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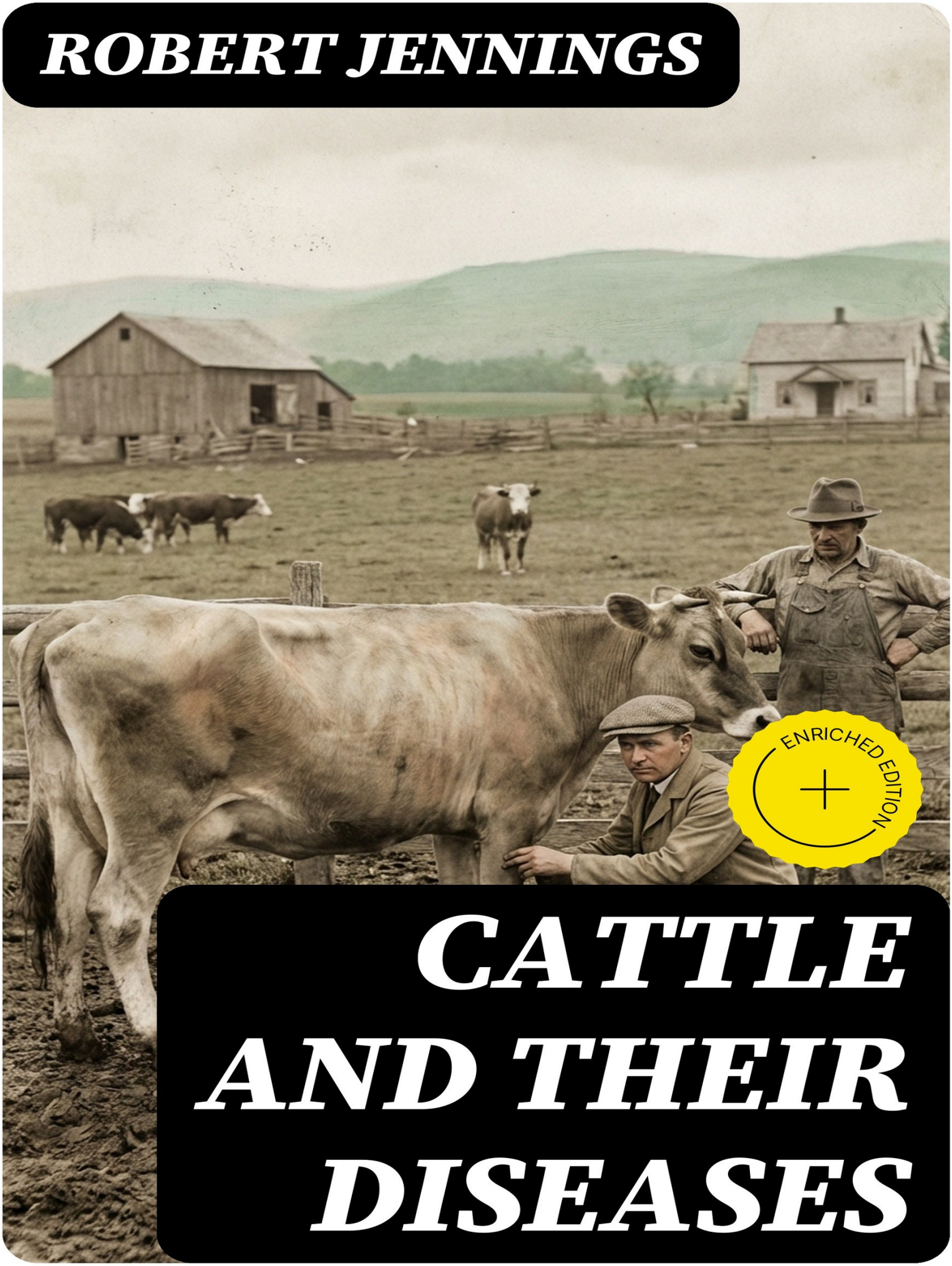

