density and wearing properties of the bones; a marked advance in the direction of deepening the rib, shortening the coupling, and rounding the barrel; a gradual but quite discernible return to the old Clydesdale type of head, and a very distinct advance in general soundness and freedom from the diseases scheduled as hereditary unsoundnesses by the Royal College of Veterinary Surgeons. In proof of this, it is but necessary to refer to the results of the veterinary examinations at the Royal Agricultural Society's Shows since these came into force. None of the other draft breeds has come anything like so well through this ordeal as the Clydesdale.

DEFECTIVE ACTION IN HORSES.

Defective action in horses is usually due to undesirable conformation, and, in many cases, little can be done to correct it. The height of action can be greatly influenced by careful shoeing and driving, but these factors do not influence the line of action to any considerable degree. The true actor will fetch each foot forward in a straight line, neither paddling nor rolling the fore feet nor going wide, nor yet close enough to interfere with his hind feet. Any deviation from the straight line is defective. An exception to this may be made in respect to the roadster, which is allowed to go somewhat wide behind, although the "straight-line" trotter is preferred. The line of action a horse will show can, with reasonable certainty, be told by his conformation. This is especially true in regard to fore action. A horse with a breast of average breadth, with fore legs set well under the body, and descending downwards in a straight line, deviating neither outwards nor inwards, and standing straight, turning the toes neither outwards nor inwards, will, with few if any exceptions, go straight, while if there be any deviation in the direction of the limbs from the shoulder to the ground, or if he turn his toes either way, there will be a deviation from the straight line of action. If the limbs deviate outwards he will of necessity stand with his feet wide apart, and will usually stand out-toed. Out-toed horses usually roll their feet; that is, when the foot is lifted and brought forward the toe deviates inwards towards the pastern, fetlock, cannon or knee of the opposite limb, according to the height of action. In many cases the opposite limb is struck (wounds from this cause are called "speedy stroke"). In the case just mentioned there will probably not be speedy stroke, as the feet are planted at considerable distance apart, and though when lifted a foot tends to come inwards under the center of gravity, and at the same time the toe rolls towards the other limb, in most cases will not strike it, because it, instead of being well under the body, deviates outwards from the line of probable contact with the shoe of the lifted foot. The opposite conformation is when the limbs deviate downwards and inwards from the shoulder to the ground (which conformation is usually accompanied by a very wide breast), the feet are planted close together, and in most cases the toes turn inwards. In-toed horses usually paddle or dish; that is, when the foot is lifted and brought forward the toe describes a segment of a circle outwards, requiring for progression a much wider space than for standing. At the same time, horses of the conformation under discussion will not show the paddling gait to a marked degree, as when a foot is lifted the tendency of the whole limb is to incline outwards under the center of gravity, and this removes from the foot the well-marked rolling motion. In either of the above cases there is practically no danger of the animal injuring himself on account of defective action, and although such defects lessen his value, they do not greatly lessen his usefulness, and little if anything can be done to rectify the defects.

