sold it at 11s., they suffered a loss. Then came the question, if they chose to fatten animals, at what age did they fatten best and put on most flesh? The younger they fattened an animal the more chance they would have of making money by doing so. An animal put on more flesh in proportion to the food it ate, under one year, than it did ever after, and under two years than it did ever after, and the same under three years; and what was the case with bullocks was the case also with sheep. Another thing was that a young animal—and he was not giving them his own opinion, for he would not venture to do that—put on flesh with less fat in it than an older one. In the case of an older animal, they got more fat with the flesh, and the consequence was that they were selling fat instead of meat. All these things were worth consideration. Another question was, what sort of animals did it pay best to breed in the present day? When they came to market, was it not the case that the smaller animal had the best sale? Years ago, there was a fashion for having great big shirfuls of fat, but that was gone out entirely, and he believed it was found in country markets as well as in town markets that the best animal to be got rid of was the smaller and the younger one. All those questions were well worth considering, and he hoped that presently they would hear the opinions of several practical men upon them. He dared say that they would jump down his throat, but he was quite willing that they should do so.

most promising young bull—was shown at Melrose last year and was *vic*, being then sold to Mr. B. Stewart, of Kinlochmoidart. He left some calves of exceptional merit at Kinnaird, and also two very fine heifer calves in the Marden Deer Park fold.

From the Glenlyon House sale came Anna of Athole 697, of the Athole-Breadalbane strain, a fine brindled cow, own sister to Bear a' Bhaile of Camusericht 200, the champion bull at Inverness in 1893, whose best offspring has been Alan of Southesk 627, by Gilderoy, who was placed fourth in the aged class at Melrose last year, and then sold to Messrs. Macgillivray for their well-known fold at Eoilgary, Barra.

Another purchase from Glenlyon House was Julia Rannoch 1,374, herself a prize-winner, and now at Marden Deer Park, whose heifers made the highest prices at the Kinnaird Castle sale in 1889. In 1884, there was purchased from the Duke of Sutherland Gilderoy 223, a very good red bull, but rather small—of Bochart blood on both sides—who proved an excellent stockgetter.

In 1885, at Lord Dunmore's sale, Lord Southesk bought two heifers, with extraordinary richness of hair and with the perfect head characteristic of their sire—Prionna Tearlach II. 427, first prize at Dumfries in 1878—and on their dam's side descended from famous Ensay families—one Taragheal VIII. 1,292—with a pedigree of a hundred years, and the other from the Shelay family, Sheila Shelay 1,291. The latter cow has bred Sargon 813, by King Charles—who won the first prize at the Highland and Agricultural at Melrose as a yearling, and this year at Dundee the first prize as a two-year-old—a beautiful brindled bull of great quality, but on the small side. Sheila Shelay's yearling son Simon of Southesk 819, by Seumas a' Ghlinne 482, has been lately sold with a bull calf (Prince James) from Princess Theodore 1,288, from Inverlaridnan, at a handsome price, to Mr. Howard, of Greystoke Park, near Perth, where there has been a herd of Highland cattle for upwards of a century. King Charles 672, a handsome, peculiarly well-headed bull, the sire of Sargon 813, was bred at Kinnaird from Caroline of Cluny 703, one of two cows which were bought at the Cluny Mains sale in 1886.

In 1887, at the sale of the late Mr. Macdougall, of Ardenal, the purchase was made of Senmas a' Ghlinne 482, bred by Mr. Duncan, of Benmore, first prize as a three-year-old at the Highland Society at Aberdeen in 1885, a red bull of great size and with splendid hair, who got capital stock.

From the same source was purchased a grand old yellow cow, Bhan a' Mhuileach 165, of a famous Mull family of great reputation in that island, though not known in the national prize ring, and Lord Southesk thinks so highly of this family that considerable purchases have since been made, so that there are eight members of it now at Kinnaird.

In 1889 there was a large public sale from the Kinnaird fold. It commenced by the sale of a pair of splendid two-year-old bullocks out of good pedigree cows, which brought 60 gs.