CATTLE AND THEIR DISEASES

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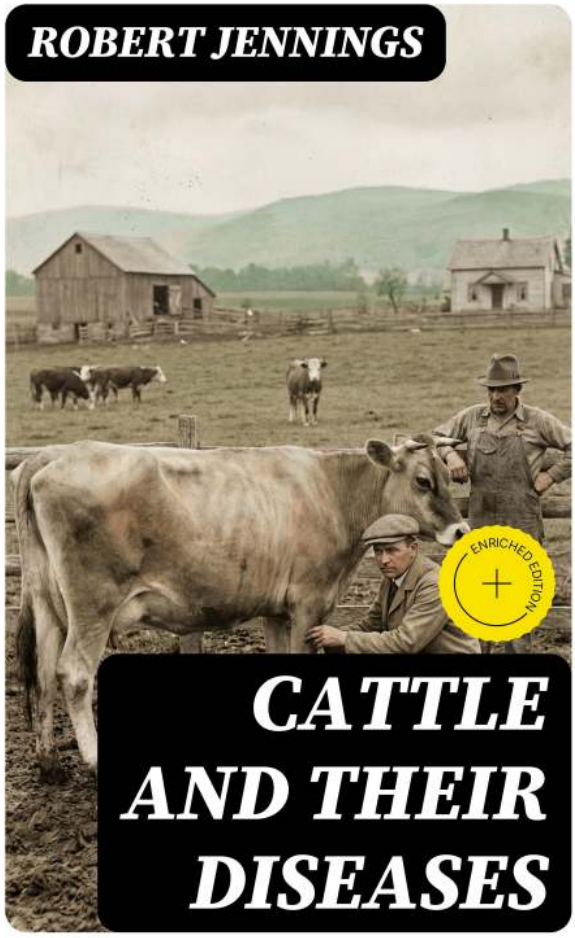

CATTLE AND THEIR DISEASES

Robert Jennings

Cattle and Their Diseases

Enriched edition.

Introduction, Studies and Commentaries by Bryce Emerson

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Cattle and Their Diseases

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PREFACE.

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A marked interest has of late years been manifested in our country relative to the subject of breeding and rearing domestic cattle. This has not been confined to the dairyman alone. The greater portion of intelligent agriculturists have perceived the necessity of paying more attention than was formerly devoted to the improvement and perfection of breeds for the uses of the table as well. In this respect, European cattle-raisers have long taken the precedence of our own.

The gratifying favor with which the author's former publication, "The Horse and his Diseases," has been received by the public, has induced him to believe that a work, similar in spirit and general treatment, upon Cattle, would not be without interest for the agricultural community.

In this belief, the present treatise has been prepared. The author has availed himself of the labors of others in this connection; never, however, adopting results and conclusions, no matter how strongly endorsed, which have been contradicted by his own observation and experience. In a field like the one in question, assuredly, if anywhere, some degree of independent judgment will not be censured by those who are familiar with the sad consequences resulting from the attempted application of theories now universally exploded, but which in the day and generation of their originators were sanctioned and advocated by those who claimed to be magnates in this department.

To the following works, especially, the author acknowledges himself indebted: American Farmer's Encyclopædia;

Stephens's Book of the Farm; Flint's Milch-Cows and Dairy Farming; Laurence on Cattle; Allen's Domestic Animals; Youatt and Martin on Cattle; Thomson's Food of Animals; Allen's Rural Architecture; Colman's Practical Agriculture and Rural Economy; Goodale's Breeding of Domestic Animals; and Prof. Gamgee's valuable contributions to veterinary science.

Particular attention is requested to the division of "Diseases." Under this head, as in his former work, the author has endeavored to detail the symptoms of the most common ailments of cattle in such a manner that every farmer and cattle-owner can at once understand them, and also to suggest such procurable remedies as a wide experience has proved to be most efficacious.

A generous space has been devoted to the consideration of that fatal epidemic, now generally known as "Pleuro-Pneumonia[1]," as it has manifested itself in Europe and this country, in the belief that a matter of such vital importance to the stock-raiser ought to receive a complete exposition in a work like the present. As the author's personal experience in connection with the treatment of this peculiar disease has been, perhaps, as large and varied as that of any American practitioner, he is not without the hope that his views upon the matter may prove productive of some benefit to others.

Should the present volume prove as acceptable to those interested as did his former work, the author will be abundantly satisfied that he has not mistaken in this instance the wants of the public.

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History and Breeds

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It is quite certain that the ox has been domesticated and in the service of man from a very remote period. We are informed in the fourth chapter of Genesis, that cattle were kept by the early descendants of Adam; Jubal, the son of Lamech—who was probably born during the lifetime of Adam—being styled the father of such as have cattle. The ox having been preserved by Noah from the flood of waters, the original breed of our present cattle must have been in

the neighborhood of Mount Ararat. From thence, dispersing over the face of the globe—altering by climate, by food, and by cultivation—originated the various breeds of modern ages.

That the value of the ox tribe has been in all ages and climates highly appreciated, we have ample evidence. The natives of Egypt, India, and Hindostan, seem alike to have placed the cow amongst their deities; and, judging by her usefulness to all classes, no animal could perhaps have been selected whose value to mankind is greater. The traditions, indeed, of every Celtic nation enroll the cow among the earliest productions, and represent it as a kind of divinity.

In nearly all parts of the earth cattle are employed for their labor, for their milk, and for food. In southern Africa they are as much the associates of the Caffre as the horse is of the Arab. They share his toils, and assist him in tending his herds. They are even trained to battle, in which they become fierce and courageous. In central Africa the proudest ebony beauties are to be seen upon the backs of cattle. In all ages they have drawn the plough. In Spain they still trample out the corn; in India they raise the water from the deepest wells to irrigate the thirsty soil of Bengal. When Cæsar invaded Britain they constituted the chief riches of its inhabitants; and they still form no inconsiderable item in the estimate of that country's riches.

