

AGRICULTURAL.



LABOR IN HOPE.

BY DELTA.

Labor in Hope with brave heart and strong arm,
Free from misgivings, from doubt and despair!
There is for each chilly day a cheerful and warm;
After night comes the morn, after foul weather, fair,
Hopefully toll 'neath the sultry noon heat;
Rest-time will come, and, embowered in dreams,
Each limb will find rest and each loving-heart beat,
Forgetful of labor and Sol's scorching beams.

II.

Labor in Hope when thou sowest thy field;
Dream not of famine, from drought or from blight!
Good cheer and good season rich harvests will yield
Of plenty, contentment, sweet sleep and delight.
Be cheerful, have faith at the plow and the plow;
Let no sad forebodings embitter thy peace:
The future, perchance, will be brighter than now,
And thy spirit from dungeons of darkness release.

III.

Labor in Hope in the pulpit, be wise;
Mourn not the follies and weakness of man;
Lead his thoughts upwards from earth to the skies,
All will have faith and be blessed when they can.
Go, soothe the distress'd, teach the ignorant and lowly,
Pour balm into bleeding hearts mangled and torn;
Preach penitence, meekness, like Him who was holy,
And bid them be hopeful who "labor" and "mourn."

IV.

Labor in Hope, Teacher, mold of mind;
Patiently, tenderly, lovingly guide
The "hopes of the nation," till truth they shall find;
Go thou in "the way," while they walk by thy side.
Lead them through pleasant fields, sunny and bright,—
Paths which the good of earth ever have trod;
And teach them to look, while they're seeking for light,
Through Nature's great volume to see Nature's God.

V.

Labor in Hope, Student, over thy books;
Delving for golden thoughts, now in thy youth!
Learn wisdom from rocks and plants, hills, vales and
brooks;
No metal so rare and so precious as Truth.
Study those things which will do thee most good;
Fathom the depths of the ocean of thought;
The mind, like the body, should have wholesome food;
Then learn what the wise and virtuous have taught.

VI.

Labor in Hope, Parent, gentle and mild!
Precept, example, consistency here
Will give thee a treasure of worth in thy child
Unknown where the treatment is harsh and severe.
Courage! look up, child of sorrow and care,
Hope will sustain thee and make thy tasks light;
The morrow may dawn on thy pathway more fair,
And new tokens of promise burst forth on thy sight.

VII.

Labor in hope, all ye loving and true!
Visit the humble, afflicted and poor;
Your kindness distill, as did Hermon its dew,
Ye open of Mercy and Heaven the door.
Go smooth down the pillow of sickness and pain,
Speak comforting words to the wretched, distressed;
Cool the parched brow and the feverish brain,
And pour healing balms into each wounded breast.

VIII.

Labor in Hope, all who burdens do bear!
Sorrowful, friendless, forsaken—not vile,
Hopefully, faithfully, meekly, with prayer,
Look to the future, the morrow will smile.
Lighter each burden to you will be given,
Brighter the morn of each day will arise;
Surer your pass port from Earth into Heaven,
If buoyed up by Hope and by Faith to the skies.

ON CROSS BREEDING.

The *American Agriculturist* has compiled, from a lengthy prize article in the last semi-annual volume of the Journal of the Royal Agricultural Society of England, the following, being a synopsis containing the pith of an extended essay written by W. C. Spooner, M.R.C.V.S., which, we are confident, will be perused with interest by our agricultural readers, and more especially by those who are interested in the improvement of our stock. The subject is here presented in a philosophical and truthful manner.

It can not be denied that the natural laws by which the preservation of animal species is effected, are involved in considerable mystery, and though the subject is well worthy the attent on and study of the practical man as well as of the physiologist, experience is yet fraught with so much contrariety that attempts to lay down any certain guide on it, have, for the most part, been received with considerable distrust. No sooner does the inquirer imagine that he has discovered some particular principle which obtains universally, than he is met by circumstances which apparently upset his previous conclusions. The maxim "like begets like," for example, is a rule having very extensive sway, yet, as propagation is the work of two parents, the respective influence of the one or the other is a matter involving considerable diversity of opinion, and prevents anything like a certain conclusion being arrived at. We can not do better than consider, on the very threshold of our subject, the respective influence of either parent; for on this the

merits of pure or cross breeding must principally depend.

