

ORCHARD and GARDEN

THE RAM IN SHEEP BREEDING.

In establishing or in endeavoring to improve a flock of grade mutton sheep, the chief consideration is to get good rams. Rightly expended, it is advisable, even, to put as much money as possible into a ram. Indeed a layout of \$100, if one is assured the value is there, is far better than half that sum paid for an animal known to be inferior, for the higher-priced ram, if active and impressive, will, with proper treatment beget at least three hundred lambs while at the head of the flock in which way, as can be seen, it does not take long for the difference to be made up between him and the fifty-dollar fellow that is only one-half as good. Added to this, it is possible to retain the superior ram in active and certain service until he is five years old, or more.

Being high priced, however, does not necessarily imply rams associated with the honors which they have won in the show ring. True those that have been winners of many prizes are usually high-priced. But this does not confirm the fact that they are always the most profitable for the practical shepherd to purchase. Rather, a greater mistake cannot be made than to buy a highly fitted prize winner, no matter what the price may be.

Why? Because such a ram almost invariably proves infertile or incapable of service. It is hardly possible to injure a lamb by too heavy feeding, provided exercise to a limited extent is given; but treat in the same manner—that is, fit up highly—yearlings and those of more mature age, and the result is that they become practically worthless in the breeding flock. The high-priced rams, giving good value, therefore, are those possessing vigor without having been pampered or starved and by all means when they show that they have the merit which attracts higher prices in the common market.

No flockmaster desiring to stay in the business of sheep breeding should, in truth, ever sell or dispose of a ram that proves himself a valuable breeder as well as a getter of superior lambs. The permanent place for such a ram is at the head of a good flock, there to be bred to the same ewes, year after year, as long as it is possible to do so. A similarity in the basis of the flock may then be continued. And in choosing a new ram to mate with the get of the other, those qualities should be looked for that are absent in the ewes to which he is to be bred. For it is really by balanced breeding that the greatest progress is made. It may, indeed, be accepted as a truth that every sheep has a fault (some of course have many), and when a flock of ewes are uniformly faulty in any feature of fleece or form, the aim of the shepherd should be to correct it.

The better to illustrate this point, it is not the largest ram always that is the most desirable; certainly not if he is coarse in bone and fleece. Too much coarseness, in fact, will more than offset the advantage of size and weight of body and fleece. A fleece coarse in fibre is liable, for one thing, to be too open. A smaller ram, on the other hand may possess a fine fibred dense fleece, and though short in the legs, be muscular in the twist, and equally good in other points. If exceptionally long and low, with an excellent fleece his being slightly undersized is certainly not against him. Such a ram, at any rate, is preferable to a large one, whose characteristics, as named, tend too strongly in the opposite direction.—Fred O. Sibley in the American Cultivator.

LAWS OF BREEDING.

Lecturing recently upon this subject, Professor Shaw said that the three great laws are that like produces like, that like produces unlike, and that the characters of some ancestors may crop out with unexpected intensity in a given animal. Of these laws the first is the strongest. Like father like son. Breed from the best cows if you expect to breed up and not down. In selecting a sire propensity is of the first importance. Propensity is the ability to put into the progeny the desired qualities present in the sire or in his ancestors. In looking for propensity regard as most important the individuality of the sire and of his immediate ancestors. If his dam was a good milker, and if his grandams were good milkers, and his four great grandams were of superior merit, these facts are of more importance than traits, back to some prodigy in the distant past. It is far better to have the immediate pedigree strong than to record a trace of the blood of some splendid animal so far back that it could not much affect the character of propensity of the given animal. The next point to be considered is to see if the bull is line bred—that is, that he traces to and through animals that have been bred for the purpose to which his calves are to be devoted. In this way the bull has an accumulation of forces all tending in the same direction. In-breeding, except in the hands of an expert, is dangerous, but line-breeding should be followed by every one desirous of improving his herd. The bull should, of course, be a pure-bred. Never breed from a cross-bred animal, because a cross-bred animal cannot be prepotent. The pure-

bred is more apt to be prepotent because his lines of force are derived from parallel channels, all tending in the same direction. Finally, both in his form and carriage the bull should evidence physical vigor. Having determined what kind of a herd you are going to breed, and having definitely decided as to the point at which you are aiming, select your bull accordingly, and having begun on this line do not vary.—American Cultivator.