The parent race of the ox is said to have been much larger than any of the present varieties. The Urus, in his wild state at least, was an enormous and fierce animal, and ancient legends have thrown around him an air of mystery. In almost every part of the continent of Europe and in every district of England, skulls, evidently belonging to cattle, have been found, far exceeding in bulk any now known.

As the various breeds of cattle among us were introduced into this country from Great Britain, we propose, before going into the details of the leading American breeds, to glance somewhat briefly at the history of

THE BRITISH OX.

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In the earliest and most reliable accounts which we possess of the British Isles—the Commentaries of Cæsar—we learn that the ancient Britons possessed great numbers of cattle. No satisfactory description of these cattle occurs in any ancient author; but, with occasional exceptions, we know that they possessed no great bulk or beauty. Cæsar tells us that the Britons neglected tillage and lived on milk and flesh; and this account of the early inhabitants of the British Isle is corroborated by other authors. It was such an occupation and mode of life as suited their state of society. The island was divided into many little sovereignties; no fixed property was secure; and that alone was valuable which could be hurried away at the threatened approach of the invader. Many centuries after this, when—although one sovereign seemed to reign paramount over the whole of the kingdom—there continued to be endless contests among the feudal barons, and therefore that property alone continued to be valuable which could be secured within the walls of the castle, or driven beyond the assailant's reach—an immense stock of provisions was always stored up in the various fortresses, both for the vassals and the cattle; or it was contrived that the latter should be driven to the domains of some friendly baron, or concealed in some inland recess.

When the government became more powerful and settled, and property of every kind was assured a proportionate

degree of protection, as well as more equally divided, the plough came into use; agricultural productions were oftener cultivated, the reaping of which was sure after the labor of sowing. Cattle were then comparatively neglected and for some centuries injuriously so. Their numbers diminished, and their size also seems to have diminished; and it is only within the last century and a half that any serious and successful efforts have been made materially to improve them.

In the comparatively roving and uncertain life which the earlier inhabitants led, their cattle would sometimes stray and be lost. The country was at that time overgrown with forests, and the beasts betook themselves to the recesses of these woods, and became wild and sometimes ferocious. They, by degrees, grew so numerous as to be dangerous to the inhabitants of the neighboring districts. One of the chronicles asserts that many of them harbored in the forests in the neighborhood of London. Strange stories are told of some of them, and, doubtless, when irritated, they were fierce and dangerous enough. As, however, civilization advanced, and the forests became thinned and contracted, these animals were seen more rarely, and at length almost disappeared. A few of them, however, are still to be found in the parks of some of the leading English noblemen, who keep them for ornament and as curiosities.

The color of this wild breed is invariably white, the muzzle being black; the whole of the inside of the ear, and about one-third of the outside, from the tips downward, red; horns white, with black tips, very fine, and bent upward; some of the bulls have a thin, upright mane, about an inch and a half or two inches long. The beef is finely marbled and of excellent flavor.

At the first appearance of any person they set off in full gallop, and at the distance of about two hundred yards,

make a wheel around and come boldly up again in a menacing manner; on a sudden they make a full stop at the distance of forty or fifty yards, looking wildly at the object of their surprise; but upon the least motion they all again turn round and fly off with equal speed, but not to the same distance, forming a shorter circle; and, again returning with a more threatening aspect than before, they approach probably within thirty yards, when they again make another stand, and then fly off; this they do several times, shortening their distance and advancing nearer and nearer, till they come within such short distance that most persons think it prudent to leave them.