The most probable supposition is, that propagation is done by halves, each parent giving to the offspring the shape of one half of the body. Thus: the back, loins, hind quarters, general shape, skin and size, follow one parent, and the fore-quarters, head, vital and nervous system, the other; and we may go so far as to add, that the former in the great majority of cases go with the male parent, and the latter with the female.

A corroboration of this fact is found in the common system of putting an ordinary mare to a thorough-bred horse; not only does the head of the offspring resemble the dam, but the fore-legs likewise, and thus it is fortunately the case that the too frequently faulty and tottering legs of the sire are not reproduced in the foal, whilst the full thighs and hind quarters, which belong to the blood horse, are generally given to the offspring.

There is, however, a minority of cases in which the opposite result obtains. That size is governed more by the male parent, there is no great difficulty in showing;—familiar examples may be found in the offspring of the pony-mare and the full-sized horse, which considerably exceed the dam in size.

Again, in the first cross between the small indigenous ewe and the large ram of another improved breed, the offspring is found to approach in size and shape very much to the ram. The mule offspring of the mare also very much resembles both in size and appearance its donkey sire.

These are familiar examples of the preponderating influence of the male parent, so far as the external form is considered. To show, however, that size and height do not invariably follow the male, we need go no further for illustration than the human subject. How often do we find that in the by no means infrequent case of the union of a tall man with a short woman, the result in some instances is that all the children are tall, and in others all short, or sometimes that some of the family are short and others tall. Within our own knowledge, in one case, where the father was tall and the mother short, the children, seven in number, are all of lofty stature. In a third instance, the mother being tall and the father short, the greater portion of the family are short.

Such facts as these are sufficient to prove that height or growth does not exclusively follow either the one or the other. Although this is the case, it is also a striking fact that the union of tall and short parents rarely, if ever, produces offspring of a medium size—midway, as it were, between the two parents. Thus, in the breeding of animals, if the object be to modify certain defects, by using a male or female in which such defects may not exist, we can not produce this desired alteration; or rather, it can not be equally produced in all the offspring, but can only be attained by weeding out those in whom the objectionable points are repeated.

We are, however, of opinion that, in the majority of instances, the height in the human subject, and the size and contour in animals, is influenced much more by the male than the female parent; and, on the other hand, that the constitution, the chest, and vital organs, and the forehead generally, more frequently follow the female.

We have dwelt on this point the more, because on it hinges the difficulty of effecting certain improvements in breeding by means of crossing, and the still greater difficulty of establishing a new breed by such means. So great is this difficulty, that many breeders, finding their attempts at such improvements so frequently baffled, or observing this to be the case in the practice of others, cling with superstitious tenacity to the doctrine of purity of blood, believing it to be the ark in which alone true safety is to be found.

Now, pure breeding, which, when carried to an excess, is called in-and-in breeding, has its advantages as well as its disadvantages. Its friends observe with great force, that when we have in breeding reached great excellence, it is folly to risk the loss of such excellence by means of crossing; and the more so, as the defects of a parent may disappear in a first or second, and reappear in the third or fourth generation—"breeding back," as it is commonly termed.

A friend of the writer's, Mr. John Clark, of Lockerly, a strenuous advocate of pure breeding, observes that a correspondent in Suffolk informs him, that he had seen the cross tried between the old Norfolk and Down sheep, and the first cross was admirable, but they soon became disproportioned and unsightly; also the Down and Leicester in some midland counties figured for a time, and then for the same reasons were given up, and such he thinks will be the fate of the New Oxford, or the mixture of the Cotswold and the Down. He adds, that for the last four years he has used rams from the cross with Down ewes, and the offspring have answered his purpose for fattening lambs, but one lamb in ten presents unmistakable evidence of its mongrel origin.

Again, it is urged, that great excellencies can only be perpetuated by union with similar excellencies, and beyond all this that there is a certain amount of advantage from an unstained lineage—from the very possession of breed, as it is designated. The objectors to in-and-in breeding urge, that by so doing we engender weakness of constitution, diminution of size, hereditary diseases, and also a tendency to barrenness; but it is argued in reply to such objections, that they occur from want of sufficient care in weeding out defective animals, whether as respects constitution or size. It is a well-established fact, that in the human subject too close affinity, such as the

intermarriage of cousins, tends to mental diseases and consumption; and we can readily imagine that when there is a tendency to such diseases in a family, this tendency must be greatly increased by intermarrying with a member of the same family. Animals not being subject to mental diseases, the observation does not apply to them with the same force, but it is true in a lesser degree. At the same time, unless the choice is extremely confined, most of the evils of pure breeding can be avoided by careful selection and rigorous weeding.