FEEDING IDLE HORSES.

The farm horse that has practically nothing to do during the months of winter is a costly proposition to feed if he must be kept on the regular ration. It is really more profitable to find some work for the animal to do which will enable one to afford full rations, as in the summer, for then the horse is likely to be in much better shape to take up the spring work. Of course, if one is located where the horse can be on pasture more or less during the winter months the cost of wintering the animal is materially reduced.

In colder sections one must rely on the sheltered yard to give the horse needed exercise and largely on the grain one has; do not attempt to keep the horse through the winter on roughage alone, for the plan will only result in having a run down animal in the spring, which will be a costly experiment. Horses are not fed nearly the quantity of roots they should have, and those who winter idle animals will find it profitable to grow roots, especially for them to feed with the grain ration. In the absence of roots, oil meal bran or some similar articles which will keep the digestive organs in good condition must be a part of the daily ration. One can get along very nicely on feeding considerable roughage and corn if considerable bran or root crops is also used. Remember, too, that good grooming and a clean, light stable will do much toward keeping the animal in good health, and help to enable him to enjoy even the roughage.—In dianapolis News.

Consideration.

George Elliot once recorded in a letter to a friend a little incident in which the confusion of ideas evinced was such as to remind one of the deliciously bemuddled wits of Shakespearean rustics. A blind man was walking along the sidewalk. A woman crossed the street, ran up to him, touched his arm, and addressed him by name, adding in tones of complacent pride, "You see I know you, though you are dark!"

Mrs. Binns of Hentley, whose intellect is manifestly of the same order, was mildly reproved the other day by her daughter Emmeline as the door closed upon a departing guest.

"Mother," said Emmeline, "do tell me why you have been shouting so at Miss Doane all the afternoon. I haven't heard that she is growing deaf, have you?"

"If you'd know the Doane family as long as I have, you wouldn't need to," rejoined Mrs. Binns, serenely. "Her Great-Aunt Jane and both her sisters have cleft palates, and are the hardest people to understand I ever talked to. As for Eliza, I haven't heard her spoken about particularly, as I know, but a Doane's a Doane, and it's as well to be on the safe side. It's more considerate."

"But, mother," protested Emmeline, feebly, "ears and palates aren't the same thing. You wouldn't have to shout at her even if—"

"There, there, that'll do," interrupted Mrs. Binns, a trifle loftily. "I hope I'm willing to take a little trouble for a family I've known as long as I have the Doane girls. We lived next door to 'em a year; that was before you were born. Poor things! I'm sure I don't begrudge shouting a while, even if it does hoarse me up some. You'll find a paper of lemon-drops in that luster teapot, Emmeline. I wish you'd hand 'em down."—Youth's Companion.

Mechanical Refrigeration on Railways.

The scientific engineer has achieved one more victory over natural ice, and now has constructed a refrigerating machine for freight-cars, which forms an integral part of the car, and does away entirely with the necessity of constantly refilling the refrigerating-chamber with ice during its journey.

This new device, which has recently undergone successful tests, consists of a small refrigerating-machine for each car, located in an enclosed casing beneath the car, and deriving power by gearing connected with the axle on one of the trucks. The machine includes a compressor for condensing the gas, usually carbon dioxide, circulating pipes which cool the car, and a condenser for abstracting the heat from the condensed gas. The principle underlying is that common to most systems of mechanical refrigeration, and is based on the fact that a gas expanding extracts heat from the vicinity, while a gas being compressed absorbs heat. The function of the condenser is to withdraw the heat from the gas that has been compressed, and for this purpose water is employed, which in case of need can be supplied from engine hydrants, while rain-water from the roof of the car is also employed.—Harper's Weekly.

More than 40,000,000 calendars are given away in this country every January.