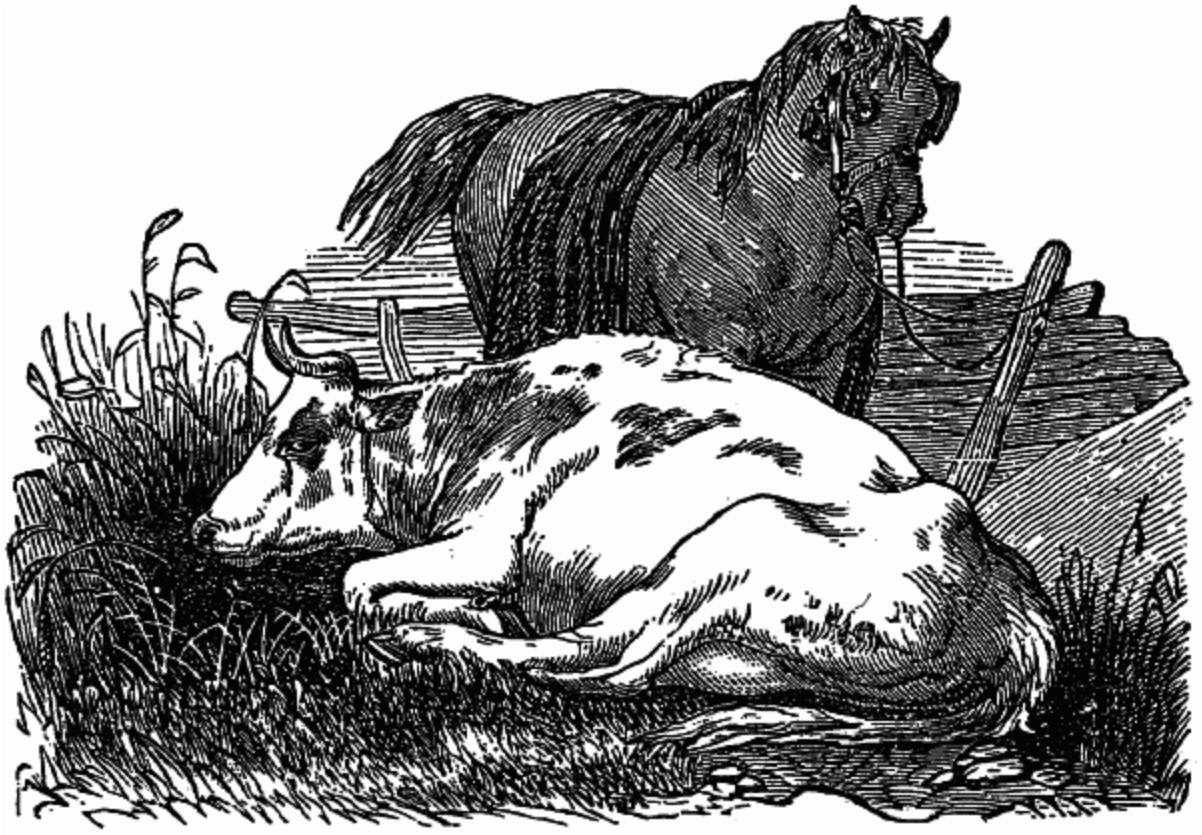
When the cows calve, they hide their calves for a week or ten days in some retired situation, and go and suckle them two or three times a day. If any persons come near the calves they clap their heads close to the ground to hide themselves—a proof of their native wildness. The dams allow no one to touch their young without attacking with impetuous ferocity. When one of the herd happens to be wounded, or has grown weak and feeble through age or sickness, the rest set on it and gore it to death.

The breeds of cattle which are now found in Great Britain, are almost as various as the soil of the different districts or the fancies of the breeders. They have, however, been very conveniently classed according to the comparative size of the horns; the *long-horns*, originally from Lancashire, and established through most of the midland counties; the *short-horns*, generally cultivated in the northern counties and in Lincolnshire, and many of them found in every part of the kingdom where the farmer pays much attention to his dairy, or where a large supply of milk is desired; and the *middle-horns*, a distinct and valuable breed, inhabiting, principally, the north of Devon, the east of Sussex, Herefordshire, and Gloucestershire; and of diminished bulk and with somewhat

different character, the cattle of the Scottish and Welsh mountains. The Alderney, with its *crumpled horn*, is found on the southern coast; while the polled, or *hornless*, cattle prevail in Suffolk, Norfolk, and Galloway, whence they were first derived.

These leading breeds, however, have been intermingled in every possible way. They are found pure only in their native districts, or on the estate of some wealthy and spirited individuals. Each county has its own mongrel breed, often difficult to be described, and not always to be traced—neglected enough, yet suited to the soil and the climate; and among small farmers, maintaining their station, in spite of attempts at improvements by the intermixture or the substitution of foreign varieties.

Much dispute has arisen as to the original breed of British cattle. The battle has been sharply fought between the advocates of the middle and of the long-horns. The short-horns and the polls are out of the lists; the latter, although it has existed in certain districts from time immemorial, being probably an accidental variety. The weight of argument appears at present to rest with the middle horns; the long-horns being evidently of Irish extraction.



THE WELL-FED BEASTS.

Great Britain has shared the fate of other nations, and oftener than they been overrun and subjugated by invaders. As the natives retreated they carried with them some portion of their property, consisting, in the remote and early times, principally of cattle. They drove along with them as many as they could, when they retired to the fortresses of North Devon and Cornwall, or the mountainous region of Wales, or when they took refuge in the retirement of East Sussex; and there, retaining all their prejudices, manners, and customs, were jealous of the preservation of that which reminded them of their native country before it yielded to a foreign yoke.