	Averaged.
20 cows	184 ss.
11 three-year-old heifers	21 ss.
13 two-year-old heifers	17 ss.
15 yearling heifers	14 ss.

The sale was a success, and at the luncheon Lord Southesk said he had no intention of giving up the Highlanders, but was quite as much in love with them as he ever was.

From Mr. Malcolm, of Poltalloch, was purchased in 1889 the brindled bull Iain Challum 667, remarkable for size and bone, without coarseness, great length of quarter, and wealth of hair, and he was second in his class both at Glasgow in 1888 and Melrose in 1889. His sire, Calum Riabhach of Athole 82, is the celebrated unbeaten champion, and his dam, Mhaldag 4th of Poltalloch 537, was the first-prize cow at Dumfries. In his eight recorded descents appear no less than four winners of the Highland Society's first prizes, as well as numerous seconds and thirds. Four heifers by Calum Riabhach 82 were also purchased from Poltalloch, direct maternal descent from the Queen in the very famous Taymouth fold, perhaps the best ever formed, of the late Marquis of Breadalbane.

From the Duke of Athole's fold was purchased in 1889 three very remarkable old cows, Bean Og 20, Te Riabhach 35, and Donnag Og 27, all by Sgiathanach 489, the Ensay champion bull, the sire of Calum Riabhach 82, and descended respectively from the famous Breadalbane cows, Rosie 1st 33 (a great prize-winner), Annag 1,373, and Bella—three of the famous families which have done such wonders for the Athole fold. All three have had fine calves by Rossie—first prize and champion at Glasgow in 1888. Te Riabhach, whose portrait is in this year's vol. of the Herd-book, is an especially fine cow (first prize at Perth in 1879), with horns of the double-curve type, and of extraordinary size and quality, measuring three feet eight inches from point to point, each being thirty inches in length. Bean Og, a handsome red cow, belongs to the great prize-winning Rosie family. Donnag Og, black, is the dam of Annag Riabhach 19, who won for Athole the first prize for cows at Melrose last year. At the sale of the Jura fold in that island in August last, when prices ranged higher than at any previous sales, even animals were bought for Kinnaird. Two of them were An Enrach 78, an old cow whose numerous descendants were among the best in the Jura fold, and Bhanersach, a light yellow, who was by far the highest priced two year-old at the sale.

The fold is now composed of three bulls and six bull calves, thirty-two cows and heifers in-calf, four two-year-old heifers, twelve yearling heifers, and eleven heifer calves.

The largest groups are: first, the Athole-Breadalbane, and Poltalloch-Breadalbane, eleven animals second, the Ensay-Harris, seven animals; third, Jura,

seven animals; fourth, Ord in Skye, ten animals; fifth, the Mull family, eight animals.

The fold gets only protection in the calving season, and is not managed on any coddling system.

There are generally some young bulls and heifers at the Kinnaird Castle to be disposed of.

Lord Southesk has taken a great interest in the Highland Herd-book, and his support of the breed has been during the last seven years of great advantage to the West Highlanders.

The Kinnaird Castle fold has already made its mark, and will do better in the future, for it must be remembered that Lord Southesk is a distinguished breeder of great experience and acknowledged ability, who has had great success in the past, especially with THE POLLED ANGUS.

We may add that the Kinnaird herd of Aberdeen-Angus cattle was commenced in 1851 by the purchase of some of the best cows at the sale of Mr. Watson, of Keillor, and in 1852 the celebrated Cupbearer 69 was purchased from the late Mr. Bowie, Mains of Kelly. Erica 843, by Cupbearer, was bred at Kinnaird and sold to Sir George Macpherson Grant, and became the fondress of one of the most important families in the Polled Herd-book.

The herd had great successes in the showyard, gaining many of the highest prizes both in Scotland and England from 1852 to 1865. In 1865 the breeding herd was composed of about forty animals, when it was attacked by the rinderpest, and in ten days all were dead except three, one of which afterwards—in 1867—won the first prize for aged bulls at the Highland Society's Show.