An offer of \$20,000 for Sysonby was incipiently refused by his owner.

PLANT HYBRIDIZATION.

MOST USEFUL AND FASCINATING BRANCH OF HORTICULTURE.

The Art of Cross-Breeding Plants is of Modern Origin—Wise Provision of Nature to Prevent the Generation of Monstrosities.

It is a singular fact that it is only during the past century the hybridization, or cross-breeding of plants, has been practised, writes W. R. Gilbert, in the Scientific American.

Lord Bacon more than 300 years ago, seems to have foreshadowed it, but it was generations before anyone attempted to solve the mystery.

Lord Bacon wrote: "The compounding or fixing of plants is not yet found out, which if it were, it would be one of the notable discoveries, for so you would have great varieties of fruits and flowers yet unknown."

Who was the first to cross a fruit or flowers we have no data to prove, but Mr. Knight of Chelsea, England, was very much interested in, and practice soon became common, and when the secret was found out the practice soon became common, and some enthusiastic amateur horticulturists engaged in it. Since then the art of hybridization has been followed by many, and, as Bacon suggested, greatly improved and unknown varieties of fruits and flowers have been produced in rich abundance.

Perhaps in the amelioration of fruit it has been important, now marvels of the hybridist's skill are crowding upon us, and they seem to accomplish their aims with a certainty that is remarkable—for instance, in the case of the stoneless plum which Mr. Burbank, of California, after twenty-five years of study and experiment has been able to give to the world, and now the coreless apple of Mr. Spencer. It has taken these gentlemen years to accomplish the object they had in view, but to raise a new grain, fruit, or flower or vegetable of greatly superior qualities is worth a life-time of patient and persevering effort, because it contributes to the welfare of the human race, and the comfort of the lower animals.

Cross-breeding is the most important, useful and fascinating branch of horticulture and sometimes very remunerative.

In order to obtain a new variety it is only necessary to exercise some judgment, and select two parents of certain qualities which are of the same, or of very closely allied species, and cross them for a new intermediate variety, which will blend the good points of both, and thereby effect an improvement; thus an early, but insipid pear, if crossed with one of fine flavor, but lacking the desirable qualities as to habit of growth or productiveness, will be likely to bring a variety which in some essential points will surpass either of its parents.

The "Goe's Golden Drop" plum was raised by crossing the Green Gage with the Magnum Bonum plum; the Elton cherry was raised by crossing the Byarreen with the White-heart, and the combinations have produced the two invaluable fruits mentioned.

The power to cross-breed is limited by a wise provision of nature to prevent the generation of monstrosities. A cross-bred plant is a sub-variety raised between two varieties of the same species. Some nearly allied species, are capable of fertilizing each other and these are pure hybrids or mules, and, like animals so bred, are incapable of producing perfect seed. No one has ever succeeded in causing the pear to fertilize the apple, or the gooseberry the currant. Before people were so well informed on these subjects as they now are it was believed that wonders could be brought about by fertilizing an orange with a pomegranate or a red rose with a black currant, but these fancies are no longer accepted as being possible.

Now, as to the modus operandi of the artificial crossing of plants. Take the blossom of a cherry, for an example, which is directly connected with the embryo seed; the numerous surrounding threads are the stamens at the summit of which are little sacks which secrete the powder called pollen. The pistil has its base in the embryo fruit and at its summit is the stigma; the pistil is also called the style, and is the stalk or tube between the ovary and the stigma; on this stigma is a sticky substance, when it has arrived at maturity, to which the pollen adheres and thus the seed is fertilized. Now, if we fertilize the pistil of one flower with the pollen of another we shall obtain a variety with the characteristics of both parents.