Examples of pure breeding are familiar to us in the celebrated race-horse, the first-class short-horn, and the Southdown sheep; but, so far as purity of blood alone is considered, the mountain sheep of Wales, the Highland Scotch cattle, and the Shetland or Welch, are equally pure; but whilst the latter have been propagated without care or attention, the former have, by careful selection and rigorous weeding, been considerably enhanced in value. A striking example of long continued pure breeding is afforded by the Leicester flock of Mr. Valentine Barford, of Foscoote, near Towcester, who has the pedigree of his sheep from the day of Bakewell in 1783 to the present time, and since 1810 he has bred entirely from his own flock, sire and dam, without an interchange of male or female from any other flock. He observes, "that his flock being bred from the nearest affinities—commonly called in-and-in breeding—has not experienced any of the ill effects ascribed to the practice. His flock is remarkably healthy, and his rams successful, but his sheep are small.

Let us pause for a few minutes to consider what constitutes breed, or rather what is meant by high breeding. We shall find that it refers to very different desiderata in different breeds. In the thorough-bred horse it signifies a very high development of the muscular and nervous systems, accompanied by such mechanical structure as when united with it constitutes the highest manifestation of speed and endurance.

In the ox, however, it implies very different qualities, viz., early and rapid growth—the development of flesh or muscle on the parts most prized for food—a disposition to lay on fat; these, with the possession of smallest amount of bone consistent with strength and health, are the principal characteristics of a well-bred animal.

Instead of the highly nervous temperament of the race-horse, we have here a quiet, lazy disposition; in fact, a lymphatic temperament, by the influence of which the digestive organs reign supreme, and convert for the public benefit a given quantity of food into the utmost amount of flesh and fat.

The same observations apply with equal force to the sheep, and in a still stronger degree to the pig. A well-bred pig is the incarnation of everything indolent and lethargic, and the very antipodes of that high organization and nervous development which belong to a high-bred horse.

Examples of pure breeding are probably to be found in greater perfection in cattle, than in sheep. The Devon and Hereford cattle have descended through many generations in unbroken lines, and owe the perfection which they have attained to careful selection. The short-horns, although considerably more modern in their origin, and moulded into their present form by a series of successful crosses, have yet been preserved pure with even more rigorous care than the other breeds which we have mentioned.

The solid frame and great feeding properties of the Herefords—the quality of beef and richness of cream, as well as the working properties of the Devons, are well known and generally appreciated; and yet these qualities are insufficient to resist successfully the encroachments of the short-horns; whose early maturity and disposition to lay on both flesh and fat, joined with fair milking properties, are such that they outnumber both the other breeds combined. As, however, the leading purpose for which a breed of cattle is kept, is generally well defined, whether for the purpose of the dairy or for that and early fattening, or simply for beef or for working as well, and, as each of these purposes can be well attained by keeping a pure breed, there is not the same temptation or inducement to cross, which is often experienced in sheep farming, in order to insure specific advantages, which can not otherwise be attained.

This being the case, we may most advantageously devote our remaining space to the practice of crossing, as illustrated in sheep breeding.

We may start, then, with this principle, that to cross for crossing sake is decidedly wrong; that, unless some specific purpose is sought for by crossing, it is far better to cultivate a pure breed. The country is, indeed, under great obligations to those gentlemen, who carefully preserve their breed intact, and endeavor to improve it by weeding and selection. We can readily excuse their prejudices, if they have any, and have no wish to interfere with their creed. Let theirs be the office to preserve our fountains pure and undefiled, and to supply others with the best sources of improvement by crossing. And we do not confine our praise to those merely who, keeping in the high road of fashion, have succeeded in securing, both by prizes and prices, a full and sufficient reward for their labors, but would award it to those also who, keeping perhaps in the second rank, have yet supplied their neighbors and the public with valuable pure-bred sheep at moderate prices.

It has been truly said that the public is wise, though composed of fools; and undoubtedly, when the pocket is concerned, the de-

cision of the public is, for the most part, correct. Thus at the various autumnal fairs large lambs are in the greatest request, and command the highest prices, which in itself is a sufficient proof that with a given amount of food they make a greater quantity of mutton. It was found indeed by Mr. Lawes, in his careful and valuable experiments, that the Hampshire sheep, although they were surpassed by the Cotswold, yet exceeded the Southdown in the amount of mutton raised from a given weight of food.

