

Laws of Breeding.

In the human family, character is the result of action, surrounding influences directly affecting the mind and manner, and becoming a part of the person so surrounded. According to Prof. Huxley, "An idea, or mental impression, passing to the brain, produces a change in the molecular particles of the brain substances. The way thus being broken, subsequent impressions of the same kind are more easily transmitted." There is an economy shown in nature, by which faculties not brought into use—that is, not developed—in time become extinct. Fish in the Mammoth Cave have no eyes. Dr. Joseph Thomas, speaking of Egypt, says: "Of all the trades pursued in this country, the most remarkable is hatching of eggs by the artificial heat of ovens, a peculiarity of Egypt handed down from ancient times. The poultry reared in this way are wholly without the instincts which relate to the care of offspring; the artificial method of hatching, therefore, when once resorted to, soon becomes necessary, and the natural system of incubation is totally superseded."

In an address before the Massachusetts Board of Agriculture, Prof. James Law, of Cornell University, set forth the following important principles for breeding animals:

1. A perfect development, and sound, vigorous health, constitutionally, especially in the generative organs, are conditions of fertility.

2. In the maintenance and improvement of a breed, the truth that "like produces like," that the reproductive germ will stamp upon the animal developed from it the characters of the parent organism, is the backbone of success.

3. We can, in a great degree, at will, produce variations and improvements, in breeds, as, by abundant feeding, a mild and salubrious climate, a rich and healthy soil, moderate use, education, stimulation, or selection of desirable qualities; by disease or rejection of undesirable characters and properties; by soliciting the weight of imagination in our favor; by allowing the breeding animals to mix only with those of the stamp desired; by crossing less improved breeds systematically with males of a better race; and by crossing animals faulty or deficient in some particular point with others in which this point is developed in excess.

4. The herding of pregnant high-class animals with low-bred ones, and the resulting attachments between the two races, are to be especially avoided, as occasionally affecting the progeny injuriously; strong impressions from a new or unusual condition of surrounding objects are to be equally guarded against.

5. If a valuable female is allowed to breed to an inferior male, she cannot be relied upon to produce pure-bred animals for several succeeding generations. Through a strong and retained impression, through the absorption into the system of living particles (germinal matter) from the fetus, or through some influence during pregnancy on the ova, then being most actively developed, the good or bad features of the first sire are perpetuated in the progeny of succeeding ones.

6. All breeds show a tendency to "breed back," or to produce offspring bearing the marks of their less improved and comparatively valueless ancestors; hence, individuals of this kind must be rejected from the best breeds, if we would maintain their excellence.

7. Certain races and individuals have their characters more fixed, and will transmit and perpetuate them in greater proportion than others with which they may be crossed. If their qualities are desirable, they prove highly valuable in raising other stock of greater excellence; if undesirable, they will depreciate the value of any stock crossed for many generations. That fixity of type, however, is, above all, a characteristic of those which have been carefully selected and bred up to a certain standard for many generations, so that, in our best, longest established and most esteemed breeds, we have a most valuable legacy left us by the successful breeders of the past, with which we may mould our inferior races almost at will.

8. While breeding continuously from the nearest relations tends to a weakened constitution, and the aggravation of any taint in the blood to sterility, these may be avoided by infusing, at intervals, fresh blood of the same family, which has been bred apart from this branch of it for several generations. Moreover, the highest excellence is sometimes attained only by breeding very close for a time.

9. Diseased or mutilated animals are generally to be discarded from breeding. Mutilations resulting from disease, existing during pregnancy, and disease with a constitutional morbid taint, are, above all others, the most injurious to good breeding.

10. There is some foundation for the opinion that the sire tends to contribute more to the locomotion and the external organs; so that, if we cannot obtain the greatest excellence in both, we should at least seek to have each unexceptionable in the parts and qualities attributed to it.—*Spirit of the Times.*

The Dairy Cow.

A writer in the English *Agricultural Gazette* says of dairy cows and their treatment, that, taking quantity and quality as the test of excellence, cows are most productive from their second to their fourth calf. The milk from old cows usually contains a greater percentage of water than that from cows in their prime. Old cows are held in light esteem for the purposes of the grazier, and when fat, the meat is of less value than that of younger cattle; hence, on the score of economy, it is a bad practice to retain cows in the dairy much beyond their prime. All inferior milkers, and any who may have lost a quarter, we would at once draft out of the herd. Depend upon it, the milk trade will gradually effect a great improvement in the cattle of this country. The quart-pot test daily lays bare all shortcomings and imperfection, and places them prominently before the notice of the farmer. Wherever practicable, cows drafted from the herd should be fattened off on the farm.

One important desideratum in the dairy economy of this country is an improvement of the farm buildings. The practice of storing large quantities of hay in the sheds or shippens prevails to a large extent. We cannot conceive anything more injurious to the health of cattle. We maintain that every animal requires a certain cubic area of free breathing space, in order that the ordinary functions of life may proceed unimpeded; a free circulation of air and an even temperature are conducive to health.