The process of obtaining cross breeds is easily performed. When the tree blooms, which we intend to make the mother of the improved race, we select one of the blossoms not fully expanded; with a pair of sharp scissors we cut off the anthers or pollen sacks. As soon as the blossom is fully expanded, collect with a camel-hair brush the pollen from a fully blown flower taken from the tree we intend to be the male parent. Apply the pollen, and leave it upon the point of the stigma. It is safe to cover the flower thus operated upon with a bag made of thin gauze to prevent insects getting beforehand with us in applying the pollen. To sum up, the two essential points are: First, to be very careful to remove the anthers before they are sufficiently mature to have fertilized the pistil; second, to apply the pollen when it is in perfection, that

is, dry and powdery, and when the stigma is moist and in condition to assimilate it. Seedless fruit is produced by removing the pistil before it has been pollinated, so that the fruit will form and contain but few if any seeds, and by selecting those which have the least seed and repeating the process in course of years seedless varieties will be the result.

OUR DECLINING BIRTH-RATE.

Some Facts Concerning the Census of Children of This Nation.

Some interesting facts concerning the proportion of children in the United States have recently been given out through the Census Bureau. At the beginning of the nineteenth century, it appears, the number of children under ten years of age constituted one-third of the population; at the end of the century the proportion had declined to less than one-fourth. The decrease in this proportion began as early as the decade 1810 to 1820, and continued uninterrupted, though at varying rates, in each successive decade. This of itself, however, is not enough to prove a declining birth-rate, as the decrease in the proportion of children in the total population may indicate merely an increase in the average duration of life and the consequent survival of a larger number of adults.

But by taking the proportion of children to women of child-bearing age we are able to get a more satisfactory index of the movement of the birth-rate. Between 1850 and 1890, the earliest decade for which figures can be obtained, this proportion increased. But since 1860 it has decreased without interruption. The decrease has been very unequal from decade to decade, but if twenty-year periods are considered, it has been very regular.

In 1860 the number of children under 5 years of age to 1,000 women 15 to 49 years of age was 634; in 1900 it was only 474. In other words, the proportion of children to potential mothers in 1900 was only three-fourths as large as in 1860.

One is thus led to the conclusion that there has been a persistent decline in the birth-rate since 1860.—Harper's Weekly.

A Conservative Giver.

Squire Flanders was detailing the characteristics of the late Amos Bowden, one of his fellow townsmen, to Mr. Partridge, a newcomer in Seymour.

"As a leading citizen, we rather expected Amos 'd do something handsome for the town," said the squire; "remember it to the tune of a few thousand for a library, or something."

"And he didn't?" asked Mr. Partridge, with easy interest.

"He didn't," repeated Squire Flanders, dryly. "He didn't make any public bequests—at least, not any 'out-and-out ones. Some years ago his wife persuaded him to put a fountain in the square in front of the post-office, and the agreement was that he was to keep it in repair, the town to reimburse him for half the expense."

"You don't know what our winters are, but you will by spring," the squire continued, prophetically, "so you'll have to take my word for it that that fountain cost the town pretty near 's much 's the schools. Every year, regular, the pipes had to be dug up, and new pieces put in where they'd froze up and bust, and after a while we owed Amos quite a little sum. In his will he canceled that obligation, and that was the extent of his remembering the village he was born and brought up in—and him close to the millionaire line."

Mr. Partridge smiled. "He wasn't what could be called a royal giver," he commented.

"Royal!" gasped the squire. "You couldn't have led him blindfolded up to the word. I'll tell you how Ed Vesey sized Amos up," he continued with happy recollection. "If Amos was an ostrich," Ed said, "and was going to lay an egg, he'd sure lay a pewee's egg. An' he'd call it 's Ed, 'keeping on the safe side.'"

The Dainty Ant.

Ants have no set time for brushing up. But certain conditions plainly incite thereto—as when they feel particularly comfortable, as after eating, or after awakening from or before going to sleep. The keen sense of discomfort aroused by the presence of dirt incites to cleansing. Often one may see an ant suddenly pause in the midst of the duties of field or fornicary and begin to comb herself. Here is a mountain mound-maker driven by the passion of nest-building to the utmost fervor of activity. Suddenly she drops out of the gang of fellow workers, and mounting a near-by clod, poses upon her hind legs and piles teeth, tongue and comb. For a few moments the aim of being is centred upon that act. Around her coign of vantage sweeps to and fro the bustling host of builders with all their energies bent upon reconstructing their ruined city. She combs on unconcernedly. From top of head to tip of hind legs she goes, smoothing out ruffled hairs and removing atoms of soil invisible to human eyes. Her toilet is ended at last.—H. C. McCook, in Harper's Magazine.