Four years after the rinderpest Lord Southesk founded, in 1869, a Hereford herd, the first purchases being Queen of the Lilies—the finest cow of the breed then alive—first prize at the show of the Bath and West of England, 1869, and the same year at the Royal at Manchester. Diadem, first prize two-year-old heifer; and Ostorius, first prize yearling bull at the same Royal show. The Herefords prospered well at Kinnaird, and the only animal exhibited was first prize in her class at the Royal at Hull in 1873.

Lord Southesk determined, in 1874, to give up his large home farm, and the Herefords were sold by Mr. John Thornton, bringing good prices.

In 1880 a herd of Polled Angus was again established at a small farm on the estate, but it was given up in about four years, the whole bringing good prices.

Any admirer of the West Highlanders who is passing from Perth to Aberdeen, or Dundee to Aberdeen, can enjoy a great treat by stopping at Bridge of Dun Station and spending a few hours seeing Kinnaird Park and the cattle. H. W.

Care in Taking and Posting Weights.

Your able writer under this heading takes up the subject broached by me in a letter the previous week, and clearly maintains that the president and council of everyone of our volunteer associations are responsible for every failure of purpose which may arise from neglect of duty by anyone of the whole list of their paid officials." After most carefully reading the article I cannot but feel impressed that my assertion is questioned, for, truly, he says, "a majority of fact, plus one assumption, is less to be trusted than is assumption alone." When writing the letter I was much pressed for time, and did not verify the statement made with the figures, but they came from such authority that I felt confident of its accuracy. I, therefore, now think it desirable to place the facts before your readers as to whether the discrepancy in the weights I wrote about was based on sound ground. Take class 6 of the Smithfield Show, that being the one brought to my notice by a renowned Hereford breeder mentioned by me, and you will find the difference more startling than I stated. Look at the Smithfield list of awards:—

No.	Birmingham weight.	Smithfield weight.	Gain.
	Cwt. qrs. lb.	Cwt. qrs. lb.	Qrs. lb.
37—1st prize	11 3 26	12 0 22	0 24
42—2nd prize	10 2 0	11 0 27	2 27
34—3rd prize	12 0 0	12 0 8	0 8
38—4th prize	10 2 16	10 3 18	1 2
36—reserve	12 1 16	13 2 8	0 20

Of the other four Birmingham exhibits shown in this class No. 32 gained 1 lb.; No. 33 lost 1 qr. 8 lb.; No. 35 gained 20 lb.; No. 39 lost 1 qr. 2 lb. These figures, showing as they do in one instance as much as $\frac{1}{4}$ cwt. difference, need no further comment from me, and if my letter "impresses upon all concerned the necessity that there is for seeing that such possibilities do not ever" (again) "become actual facts," I shall be amply repaid for the little time I have bestowed on the matter. J. J. CEIDLAN.

Agricultural Experiments v. Prizes for Live Stock.

In these days when every one is talking, and some are acting energetically about the improvement of agriculture, and after the system of experiments has in various quarters met with so much success as to encourage a much wider extension of it, I hope I may venture to make a practical suggestion with the purpose of facilitating the increase of the number and variety of experiments.

Some persons advocate the application of Government grants to experiments. I do not, because I think economy and practical personal interest are essential parts of the system. But I advocate earnestly the application to agricultural experiments, conducted by practical men under scientific guidance, of the greater part of the money, which is now collected with great difficulty, to be chiefly spent in money-prizes at the shows of our principal societies. This money, at

present, goes into the hands of a very small section of the exhibitors of cattle, sheep, pigs, and horses.

A comparatively trifling sum of money spent in medals and bits of blue and red ribands and cardboard, would amply answer the purpose of conferring distinctions on winners of prizes. The original purpose of the money-prize system was, no doubt, to encourage the establishment and maintenance of well-bred herds and strains of blood. That result has long ago been attained. Nothing now is needed but advertisement. When the breeder becomes well known, the prices of the offspring amply repay his trouble and expense. I do not wish for one moment to discourage the shows, but I say that the need for advertisement will act upon the minds of breeders just as it acts upon the minds of implement-makers, who now no longer require money prizes (nor even medals) to induce them to exhibit, and the cattle-shows would, therefore, be maintained if the prizes were medals instead of money, just as the implement show is without (except in the case of the Royal Agricultural Society of England) any prizes at all.