Probably rolling causing "speedy stroke" is the most serious defect in fore action. This is noticed in horses whose conformation from shoulder to fetlock or pastern joint is normal, those which stand with the feet the proper distance apart, but whose toes turn outwards. The malformation may, and often is, from the fetlock downwards; the bones below the fetlock deviate outwards to a greater or less degree, and, as a consequence, when the foot is planted the toe turns outwards. In other cases the defect is from the pastern joint downwards. The danger of the horse injuring himself is influenced by the degree of deviation and the height of action. The tendency is to roll the foot and strike the opposite limb. The liability to strike can, in many cases, be lessened by careful shoeing. When the fetlock of the opposite leg is the seat of contact, a heavy shoe, with the toe rounded instead of having a calk, will in many cases cause the horse to lift the foot higher, and thereby prevent striking. When the knee is the seat of contact a light shoe will usually cause lower action and prevent wounding. When the defect in action is so marked that he will strike at all heights, prevention is very difficult. All manners of shoeing have been tried, such as shoeing with tips—that is, shoes covering only part of the lower border of the wall, reaching only partly around and leaving the heels bare; lowering the under side of the foot in order to correct the standing position, and to some extent turn the toe inwards. This, in our opinion, is dangerous, as in order to keep the foot and limb sound it is necessary that the horse stand nearly or quite level, as any material deviation from this tends to put too much strain on certain tendons or ligaments, or to place the bones forming the joints in an unnatural position, and hence predispose to disease. Another method of shoeing is to put on a shoe the outside of which from the toe to the heel is light, being of the same thickness, but much narrower than the inside from toe to heel. The shoe must be of the same thickness in order that he may stand and plant the foot level, but the inside being much wider is consequently much heavier, and the theory (a mechanical one) is that when the foot is suspended in the air the weight on the inside tends to keep it down below the level of the outside, and thereby prevent the rolling motion. Some claim that the outer side of the shoe should be the heavier, but we have never known it to correct the action and cannot understand the principle upon which it is supposed to act. The rolling motion of some horses is more easily modified than that of others, and what will affect one will often have no beneficial action upon another. In many cases we find that the fault cannot be corrected by any manner of shoeing, and unless the animal can do his work without shoes, we are compelled to use ankle, shin or knee boots, according to the height of action, and as the height of action often depends upon the speed at which a horse is driven, and some horses will strike at any and all gaits, it is sometimes necessary to use both an ankle and shin boot and also a knee boot.

"WHIP."

HAND-RAISING COLTS.

Editor "The Farmer's Advocate":

Seeing an inquiry from Bruce County, asking for experience in hand-raising colts, I will give ours. We had one which the mother would not own, but she was held for the colt to get a little of her milk for the first week, besides a little milk of a fresh cow; and it was fed nights the first two weeks. The second week it got a cup of milk with a teaspoon of brown sugar every two hours (no water). As the colt got older, it got a quart of milk with a tablespoon of sugar, and then three quarts with a handful of sugar. The colt was fed every two hours all summer—not nights, but the last thing on going to bed—and got a handful or two of oats as soon as it was old enough, and was kept in a little field handy to the house, and was put in the stable every night. It never was sick, and has grown to be a fine large colt.

ONE WHO RAISED THE COLT.
Wentworth Co., Ont.

LIVE STOCK.

DETERMINATION OF SEX.

Many and strange are the theories put forth to explain the determination of sex in animals, man among the rest. Many of these conjectures are absurd on the face of them; others seem more or less plausible, but fail when put to the test. Casual observers often construe a few striking coincidences as cause and effect, and jump to unwarranted conclusions. The subject is, nevertheless, a legitimate one for speculation, and we were somewhat interested the other day to notice the following experience, related by one who calls himself "Spero," writing in the English Live-stock Journal. This man became interested about twenty-six years ago by a paragraph in the above journal setting forth the theory of an American rancher who claimed to have discovered that the sex of possible calves changes regularly every time the cow is in season. To test this theory, the English breeder selected nineteen of his pedigree Shorthorn cows, which had already produced cows, for an elaborate trial. The cows were served at the usual time after calving, the intervening periods of œstrum being carefully kept track of. As cows vary considerably in the time between calving and their first heat, it follows that some were served at their first heat and others at their third or fourth. The result was startling, for in every case, except possibly one, the theory panned out. The cows which produced bull calves, and were got in calf again at the first, third or fifth period, produced heifer calves, while those bred at the second, fourth and sixth periods dropped calves of the same sex as before.

Some years later he changed the breed of his herd and went in for Jerseys. It was then desirable to secure heifer calves, and the rule was applied with general success. As absolute certainty in selecting the odd or even numbered heats was not always possible, occasional disappointments were met with, but this happened rarely, and never when there was not room for doubt.

The correspondent does not remember of any other similar experiment with cattle, but mentions the case of a gentleman who tried it on poultry. Selecting a prolific hen, he placed her eggs in two baskets, alternately, as they were laid. One lot hatched all cockerels, the other all pullets. How this theory could be reconciled with the occurrence of both males and females in litters, we are not told.

The above theory is simple, and seems at least quite as plausible as most others we have ever heard relative to this interesting subject. If true, it is certainly remarkable that it has not been scientifically and publicly demonstrated long ago, but sometimes simple explanations long elude the attention of investigators. Will some of our experiment-station authorities undertake an answer by demonstration?