In this way was preserved the ancient breed of British cattle. Difference of climate produced some change, particularly in their bulk. The rich pasturage of Sussex fattened the ox into

its superior size and weight. The plentiful, but not so luxuriant, herbage of the north of Devon produced a smaller and more active animal; while the privations of Wales lessened the bulk and thickened the hide of the Welsh Stock. As for Scotland, it set its invaders at defiance[1q]; or its inhabitants retreated for a while, and soon turned again on their pursuers. They were proud of their country, and of their cattle, their choicest possession; and there, also, the cattle were preserved, unmixed and undegenerated.

Thence it has resulted, that in Devon, in Sussex, in Wales, and in Scotland, the cattle have been the same from time immemorial; while in all the eastern coasts and through every district of England, the breed of cattle degenerated, or lost its original character; it consisted of animals brought from all the neighboring, and some remote districts, mingled in every possible variety, yet conforming to the soil and the climate.

Careful observations will establish the fact, that the cattle in Devonshire, Sussex, Wales, and Scotland are essentially the same. They are middle horned; not extraordinary milkers, and remarkable for the quality rather than the quantity of their milk; active at work, and with an unequalled aptitude to fatten. They have all the characters of the same breed, changed by soil, climate, and time, yet little changed by man. The color, even, may be almost traced, namely: the red of the Devon, the Sussex, and the Hereford; and where only the black are now found, the recollection of the red prevails.

As this volume is intended especially for the farmers of our own country, it is deemed unnecessary in this connection to present any thing additional under the present head, except the names of the prominent species of British cattle. These are, commencing with the middle horns, the North Devon, the Hereford, the Sussex, the Welsh (with the varieties of

the Pembrokeshire, the Glamorganshire, the Radnor black, the Anglesea and some others); and the Scotch with its chief varieties, the West Highlanders, the North Highlanders, the North Eastern, the Fife, the Ayrshire, and the Galloways.

As to the long horns, which came originally from Craven in Yorkshire, it may be remarked that this breed has been rapidly disappearing of late, and has everywhere given place to better kinds. Of this species there are—or perhaps were—two leading classes, the Lancashire and the Leicestershire improved.

Of the short horns, the leading breeds are the Dutch, the Holderness, the Teeswater, the Yorkshire, the Durham, the Northumberland, and some others.

AMERICAN CATTLE.

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The breeds of cattle which stock the farms of the United States are all derived from Europe, and, with few exceptions, from Great Britain. The highest breeds at the present time are of comparatively recent origin, since the great improvements in breeding were only commenced at about the period of the American Revolution. The old importations made by the early settlers, must consequently have been from comparatively inferior grades.

In some sections of the Union, and more particularly in New England, the primitive stock is thought to have undergone considerable improvement; whilst in many parts of the Middle, and especially of the Southern States, a greater or less depreciation has ensued. The prevailing stock in the Eastern States is believed to be derived from the North Devons, most of the excellent marks and qualities of which

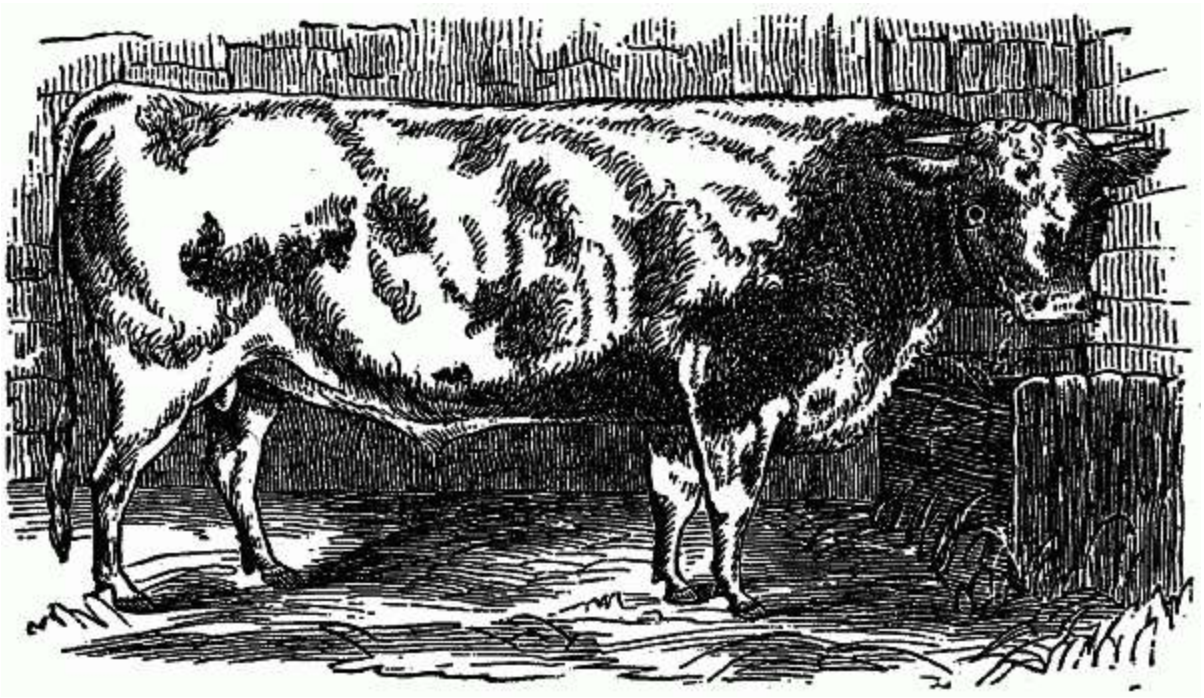
they possess. For this reason they are very highly esteemed, and have been frequently called the American Devon. The most valuable working oxen are chiefly of this breed, which also contributes so largely to the best displays of beef found in the markets of Boston, New York, and Philadelphia. By means of this domestic stock, and the importations still extensively made of selections from the short horns, and others of the finest European breeds, the cattle, not only of New England, but of other sections, are rapidly improving, especially in the Middle and Western States.