The thousands of pounds thus saved could be far more usefully spent in finding manure, and, if necessary, even renting land for the purpose of experiments to be conducted by local committees of farmers, and reported upon under adequate scientific guidance, and money would then be forthcoming to pay for the time and trouble and intelligence needed to see that the experiments are properly carried out.

I enclose, without giving any names, a summary of the manner in which the money prizes have distributed themselves amongst the prize-winners in the showyards of one of our principal societies during the eleven years, 1878-1888 inclusive.

It will be observed how very small a number win prizes at all, and that of these, in round numbers, one seventh of the whole number have carried off one-half of the money value of the prizes.

No account is taken of the total number of exhibitors, but it is well known that it does not tend to diminish but practically varies with the prosperity of agriculture. Consequently the probability of winning a money prize is not the predominant motive in the exhibitor's mind.

CHARLES THOMAS DYKE ACLAND.

Killerton, Exeter, December 17th, 1890.

Summary.		£	£
Devons	22 winners	1,925	5 won 1,151
Shorthorns	55	2,100	8 " 1,170
Hereford	38	1,933	7 " 150
Sussex	26	2,112	6 " 1,138
Jersey	49	1,315	2 " 500
Guernsey	22	1,191	4 " 653
	212	£10,826	32 £1,944
PRIZES FOR SHEEP:—			
Leicester	7	485	2 " 325
Cotswold	9	525	3 " 410
Devon Longwool	11	485	1 " 277
South Down	21	622	3 " 312
Hampshire Down	15	527	1 " 54
Shropshire	21	533	1 " 144
Oxford Down	12	530	1 " 214
Somerset and Dorset			
Horn	8	452	1 " 317
Exmoor	10	249	2 " 148
Rouney	6	401	2 " 289
Dartmoor	1	45	1 " 20
	121	£4,859	18 £2,655
PRIZES FOR PIGS:—			
Berkshire	22	459	3 " 190
Small Black	20	388	3 " 189
Small White	15	445	3 " 205
Other Breeds	23	461	3 " 190
	80	£1,753	12 £822
	413	£17,216	62 £9,391

Measurements of Dexter Kerries.

SENDING your account of Mr. Walter Gilbey's Tommy Titmouse I send the weights and measurements of some of my Dexter Kerries. A fat bull put to corn last week in September, killed December 5th: Height 46 in., girth 75 in., length 68 in.; weight of dressed meat, forequarters 196 lb. and 209 lb., hindquarters 149 lb. and 158 lb. Two fat calves, one, gross weight 154 lb., the other, live weight 184 lb., best meat 104 lb.; fed on boiled oatmeal, some new milk, and plenty of skim milk.

My young bull measured last June 44 in. height, girth 70 in., length 61 in.; weight, 6 cwt. 14 lb.; age, two years two months; off old seeds kept September 26th, his height was 46 in., girth 75 in., length 68 in., round hock 16 in. This is on ordinary meadow keep, no corn. These cattle will thrive on anything, and would be found very valuable on land which has got into bad order. A HOUSEKEEPER.

Animal Physiology: the late Mr. Charles Darwin.

(Continued from page 534.)

II.

BREEDING FOR SEX.

The theories upon this subject are many, most of them old, some new. It is said that 500 theories have been advanced in relation to the development of sex in human beings, and the most generally supported would appear to be the "ovulatory," which makes sex an inherent quality in each ovum; the "spermatic," which refers it to the influence of the sire; and the "superiority" theory, which is strongly supported, maintains that the stronger parent at the time of copulation asserts the determining influence.

Some French flockmasters, many years ago, carried out experiments by mating young rams with old ewes, and vice versa. Again, it has been asserted that the period of heat at which service occurs determines the sex, and many have expressed their belief that food has

an effect upon the conception. Some breeders have found a young bull to get chiefly males, while the experience of others has been quite the reverse.

