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## EDITORIAL.

### Worth of a Superior Sire.

The improvement of the general character and quality of a herd of cattle or of any other class of stock depends so largely upon the character of the sires used in building up and maintaining the herd that too much importance can hardly be attached to the selection of the head of the harem. From the fact that he plays so large a part in stamping the character of the offspring of all the females in the herd, while each of the females can only leave her impress directly upon her own produce, it is not difficult to assent to the statement that the sire, in so far as breeding is concerned, is half or more than half of the herd. Taking this view of the case, it is of the utmost importance that care be given in the choice of the sires to be used. Individual excellence should be the first consideration after being satisfied that the animal is purely bred and descended from a line of high-class individual ancestry. Masculine character and vigor of constitution are among the first essentials in a sire, the former being illustrated in the general appearance, in head and eye, in walk and carriage, and the apparent self-consciousness of superiority which proclaims him a prince among his peers. Constitution is indicated by breadth of chest and crops, thickness through the heart, well-sprung and deep ribs, flesh elastic to the touch, and skin and hair handling so soft and loose that a handful of it may be grasped. A bull of this description, especially if bred from ancestry of the same character, is tolerably certain to produce stock of the same type with a large degree of uniformity. That bulls of this class backed by good breeding exert a powerful influence in the herds in which they are used, and on their posterity when inferior sires are not used to succeed them, has been clearly demonstrated in every stage of the history of the various breeds of live stock. Taking Shorthorn cattle for an example, the early history of the breed in England proved the prepotency of such sires as Favorite, Comet, Belvedere, Duke of Northumberland and Cleveland Lad in the hands of the Colling Brothers and Mr. Bates; Ben, Twin Brother to Ben, Albion, Pilot and others in the herds of the Booths; Heir of Englishman, Champion of England and William of Orange in the evolution of the favorite Scotch type of the present day, as moulded by the honored Aberdeenshire breeders, and perpetuated in Canadian herds by such notable breeding bulls as Mr. Dryden's Royal Bampton and Bampton Hero, Mr. Johnston's Indian Chief, Mr. Russell's Stanley, Mr. Watts' Challenge and Royal Sailor and others which have left a stamp on their produce and descendants, which has bred on through succeeding generations, producing prizewinners in profusion wherever their blood has been used.

These bulls were not accidents in breeding, but were the result of the mating of high-class animals bred from ancestors of outstanding excellence of constitution, conformation and lineage, which gave them the power of prepotency, the power to stamp their individuality upon their offspring and posterity. The history of all the breeds of cattle, both beef and dairy, as well as of heavy and light horses and of sheep and swine, furnishes similar instances of the striking influence of noted sires in the improvement of their class wherever they have been employed. This fact serves to emphasize the vital importance of exercising great care and good judgment in the selection of male animals for use as breeders in the raising of any class of stock and the wisdom of utilizing to the fullest extent the services of a sire which has proved his worth by producing uniformly good stock. Instead of turning him off before half his term of usefulness is over and risking an untried one, which may prove a disappointment, if not a failure. It is well to hold on to the one that has given good results until the

new one has been tried and his offspring developed sufficiently to show whether they are likely to be satisfactory. It is well also to select a son of a prepotent sire from a superior dam, and having regard to the influence such a sire may exert in a herd for good or ill, the question of the purchase price is certainly but a secondary consideration, when one that fills the bill is procurable at any reasonable figure.

While sires of outstanding merit in any class or breed of stock are by no means plentiful, yet it would be a mistake to conclude that only two or three in a decade are produced in any breed. There are doubtless many diamonds in the rough that have not been discovered or estimated at their true worth, for want of judgment or appreciation, and so there are many excellent animals which have lived and died in obscurity or making no record above mediocrity, which, if they had fallen into the hands of men of skill and judgment in breeding and management, would have left their mark prominently on the honor roll of their race as producers, if not as prizewinners, and doubtless in every year in the wide field of stock-raising a good proportion of this class is born which need only the proper treatment to develop into superior animals and judicious mating to prove improvers of their sort.