A brief sketch of the principal breeds of American cattle, as well as of the grades or common stock of the country, will be of service to the farmer in making an intelligent selection with reference to the special object of pursuit—whether it be the dairy, the production of beef, or the raising of cattle for work.

In selecting any breed, regard should be had to the circumstances of the individual farmer and the object to be pursued. The cow most profitable for the milk dairy, may be very unprofitable in the butter and cheese dairy, as well as for the production of beef; while, for either of the latter objects, the cow which gave the largest quantity of milk might be very undesirable. A union and harmony of all good qualities must be secured, so far as possible[2q]. The farmer wants a cow that will milk well for some years; and then, when dry, fatten readily and sell to the butcher for the highest price. These qualities, often supposed to be utterly incompatible, will be found united in some breeds to a greater extent than in others; while some peculiarities of form have been found, by observation, to be better adapted to the production of milk and beef than others.

It is proposed, therefore, to sketch the pure breeds now found in America.

THE AYRSHIRE.



AN AYRSHIRE BULL.

This breed is justly celebrated throughout Great Britain and this country for its excellent dairy qualities. Though the most recent in their origin, they are pretty distinct from the Scotch and English races. In color, the pure Ayrshires are generally red and white, spotted or mottled, not roan like many of the short horns, but often presenting a bright contrast of colors. They are sometimes, though rarely, nearly or quite all red, and sometimes black and white; but the favorite color is red and white brightly contrasted; and, by some, strawberry-color is preferred. The head is small, fine and clean; the face long and narrow at the muzzle, with a sprightly, yet generally mild expression; eye small, smart and lively; the horns short, fine, and slightly twisted upward, set wide apart at the roots; the neck thin; body enlarging from fore to hind quarters; the back straight and narrow, but

broad across the loin; joints rather loose and open; ribs rather flat; hind quarters rather thin; bone fine; tail long, fine, and bushy at the end; hair generally thin and soft; udder light color and capacious, extending well forward under the belly; teats of the cow of medium size, generally set regularly and wide apart; milk-veins prominent and well developed. The carcass of the pure bred Ayrshire is light, particularly the fore quarters, which is considered by good judges as an index of great milking qualities; but the pelvis is capacious and wide over the hips.

On the whole, the Ayrshire is good looking, but wants some of the symmetry and aptitude to fatten which characterize the short horn, which is supposed to have contributed to build up this valuable breed on the basis of the original stock of the county of Ayr, which extends along the eastern shore of the Firth of Clyde, in the southwestern part of Scotland.

The original stock of this country are described as of a diminutive size, ill fed, ill shaped, and yielding but a scanty return in milk. They were mostly of a black color, with large stripes of white along the chine and ridge of their backs, about the flanks, and on their faces. Their horns were high and crooked, having deep ringlets at the root—the surest proof that they were but scantily fed; the chine of their backs stood up high and narrow; their sides were lank, short, and thin; their hides thick and adhering to the bones; their pile was coarse and open; and few of them gave more than six or eight quarts of milk a day when in their best condition, or weighed, when fat, more than from a hundred to a hundred and sixty pounds avoirdupois, rejecting offal.

A wonderful change has since been made in the condition, aspect, and qualities of the Ayrshire dairy stock. They are now almost double the size, and yield about four times the quantity of milk that the Ayrshire cows formerly yielded. A

large part of this improvement is due to better feeding and care, but much, no doubt, to judicious crossing. Strange as it may seem, considering the modern origin of this breed, all that is certainly known touching it is, that about a century and a half ago there was no such breed as Ayrshire in Scotland. The question has therefore arisen, whether these cattle came entirely from a careful selection of the best native breed. If they did, it is a circumstance without a parallel in the history of agriculture. The native breed may indeed be ameliorated by careful selection; its value may be incalculably increased; some good qualities, some of its best qualities, may be developed for the first time; but yet there will be some resemblance to the original stock, and the more the animal is examined, the more clearly can be traced the characteristic points of the ancestor, although every one of them is improved.