There have been a good many amateur experimentalists on the subject who easily convinced themselves that their views were the only correct expositions of this feature of nature.

It appears, however, pretty clear that most of those who have given attention to the matter had in their minds that after impregnation the sex was established, so to speak, *ab initio*.

I had some correspondence with Mr. Darwin in 1874, when I put before him several letters written by men of intelligence who held certain of these views. He wrote me, "Many thanks for the sight of the enclosed letters. It is, I believe, an error to speak of the ova or the spermatozoa as being of any sex. There is fairly good evidence that the embryo is at first of both sexes—*i.e.*, hermaphrodite; and that afterwards either the male or female organs abort, leaving the animal of the opposite sex. But what determines the abortion of one or the other sex seems at present unknown, probably it depends on many causes."

If those who, in the future, investigate this question of the control of sex will apply themselves to this one point—the causes of the abortion of one of the sexes in embryo—as to which there is not at present much known, there will be a far greater probability of attaining valuable results than there was by the experiments or trials which have usually been made.

In another letter Mr. Darwin asks, "Do you yourself know of any facts in cattle or other animals showing a tendency to produce either males or females in excess, being inherited or running in the blood?" He thought Lord Spencer had written something on the point, but I could only find an article in the first volume of the Royal Agricultural Society's Journal, which that nobleman contributed "on the gestation of cows." This gives tables comparing the number of days of gestation and the nature of the produce—*i.e.*, whether cow-calves, bull-calves, or twins.

I believe Lord Spencer was anxious to procure information which would assist the cultivation of a heifer-breeding tendency in dairy herds.

In my own experience with Shorthorns, I only know one tribe which regularly bred an excess of females. I acquired it from the late Mr. Jones of Waterford, who had it for forty years, and he assured me that the cows of this Lupine blood had all through been breeding an excess of female produce. Mr. Grove wrote me to say that he knew some Shorthorn families which produced offspring principally of one sex; and the late Mr. Barnes' Mantalinis for a great many years, very much to his disappointment, produced mostly bulls. The result of Mr. Darwin's consideration was given as follows:—"From what you say I think I may venture to assert that occasionally a tendency to produce one sex more than the other runs in certain families of Shorthorns."

Among the last letters which I received from the departed naturalist was one in which he inquires about greyhounds. He said:—"I want information on one simple point. It is whether large breeders of greyhounds rear more dog than bitch puppies? I know that with common breeds of dogs most persons prefer rearing more of the males than of the females, and I want to know how this is with greyhounds. I should like to put the case thus: If one bitch produced a litter of four females and two males, and another bitch produced a litter of four males and two females, how many of each sex (as a general sort of rule) would be reared?"

I sent all the best information which I could glean in reply to those inquiries, and this was the close of my correspondence with the great scientific labourer, whose ashes were some years ago fitly laid in Westminster Abbey, near to the grave of Sir Isaac Newton.

JOHN DOWNING.

Milk Fever.

There are a good many inquirers in your paper about milk fever or drop after calving. I have calved more than 200 cows yearly for several years, and as I send most of the milk to London I have them calve mostly from the middle of August to Christmas, and I have never lost a cow from milk fever that I know of. I may say my land is good. I buy the best cows and heifers I can get, and they are always in very good condition.

How I generally manage my cows near calving is: let them go on as usual until calved, then soon after calving inject into womb half a pint of carbolic oil, mixed by myself with Gallipoli oil and pure carbolic acid, 1 to 15, with half pint brass syringe, then give 1 lb. salts, and from 3 lb. to 4 lb. treacle, and cover up with rug; if in August or September, and the sun is very hot, put them in yard with shed, so that the cow can get into shade. I do not in any case milk the cow until she has calved twenty-four hours; and, if a great milker with very big bag, not for thirty-six hours, and then only about half clean them. Let the calf run with the cow and take what milk it likes. Should nights be cold in the above-named months, keep them in; after September generally keep them in until calved a few days. In the last ten years I have had a few go down about the second day after calving; those I have given at once, as soon as I found them stagger, another 1 lb. salts, 3 to 4 lb. treacle, half-pint whisky; put 1 lb. mustard, mixed with turpentine and a little water, from head to loin, and then cover with a thick bag, and have ordinary ironing flats, very hot, and let a man on each side iron the cow's back from loin to head for about an hour; then cover up well to get the cow in a good sweat. If a very strong cow, and she does not improve in three hours from the first drinks, give half-pound more salts, and plenty of treacle, half-pint more whisky. Of course, I use my judgment, and they have always got up in