THE HOG INDUSTRY IN GLENGARRY.

The following is a copy of portions of a letter, dated April 10th, and received by Superintendent of Farmers' Institutes, G. A. Putnam, from Mr. Duncan Anderson, who has been attending special bacon meetings in Eastern Ontario:

"I finished the meetings in Glengarry County this afternoon. The attendance was not large, would average about 30. At Lancaster, Bainsville, Alexandria and Maxville the meetings were interesting. At the four points named the discussion was animated and keen. Bainsville was in this respect one of the best Institute meetings I have ever attended. Sometimes I was deluged with questions, such as, 'Does it not cost more to produce the bacon type than the thick fat?' 'Is it profitable to grow hogs in winter?' 'What is the best kind of pen to build?' 'Should hogs not be crowded fast so as to be ready for the market at five months or earlier?'

"I have been urging them to grow more hogs of the correct bacon type; to grow more and buy less grain feed; break up some of their worn-out hay fields; grow roots for hogs in winter; and re-seed to grass, they would get more and better hay.

"I tell them they have in Glengarry 31,000 milch cows, and only kill or sell 21,000 hogs. That to work up their dairy by-products to the best advantage they should at least sell two hogs to the cow, that would be 60,000, and instead of getting $200,000 as they are now, the income from this source would be over $500,000. I am urging them to grow roots; there are not 700 acres of mangolds and turnips raised in the whole county. I gave a number of reasons why roots should be fed—that the hogs will thrive better, that they save meal and make a better use of what is fed, that when a liberal quantity of roots are in the ration when the hogs are growing and being finished, they help make a firm and superior quality of bacon.

"In Montreal we visited several pork-packing establishments, and found at one place a bunch of 54 hogs, but in the lot there were not one dozen good ones. Thirty of them were unfinished, and did not weigh more than from 100 to 130 pounds, and were very thin, skinny, lean, and undesirable lot, and should have been fed at least six weeks longer. Another company had, at least, 500 fine hogs; 70% were first-class in both bacon conformation and finish. They came from Campbellford, Ont., and gave evidence that the producers of them had made profitable use of the instructions received from your Department. You may judge the quality of the hogs by the price paid, $7.65 delivered in Montreal."

OXYGENIZED MEAT.

Cable despatches from Sydney, Australia, recently announced the alleged discovery of a new method of preserving meat by oxygenizing, that would entirely supersede cold storage, with its freezing and chilling processes, reducing the cost from 60 or 70 shillings per ton to 8 or 10 shillings, with about one quarter the cost for plant. It was stated that shipments were about to be made to England of the meat. We at once wrote to Australia and England for verification of the story, and from one of the leading houses in the dressed-meat trade of Liverpool, Eng., the following reply is just to hand:

"We are in receipt of your favor of the 20th ult., regarding the reported process for oxygenizing meat, and in reply thereto beg to say that we have no more information of this process than what you also seem to be possessed of, nor can we glean any here. We may say that similar processes are announced here about every three months, but they never come to anything. If any interesting information reaches us later we shall have much pleasure in sending it on to you."

DOGS, AND WATER SYSTEM.

Editor "The Farmer's Advocate":

The dog question was settled in our municipality long ago; $1 is charged for every dog over six months, $2 for bitches. If any sheep are killed by unknown dogs, owner is compensated for two-thirds of sworn value of sheep. A bonus is also paid to any party shooting a dog worrying sheep.

Our system of watering cattle is very satisfactory, though probably common. A galvanized sheet-iron trough runs full length of row of cattle. Water is supplied by gravitation through iron piping from a spring twenty rods away. The cost of the whole system did not exceed fifty dollars, including labor. An overflow is connected to trough.

FARMER.
Ontario Co., Ont.

Let us not live fretful lives. God will never stretch the line of our duty beyond the measure of our strength. We ought to live with the grace of the flowers, with the joy of the birds, with the freedom of wind and wave. Without question this is God's ideal of human life.—W. L. Watkinson.