Youatt[2] estimates the daily yield of an Ayrshire cow, for the first two or three months after calving, at five gallons a day, on an average; for the next three months, at three gallons; and for the next four months, at one gallon and a half. This would give eight hundred and fifty gallons as the annual average; but, allowing for some unproductive cows, he estimates the average of a dairy at six hundred gallons a year for each cow. Three gallons and a half of the Ayrshire cow's milk will yield one and a half pounds of butter. Some have estimated the yield still higher.

One of the four cows originally imported into this country by John P. Cushing, Esq[3]., of Massachusetts, gave in one year three thousand eight hundred and sixty-four quarts, beer measure, or about nine hundred and sixty-six gallons, at ten pounds the gallon; being an average of over ten and a half beer quarts a day for the entire year. The first cow of this breed, imported by the Massachusetts Society, for the Promotion of Agriculture[4], in 1837, yielded sixteen pounds

of butter a week for several successive weeks, on grass feed only. It should be borne in mind, in this connection that the climate of New England is less favorable to the production of milk than that of England and Scotland, and that no cow imported after arriving at maturity can be expected to yield as much, under the same circumstances, as one bred on the spot where the trial is made, and perfectly acclimated.

On excellent authority, the most approved shape and marks of a good dairy cow are as follows: Head small, long, and narrow toward the muzzle; horns small, clear, bent, and placed at considerable distance from each other; eyes not large, but brisk and lively; neck slender and long, tapering toward the head, with a little loose skin below; shoulders and fore quarters light and thin; hind quarters large and broad; back straight, and joints slack and open; carcass deep in the rib; tail small and long, reaching to the heels; legs small and short, with firm joints; udder square, but a little oblong, stretching forward, thin skinned and capacious, but not low hung; teats or paps small, pointing outward, and at a considerable distance from each other; milk-veins capacious and prominent; skin loose, thin, and soft like a glove; hair short, soft, and woolly; general figure, when in flesh, handsome and well proportioned.

If this description of the Ayrshire cow be correct, it will be seen that her head and neck are remarkably clean and fine, the latter swelling gradually toward the shoulders, both parts being unencumbered with superfluous flesh. The same general form extends backward, the fore quarters being, light the shoulders thin, and the carcass swelling out toward the hind quarters, so that when standing in front of her it has the form of a blunted wedge. Such a structure indicates very fully developed digestive organs, which exert a powerful influence on all the functions of the body, and especially on the secretion of the milky glands,

accompanied with milk-veins and udder partaking of the same character as the stomach and viscera, being large and capacious, while the external skin and interior walls of the milk-glands are thin and elastic, and all parts arranged in a manner especially adapted for the production of milk.

A cow with these marks will generally be of a quiet and docile temper, which greatly increases her value. A cow that is of a quiet and contented disposition feeds at ease, is milked with ease, and yields more than one of an opposite temperament; while, after she is past her usefulness as a milker, she will easily take on fat, and make fine beef and a good quantity of tallow, because she feeds freely, and when dry the food which went to make milk is converted into fat and flesh. But there is no breed of cows with which gentle gentleness of treatment is so indispensable as with the Ayrshire, on account of her naturally nervous temperament. If she receives other than kind and gentle treatment, she will often resent it with angry looks and gestures, and withhold her milk; and if such treatment is long continued, will dry up; but she willingly and easily yields it to the hand that fondles her, and all her looks and movements toward her friends are quiet and mild.

The Ayrshires in their native country are generally bred for the dairy, and for no other object; and the cows have justly obtained a world-wide reputation for this quality. The oxen are, however, very fair as working cattle, though they cannot be said to excel other breeds in this respect. The Ayrshire steer maybe fed and turned at three years old; but for feeding purposes the Ayrshires are greatly improved by a cross with the short horns, provided regard is had to the size of the animal. It is the opinion of good breeders that a high-bred short horn bull and a large-sized Ayrshire cow will produce a calf which will come to maturity earlier, and attain greater weight, and sell for more money than a pure-

13 An archaic veterinary term for inflammation of the udder (mastitis) or a localised udder swelling occurring around calving; it was commonly cited as a cause of udder disease before modern bacteriology clarified postpartum infections.

14 Historically used to denote a postpartum infection or sepsis occurring after parturition; in 19th-century veterinary and medical writings it referred to serious febrile infections associated with birth, often carrying high risk before antiseptic measures.

15 An older spelling of mangel-wurzel (Beta vulgaris), a large root crop grown mainly as cattle fodder in the 18th–19th centuries; valued for its high yield and use as a winter feed for dairy animals.