about twenty-four hours. If a cow goes down one year, it makes no difference, but let her have another calf, as I have never found one go down two years following if properly looked after at calving time.

If any of your readers would like to write me, and ask any questions, I shall be pleased to answer them.

FRANCIS HODDINOT.

A Visit to the Smithfield Show Eighty-five Years Ago.

An account of the Smithfield Club Show in 1804 is before us, and there are many points which are interesting to breeders of stock of the present day contained therein. The account appeared in a weekly provincial paper of December 22nd, 1804, and runs as follows:—

The number of amateurs who flocked on Friday to see the prize cattle was greater than on any former occasion; and from about eleven till two o'clock Mr. Wootton's yard and premises, where the cattle stand, were so thronged that it was often several minutes before the persons present could move along.

We shall mention the prize cattle, and some few others which we particularly noticed. In this review we shall take them as they stand in going up the yard and down again on the other side.

The first remarkable thing which struck us was that although there were in former years so many prizes for fat pigs, no one had sent to this show any pigs within the time limited, and with the requisite registers of food, weight, &c. A dark thin-haired pig, of the Essex breed, belonging to Mr. Charles Western, was shown, and had some merit; and an excellent black thin-haired pig of the Hertfordshire breed, between eleven and twelve months old, fed on beans and peas, was shown.

In the first or lower stable was a yellow-red cow of the Holderness or Shorthorned Yorkshire breed, very fat. Beyond this stable door stood two beautiful small, black-poll'd heifers, belonging to Alderman Curtis; they attracted a good deal of attention, and so much resembled the Scotch or Galloway breed of cattle, that the Earl of Gallogly, who examined them, seemed to consider them as of the genuine breed of his country; but Sir William Curtis, who came in soon after, stated that they were by a Devon bull out of cows of the China breed. Mr. Garrard, the cattle modeller, took dimensions and a drawing of one of these heifers, on account of its great beauty.

The next was a black ox of the North Wales breed, four years old, which had been fed on grass and hay, by Mr. Gilbert, of Leicesterhire, for which he is adjudged ten guineas in Class 5, this animal having gained the greatest comparative weight of flesh in a given time of feeding.

A yellow spotted cow, very fat, of the Shorthorned breed, eight years old, having had five calves, which had been bred and fed on grass, hay, and turnips, by Mr. Pickford, the second prize of ten guineas in Class 4.

The next object of attention was a most beautiful dark-red cow of the Kent breed, eight years old, which had had five calves, bred by Mr. Monk, of Romney Marsh, and which had been fed by the Duke of Bedford, on oil cake, turnips, and hay. This gained the first prize of fifteen guineas in Class 4.

The next was a small brindled ox, of the Scotch breed, five years old, bred by the Duchess of Gordon, and fed on grass, hay, and turnips, by the Duke of Bedford. This gained the second prize of ten guineas in Class 3.

A red ox of the Scotch breed, four years old, bred by Mr. Rountledge, and fed with grass, hay, and turnips, by Mr. King, gained the first prize of fifteen guineas in Class 3.

A large red ox of the Hereford breed, six years old, bred by Mr. Tully, near Hereford, and fed on grass, hay, and turnips, by Mr. Westcar, gained the second prize of fifteen guineas in Class 2.

A dark dun ox of the Glamorgan and French breed, six years old, bred by the Duke of Bedford, and fed by him on grass, hay, and turnips, gained the first prize of twenty-five guineas in Class 2.