The greater economy of fattening a young over an old animal may be readily explained by the fact, that whilst the latter increases in fat alone, the former does so both in flesh, fat, and bone, and thus the latter can assimilate a greater amount of the nutritious properties of the food, and is consequently a more profitable feeder.

Some thirty years since a Hampshire farmer still living (Mr. John Twynam) used the improved Cotswold ram with his Hampshire ewes, and the first cross exhibited a remarkable proof of the preponderating effect of the male. The produce, in size, general appearance, and wool, partook far more of the ram than of the ewe, and it was thought that a most valuable breed had been obtained, which, with the increased size, and weight of fleece, and disposition to fatten of the Cotswold, would combine the hardiness and folding capabilities of the Hampshire. It was found, however, no easy task to perpetuate such a breed after the first cross—the defects of the one parent or the other would appear and reappear in the second and third generation, and it was only by careful weeding that anything like uniformity could be attained.

To return, however, to our proper subject, we may observe that various attempts were made some years since to introduce the merino blood, with the idea that great benefit would be derived from the increased quantity and the superior fineness of the wool; and undoubtedly, if the carcass of the Southdown and the wool of the merino could be united in the same animal, the acme of sheep breeding would be attained. It was found, however, that the quality of the wool was not a sufficient recompense for the want of early maturity and feeding properties; and at length, after many trials, the merinos disappeared by the continued use of other rams. It is very possible, however, that they may have left behind them some improvement of the fleece, for it is equally difficult in breeding to get rid of a virtue and to wash out a stain.

We can not do better, in concluding our paper, than gather up and arrange in a collected form the various points of our subject, which appear to be of sufficient importance to be again presented to the attention of our readers. We think, therefore, we are justified in coming to the conclusions:

1st. That there is a direct pecuniary advantage in judicious cross breeding; that increased size, a disposition to fatten, and early maturity, are thereby induced.

2nd. That whilst this may be caused for the most part by the very fact of crossing, yet it is principally due to the superior influence of the male over the size and external appearance of the offspring; so that it is desirable, for the purposes of the butcher, that the male should be of a larger frame than the female, and should excel in those peculiarities we are desirous of reproducing. Let it be here, however, repeated as an exceptional truth, that though as a rule the male parent influences mostly the size and external form, and the female parent the constitution, general health, and vital powers, yet that the opposite result sometimes takes place.

3rd. Certain peculiarities may be imparted to a breed by a single cross. Thus, the ponies of the New Forest exhibit characteristics of blood, although it is many years since that a thorough-bred horse was turned into the forest for the purpose. So, likewise, we observe in the Hampshire sheep the Roman nose and large heads which formed so strong a feature in their maternal ancestors, although successive crosses of the Southdown were employed to change the character of the breed.

It has been asserted by some observers, that when a female breeds successively from several different males, the offspring often bear a strong resemblance to the first male, which is supposed to arise from certain impressions made on the imagination or nervous system of the female. Although this is sometimes or often the case, we doubt very much whether it is so frequent as to be considered as a rule.

4th. Although in the crossing of sheep for the purpose of the butcher, it is generally advisable to use males of a larger breed, provided they possess a disposition to fatten, yet, in such cases, it is of importance that the pelvis of the female should be wide and capacious, so that no injury should arise in lambing, in consequence of the increased size of the heads of the lambs. The shape of the ram's head should be studied for the same reason. In crossing, however, for the purpose of establishing a new breed, the size of the male must give way to other more important considerations; although it will still be desirable to use a large female of the breed which we seek to improve. Thus the Southdowns have vastly improved the larger Hampshire, and the Leicester the huge Lincoln and the Cotswolds.

5th. Although the benefits are most evident in the first cross, after which, from pairing the cross-bred animals, the defects of one breed or the other, or the incongruities of both, are perpetually breaking out, yet, unless the characteristics and conformation of the two breeds are altogether averse to each other, nature opposes no barrier to their successful admixture; so that, in the course of time, by the aid of selection and careful weeding, it is practicable to establish a new breed altogether. This, in fact, has been the history of our principal breeds.

We confess that we can not entirely admit either of the antagonistic doctrines held by the rival advocates of crossing and pure breeding. The public have reason to be grateful to the exertions of either party; and still more