16 A cultivated brassica (Brassica oleracea var. gongylodes) with a swollen stem eaten by humans and sometimes used as green fodder; it originated in Europe and was in agricultural use by the 19th century.

17 The solid residue left after extracting oil from rapeseed (rapeseed oilcake), used historically as a high-protein feed for livestock; the term ‘rape’ here refers to the plant rapeseed (Brassica species).

18 A watery, nutrient-containing byproduct of grain distilling (also called still-slop) that was commonly fed to city dairy cows; it was criticized for producing low-quality ‘swill-milk’ and prompted regulatory action in the 1860s in New York.

19 An older spelling of rutabaga (also called "swede"), a root vegetable (Brassica napus/Brassica napobrassica) widely grown in the 19th century as winter fodder for livestock.

20 Fertilizer consisting mainly of accumulated seabird and bat droppings mined along the Peruvian coast; in the 19th century it was prized for its high nitrogen and phosphate content and widely imported for agriculture.

21 A variant spelling of stanchion, meaning the wooden frame or fastening used in a stable to confine an animal by the neck; commonly used in 19th-century barn fittings.

22 An older dairy term for the thicker, richer milk or "strippings" that come at the end of a milking, considered important to remove to maintain udder health and secretion.

23 An infusion made by steeping chopped, good-quality hay in boiling water and cooling it for feeding young calves as a cheaper or supplementary liquid food; commonly recommended in 19th-century agricultural manuals as a milk substitute or diluent.

24 An old butchery/droving term for a red mark or bruise on meat caused by striking an animal, said to resist salting and more likely to spoil; the passage warns that beating cattle can produce this defect in the flesh.

25 A district of Paris noted in the 19th century for large slaughter-houses (abattoirs); the text contrasts French slaughter methods used there with English practices.

26 A traditional term for the hock or lower hind-leg region (and its tendons) of cattle; in butchery the ‘tendons of the hough’ are used to suspend a carcass when hanging.

27 A butchery phrase here meaning the more bony side of a split carcass, retaining the spinal processes (the side that ‘lies’ with more bone), used to distinguish how a carcass is divided in different regional cutting methods.

28 In 19th-century butchery the aitch-bone denotes the hip or pelvic-bone region of the hindquarter (around the ilium/ischial area), a cut often used for stewing or boiling.

29 A traditional English soup made from the tail of cattle (oxtail), using meat, bone and gelatinous connective tissue to produce a rich broth commonly served at luncheon.

30 Here the phrase refers to cattle from the West Highlands of Scotland (commonly called Highland cattle), a regional, hardy type historically prized for fine-grained beef; exact strain or local variants may differ by period.

31 Refers to the Shorthorn breed of cattle developed in northern England in the 18th–19th centuries, known historically for both beef and dairy qualities and for producing thick, juicy steaks.

32 Ergot of rye is a fungus that infects cereal grains (noted here by the scientific label secale cornutum) and produces toxic alkaloids; ingestion by animals or humans can cause ergotism and has been historically associated with uterine stimulation and abortions.

33 Ergot is a growth produced by certain fungi (commonly Claviceps species) on the seed heads of grasses and cereals, especially rye; ingestion of ergot-contaminated feed can cause ergotism in humans and animals, with symptoms ranging from convulsions to peripheral gangrene.

34 A 'mow of hay' denotes a large stored quantity or stack of hay kept together (often in a barn or rick); in 19th-century farming it referred to a specific portion of harvested hay moved or sold as one lot.

35 Manyplus (here equated with the omasum) is the third compartment of a ruminant's stomach, situated between

the reticulum/rumen and the abomasum, and functions in grinding food and absorbing water and nutrients.

36 Barbadoes aloes was a 19th-century medicinal purgative prepared from imported aloe resin and commonly used as a cathartic; it appears frequently in period veterinary and medical prescriptions.

37 A trochar (often spelled 'trocar') is a pointed surgical instrument for puncturing a body cavity to release gas or fluid; the book recommends its use to puncture the paunch (rumen) in severe bloat when other measures fail.

38 The interval between exposure to an infectious agent and the first appearance of clinical signs; in the chapter it is described as varying from about a fortnight to forty days or longer.

39 Latin for the 'wings of the nose,' here referring to the flaring nasal cartilages that may move spasmodically during labored respiration in cattle.

40 A French-derived medical term for an abnormal respiratory sound (a crackling or rattling heard on auscultation) often used in 19th-century practice to describe bronchial or pulmonary noises.

41 A pathological term, especially in 19th-century pathology, meaning lung tissue becomes firm and liver-like in color and consistency, typically seen in lobar pneumonia.

42 A historical therapeutic sudorific—a form of warm or hot-air/steam bath used in 19th-century human and veterinary medicine to induce sweating and promote ‘depuration’ of disease.