We next come to the prize sheep: three new Leicesters, two years old, bred by Mr. Thomas Westcar, of Woolaston, Oxfordshire, and fed on grass by his brother, the famous grazer, John Westcar, to whom the prize in Class 3 is awarded.

The Rev. T. Plaskett, of Weston House, near Thame, Oxfordshire, produced three wether sheep, that were yearned in the month of May, 1803, and weaned in the September following; they had nothing more than natural grass and hay through the winter, were removed in the month of May, 1804, into a field containing only 3 acres of second year's clover ley, into which were put twenty-two sheep of the same age, where they all continued until the month of October, 1804; since which time they have been upon natural grass, with turnips for the last month only. The above sheep obtained the prize of ten gu. in Class 6. They are of the new Leicester breed, by a ram hired of Mr. Stubbins, of Holmptierpoint, near Nottingham.

Three Southdown sheep, two years old, fed on grass, hay, and turnips, the property of the Duke of Bedford, bred and fed on his Marliden Farm, gained the prize of ten gu. in Class 9.

Three Southdown sheep, one year old, fed on grass, hay, and turnips, belonging to the Duke of Bedford, from his Marliden Farm, gained the prize of ten gu. in Class 8.

After passing several other pens of sheep, we came to a large, spotted, light red ox, very fat and fine, of the Hereford breed, seven years old, bred by Mr. Tully, near Hereford, and fed on oil-cake by Mr. J. Westcar. This gained the principal prize of 25 gu. in Class 1.

The next was a large red ox of the Devon breed, six years old, fed on oil cake, which had been bred and fed by the Duke of Bedford; this gained the second prize of 15 gu. in Class 1.

The last beast on that side of the yard was a handsome ox of the Tytherton breed (two parts French and one Scotch), only three years old, which fell lame on the road, and did not arrive in time to be a candidate for the prizes; it was bred and fed by Thomas Crooke, of Tytherton.

Much discussion took place at this show between different groups or parties of gentlemen on agricultural subjects. Mr. Bellamy issued his notes of a work published on remedies for scouring and other diseases of cattle. Mr. Lawrence issued his proposals for a work on the nature and management of cattle in general. Mr. Smith, late of Bath, now of Buckingham Street, Adelphi, showed his maps and sections of the strata of England.

After inspecting the cattle, there was a meeting of the Committee of the Smithfield Society at the Crown and Anchor, His Grace the Duke of Bedford in the chair. Mr. Thomas Buckler, the Rev. Thomas Plaskett, and several other gentlemen were admitted members of the Society, and some other business was transacted, after which about thirty sat down to an excellent dinner.

Among the questions a report like the above raises none are so interesting as those regarding the different breeds of stock; some named at any rate are not known now, nor had sheep and pigs the prominence they have now gained. It would be satisfactory to know more about the beautiful Black Polled heifers by a Devon bull out of a China cow. It will be noticed that in the case of the North Wales ox the point relied on was the greatest weight gained in a given time—and we have got little further than this to-day in the use of weighing machines. Oil cake is mentioned once, but grass, hay, and turnips were the chief rations. The Rev. T. Plaskett cannot be congratulated on his method of sheep feeding, though the reporter seems to have found something in the system of remarkable merit. Perhaps twenty-five wethers in three acres of second year's clover, say from May to October, struck him as economical feeding. When one considers the difficulty of transit in those days, the energy of the management must have

been great; and it makes us ask, have we, with our great advantages and increased knowledge, made that advance upon the show methods and practice of 1804 that the lapse of years would warrant? T. A. H.

Butchers as Judges at Christmas Fat Stock Shows.

WITH reference to the articles on page 600, as to the desirability of butchers officiating at Christmas fat stock shows, and relegating the summer shows of breeding stock to breeders as judges, I may say that in the North of England this principle is now all but general. At the show in connection with the North Lonsdale auction mart, where from £3,000 to £4,000 of fat stock were sold, on December 11th, both judges of cattle were butchers, and for sheep a breeder and a butcher were selected. At the sale of the whole of the prize animals, in only two instances were their decisions traversed by the prices realised in public auction.