The Mohammedans have the custom, when they receive a present, of thanking God first, then the giver.

Tien-Tsin stands second among the treaty ports of China.



With the Funny Fellows

VINDICTIVE.
"She's as playful as a kitten,"
Quoth her beau before the spat;
But when he received the mitten
He described her as a "cat."

TRUE FOR ONCE.
"Pa whaled me with a board. Then he said it hurt him worse'n it hurt me."
"And do you think it did?"
"I 'spect so. He got a big splinter in his thumb."

POOR OF ITS QUALITY.
"I heard Wickerly swearing at his new automobile the other day. He said it was an ice wagon."
"He likes it better now. He has been fined for scorching."

BRUTAL.
"I am here to press my suit," began the young man.
"Why, didn't the man you hired it of attend to that?" asked the girl.
This comment seemed to him brutal, and so changed the trend of his thoughts that there was nothing doing.—Philadelphia Ledger.

ABATED.
Jack the Giant Killer had slain his first giant.
"You big stiff," he said, apostrophizing his fallen foe, "there is more than one way of abating a great evil."

Regretting that the day of the trust octopus had not yet arrived, he sheathed his sword and started in search of another ordinary giant.—Chicago Tribune.

ABOUT EVEN.
"You say here," began the city editor, severely, "that 'silence fell.' Did you hear it fall?"
The reporter was not abashed by the sarcasm.

"No," he said, "I didn't exactly hear it fall, but I heard them breaking it a little later."—Philadelphia Ledger.

IN CASE OF NEED.
Redd—And does he take his doctor in his automobile with him?
Greene—No, the doctor is afraid to ride in the thing. He follows up in a carriage.—Yonkers Statesman.

MAKE-UP.
Miss Ingenué—Aren't you nearly ready to go to the ball?
Miss Passay—I haven't made up my mind to go yet.

Miss Ingenué—Oh, do you have to make that up, too?—Cleveland Leader.

HIS REASON.
"Now then, Tommy," said the teacher, "is it right to say 'the winter has went?'"
"No'm!" yelled Tommy promptly.

"Cause if yer did the foist thing yer know along would come a blizzard an' make yer out a liar."—Philadelphia Press.

TWISTED.
Willie—Pa, message isn't good to eat, is it?
Pa—No; what are you talking about?

Willie—Why Mr. Tangler, our Sunday-school superintendent, kept telling us all the time today that "Essau sold his birthright for a pot of message."—Philadelphia Press.

VERY TRUE.
Wiggs—He's had a great many ups and downs in his life.
Waggs—He certainly has had a checkered career, but he's very wealthy now.

Wiggs—Yes, you might say that his career is ex-checkered now, eh?

ITTY OF IT.
Naomi—Young Goodwin tried to kiss me last night and I told him to behave.
Eloise—And did he kiss you?

Naomi—No; the idiot actually behaved.—Chicago News.

BOTH SIDES OF IT.
Jillson—How's your rheumatism today, old man?
Billkins—It's working overtime, thank you; but I'm not able to do much myself.—Chicago News.

HOW IT HAPPENED.
Gladys—Have you and Dick quarreled?
Esmeralda—Yes; it's all over between us. I met an old beau of mine the other day, and he said, 'Emmy, you're as pretty as a peach, as you always were.' Now, you know I don't think I'm a beauty, but when I told the story to Dick I thought he ought to show some appreciation of it, but all he said was, 'Well, you look beautiful to me, anyway,' and that was a little more than I could stand."—Chicago Tribune.

The most elevated river in the world is the Desaguadero in Bolivia. The average elevation above the level of the sea is about 13,000 feet.

Animals to the number of nearly 70,000,000 are killed yearly for the sake of their fur.

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