Cows in milk are particularly susceptible to atmospheric changes, hence the cow-house should be warm, but well ventilated. Low temperature reduces the flow of milk, hence cows in full profit should never be turned into the pastures during the winter months; gentle exercise and a very liberal supply of pure water is conducive to the health of all pregnant animals; we should therefore recommend that all in-calf cows have daily exercise, though not too many hours exposure during severe weather. No animal more readily resents harsh treatment than the cow. This is practically demonstrated by the yield of milk that can be obtained by different individuals from the same animal. It is a curious fact that all excitement, whether arising from the stings of gad flies, hunting with dogs, or racing to the milking old, considerably lessens the yield of milk. I have mentioned this to remind you that kind treatment is of pecuniary value.

Lung Worms in Sheep.

At a recent meeting of the Ohio Sheep Breeders' Convention, Dr. Townsend, of the Agricultural College, spoke of lung worms in sheep. He described these worms which infested the lungs of sheep in large numbers as follows:—

The females are white, and about as thick as No. 8 sewing cotton, and four inches in length and full of ova. The males are fewer in number, of a yellow color, and only about four inches long. This was a description of those worms as found in a sheep sent to the college some two years ago, that had died with them. He said he had not had an opportunity to observe these worms at other seasons, and could not fully state their natural history—so far as his examination went there were no young strongly in the sheep, but all were matured. What might have been if the examination had been made at other seasons he could not tell. It is probable that the eggs or young worms are coughed out of the air passages in the spring, and live for a time on grass or in the water to which the sheep have access. In ponds and streams in early summer we may find immense numbers of little nematoid worms, evidently in an early stage, for they are sexually imperfect—who find what appears to be the same worms in the larva of several aquatic insects, such as Libellula, Agrion, Ephemerella and Phryganea. We find the worm in fish and birds, and particularly in meadow larks.

Still, how they get out of the sheep and how they get in again, and where and how the balance of their life is spent, he could not tell, and said, so far as he was concerned, this is a missing link. That trouble from them in sheep was always at one season of the year. As a remedy he recommended first, fumigating in a close room by burning sulphur, which caused violent coughing, and then give turpentine in teaspoonful doses once a day for several days.

Chewing the Cud.

It is strange, but true, that among people who pass their lives with cattle there should be a doubt that the process known as chewing the cud is actually the mastication of the food previously swallowed. But so it is. Many persons believe that the chewing of the cud is done by ruminants for amusement only, and that it is possible for them to drop and lose their cud on the field as easily as a lady will occasionally lose her purse in the street.

The cow has four stomachs, the first one of which receives all the bulky food that is swallowed, and that gets partially chewed in the gathering. From the first stomach it passes to the second, and there it is moistened and rolled up into balls or ends. When the animal arrives at the conclusion that it has a sufficient supply aboard, or when it has nothing better to do, it raises up one of these cuds, chews it carefully, and mixes it thoroughly with saliva. After mastication it passes into the third stomach without going through the ruminating process.

A common and homely treatment for a cow that has "lost her cud," that is, has ceased to ruminate, is to put a piece of fat down her throat. This may cure the trouble where only a slight ailment is the matter. But ceasing to ruminate may be a sign of some serious illness, and indeed it accompanies all inflammatory diseases; and it may also arise from general debility. It would be impossible to prescribe a remedy unless some details of the accompanying symptoms be given.

Ruminants begin to chew the cud as soon as they cease to live on milk, and begin to take bulky food.

Horn distemper, or "hollow horn," as it is called, may be known by the horns feeling cold and dead. The disease is misnamed "hollow horn," as the horns are no more hollow than they are when in a state of health. The horns, in fact, are always hollow to a certain extent. They contain veins, arteries and nerves, and a series of bony buttresses to strengthen and support the shell. If a cow's vitality is allowed to get very low the horns will get frozen and will die. Nothing can be done for it, except to prevent it by good feeding and warm shelter.

An Experiment with Grades.

We find the following report in the Michigan Farmer, of results in the hands of Mr. S. W. Hart, Michigan:—

The cattle were bred from fair native cows, and the bull was a full bred Shorthorn, so that we may consider them half bred grades. The cattle sold were as follows:—

One pair oxen.....	3,630 lbs.
One cow.....	1,450 "
The three year old steers bred and fed by Mr. Hart, are as follows:—	
One pair of three year old steers.....	3,015 lbs.
One pair of three year old steers.....	2,794 "
One pair of three year old steers.....	2,632 "
One pair of three year old steers (twins)	
— a steer and a heifer	2,400 "

Mr. Hart tells us that these three year olds were all skim milk calves, that they never eat at ton of hay, and no hay at all till three weeks ago, for the reason that he did not have the hay to feed. That this past season he has fed them corn stalks, turnips and grain, until about three weeks ago when he fed some hay. The drover who purchased them takes the whole lot, with an allowance for shrinkage of 91 pounds on their delivery in Detroit below their weights at Milton.

But we have a lesson here about feeding. Mr. Hart, by use of a good sire which gave him good stock to work with, and taking into consideration that he has been short of a hay crop, has fed a splendid lot of cattle making up in his attention to his stock for his want of hay. In this he has set a first rate example, and we are much pleased to present his report to our readers.

We ask, can any farmer that runs his cows on the road, and takes his chance of the bulls met with, show anything like this record?

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