SAMSON.

[We do not suggest that at high-class fat stock shows, where separate breeds are recognised, the judging should be done wholly by butchers; but we propose that the butcher, as the representative of the consumer, should give his aid in awarding the prizes. Breeders should certainly also officiate.—Ed. L. S. J.]

The High Barns Shorthorn Herd.

DURING the past three or four years we have given reports of a number of purely pedigree herds in the counties of Westmoreland and Cumberland; reports of others will, of course, follow from time to time, but we also propose to print, as time and space permit, some short reports of the herds of Shorthorns, or cross-bred Shorthorns, that are in the hands of tenant farmers. As in the case of the stock in the possession of Mr. James Rooks, the tenant of the High Barns Farm, Levens, Milnthorpe, Westmoreland, most if not all the animals we propose to write upon are eligible for the Herd-book, but the owners have failed to keep records of their pedigrees and the births in their herds. The loss arising from this absence of pedigree records is now becoming fully recognised and the next few years will witness a thorough change in this respect. On our visit to Mr. Rooks he told us that during the past year or two he had lost the sale of several young bulls owing to his being unable to give pedigrees on the dam's side, and had had to accept smaller prices in consequence. This has led him to purchase one of Mr. Thornton's register books, in which to enter all births and the pedigrees of sires and dams. The progress made by the tenant-farmers in Westmoreland and Cumberland during the past few years in the improvement of their live stock—cattle, sheep, and horses—may without exaggeration be described as truly phenomenal. In this they have been greatly aided by the presence in these counties of so many first-class pedigree herds, flocks, and studs. For some time past a good yearling Shorthorn pedigree bull, ready for service, has been purchasable for from £20 to £30. This can be used in the owner's herd, and in most cases his keep will be covered by service of neighbours' cows, and when change is needed the bull goes to the butcher for an advance upon his purchase price, as well as leaving behind him improved stock. "What's in a name?" Occasionally a great deal, and we can readily imagine that in the counties to which we are referring, the name of Mr. Thompson, of Ingleswood, Cumberland, and that of Mr. Handley, of Greenhead, Westmoreland, will have proved capable of conjuring by, and have stirred up many to strive in imitation. One thing is certain, namely, that during the depression that has hung for so many years over agriculture, the failures amongst tenant-farmers in these two counties have been fewer than in comparison with other trades and businesses, and this we attribute solely to their improved breeds of live stock. "However great the crush, there is always room in the front seats." This has evidently been realised by the tenant-farmers of the two northern counties; for years past they have been endeavouring to have front-place animals; the fame of these has become known, and even the foreigners are looking after them, but hitherto they have not borne the hall-mark; the vendors could not give pedigrees, so they are now proceeding to set their houses in order in this respect, and in a few years we shall see a considerable accession of pedigree Shorthorn herds. They have splendid material to work upon—the deep-milking cow that, when dry, is yet soon ready for the butcher; the combination cow, a mixture of deep flesh and giving a fair milk yield, which is always at all points of her life ready, so to say, for slaughter, and accident seldom derogates from her value as a butcher's beast; and the purely beef Shorthorn, the cow that you cannot keep from making flesh, even on a poor diet. What has been accomplished by a considerable section of farmers in Westmoreland and Cumberland can be done by all farmers if they will but make the attempt, and that, too, without any extra outlay of consequence. It is simply a question of judgment in the purchase of improving males, keeping the produce for further breeding of their best dams, and thus plodding steadily and perseveringly upward to higher and higher excellence, which means higher and higher prices all round for the stock they have to sell, and increased prosperity.

For fifty-six years the farm of High Barns has been tenanted by Mr. Rooks' father and by himself, and when Shorthorn cattle first began to be talked about in the most northern parts of England, the late Mr. Rooks was one who favoured their breeding. Few farms have sent out more young bulls into farmers' stocks than has High Barns. The farmers of North Lancashire, Yorkshire,