### Improving the Country Road.

It must surely be now very generally recognized that the three great means of road improvement are: 1st, drainage; 2nd, grading, and 3rd, graveling or coating with broken stone. To expect a good and durable driveway where water fills the open ditches, unprovided with any proper outlet, and lies underneath the roadbed itself, is altogether out of the question. Such conditions render the road soft, and a break-up into ruts is inevitable with every spell of wet weather. In the next place, providing the road is properly drained, the driveway itself must not be allowed to remain wide and flat, but be carefully graded up to a moderate crown and kept smooth so as to quickly shed the water which falls during rain storms; and, lastly, if a permanently smooth road is expected, it must also be well coated with gravel or broken stone, the latter being especially desirable where the traffic is heavy. Much might be said on each of these three fundamental principles of roadmaking, but we pass on to call attention to another point recently brought forcibly to our mind by a reference to the unsightly state in which the sides of many roads are maintained, particularly the portion between the roadway and the fence. In too many cases that bit of the way so much used by young and old going to the neighbors', the store, post office, church or school, still continues in all the unevenness it had when the land was first cleared, humps and hollows, added to which is a mass of thistles and other weeds, which make most unpleasant walking, especially when the weather is wet. This is neither right nor just to those who are compelled to walk. In the winter the snow banks cover up this unsightly and untidy appearance, but now the covering has gone, and there it is again in all its ugliness. Then, again, many make a practice of dumping brush from the orchard and other rubbish on the roadside. We should have not only a good road for horses and vehicles, but the sides ought to be cleared of stones and weeds, levelled down smooth, so that pedestrians might walk along comfortably and not have to go up and down, in and out, to avoid the obstructions mentioned and the little hills that were made by the up-turned roots of trees a hundred years ago. Such improvements can be made for very little outlay, and would add vastly to the comfort of travel and to the appearance and value of the adjacent farms. This is a matter deserving the careful attention of pathmasters, commissioners or councilmen, as the case may be, who are responsible for the condition of the country roads.

### Surface Cultivation and its Action.

The value of surface tillage of the soil is becoming better understood year by year, which is showing itself in a more general adoption in practice, especially with what are termed hoed crops. The farmer that allows weeds to grow in his field, for lack of cultivation, loses a great deal more than the weeds appropriate of plant food and moisture, which is no small item. While the destruction of the weeds pays well for the cultivation that hoed crops must receive, the great value of surface tillage comes from the conservation of moisture by the arrest of evaporation that goes on when a crustlike surface is allowed to form. The object should be to make the water which seeks to escape from the surface pass through the cultivated plants. Without the circulation of water or sap, no plant can be fed, because plant food requires to be in solution before it can be appropriated. Water is the conveyer of food to the plant. If this moisture is permitted to escape from the surface by evaporation, it leaves the plant food at the surface. This food cannot nourish plants, because it is out of the range of their feeding roots. If the course of the moisture is through the plants, there is created a moisture current towards the roots, and the plant food is carried where it can be used to advantage. It will therefore appeal to any thinking person that measures should be adopted to prevent this moisture from being lost by evaporation.

The most practical and effective method is to establish and maintain a surface mulch of fine soil. By frequent use of implements of tillage which loosen the soil to a depth of two or three inches, this mulch may be preserved and the moisture saved. The drier and looser this mulch, the more effective it is, as it then successfully breaks the capillary connection between the air and the moist under-soil, having the effect of interposing a foreign body between the atmosphere and the earth. A board, a bunch of litter or a blanket laid on the earth has the same effect, and the soil is moist beneath it. So long as this mulch remains dry and loose, it serves its purpose well; but after each shower a crust will form, destroying the mulch, making a direct capillary connection between the lower moist earth and the atmosphere, which in a measure serves a purpose similar to a leak in a pail. The thing to be done, then, is to stop the evaporation leak by again breaking up the crust and creating the surface mulch by cultivation. If this is done after every shower as soon as the soil will work well, a large portion of the moisture will be secured to the growing crop. In a dry time—that is, when several weeks go by without rain—if the crops are tilled every ten days, all the benefits to be derived from surface culture may be expected, as more frequent tillage does little good, and tends to arrest growth, as rootlets are broken and the plants bruised unnecessarily.

With shallow-rooted plants, as corn, the preparatory tillage should be as deep as practicable, that the soil may be prepared thoroughly before the roots have entered it, and shallower later on, in order that the rootlets may be disturbed as little as possible. For the corn crop, as the shoots are coming through the soil, and say once afterwards, nothing equals a stroke of the harrow. After the first two weeks, it is well not to cultivate deeper than three inches, a depth which is very effective in conserving moisture. Extended and repeated trials on different soils and in different seasons have shown that invariably there is left at the end of the season a larger amount of water in the soil where stirred to the depth of three inches than when stirred to a depth less than this amount. Prof. King gives as the amount of difference in water content at the end of the growing season in four feet of soil, between that cultivated three