psychology becomes more de-
ed an explanation for instincts.

e in the development of a But-
, or as it is usually called in
aterpillar. The body of the
up of thirteen rings. The first
which is provided with mouth-
tc.—antennae ("feelers") and a
es known as ocelli. In many
ip is provided with a projec-
—through which the silk secret-
ar is passed. The next three
constitute the thorax, and each
air of legs. These three pairs
rpillar are known as the fore-
ed to the legs which are pres-
insect. The next nine rings
men, and in many species we
on the sixth, seventh, eighth
s and a pair on the last seg-
are termed the pro-legs, and
with any such organs in the

ss of growth and development
lts at regular intervals, there
ies four or five moults. The
val stage varies a great deal
Most of our species exist as
om two to three months,
of those species which hiber-
state, ten months is spent as

in development is the pupa or
a resting period during which
nature insect takes place. As
larval stage the length of time
alis varies widely in different
some only a few weeks, while
r is passed in that condition.
ithin the pupa case is mature
the insect emerges. When
Butterfly has a long abdo-
wings. It hangs quietly for
en fans its wings so that the
at first are largely in the
o the wings and other parts.
den, the abdomen shortens up
away a perfect Butterfly.
erfly feeds on the nectar of
cks up through the proboscis.
ormed of two semi-cylindrical
as to form a complete tube,
se is coiled up like a watch-
per end of the proboscis is a
f which muscles are attached,
e muscles being attached to
ad. When these muscles con-
the bulb is enlarged, a vacuum
e nectar from the nectary of
the proboscis and into the
also surrounded by muscles
ted compress it. The external
has a valve, which when the
closes and causes the nectar
nto the gullet and thence to

f the wings of a Butterfly con-
s, the inner tube containing
blood, which is, as in most
This framework supports a
hich is covered with minute
are these scales that to the
ear as dust, but when ex-
microscope they are very
d are seen to be arranged on
hingles on a roof.

HORSE.

the Stallion.

believed that from a breeding
o work the stallion. A few
horse in Northwestern Mani-
n ever convinced us that the
y correct, and can be borne
nce. This young Clydesdale
s place day in and day out
n on a breaking plow. He
e seeding, and last year and
id his share of the work on
as never done what would be
n at the stud, but each year
es and their owners are all
oals. We talked with one of
to the time this horse came
od, had not been able to
. He had been breeding to
pampered horses whose colts,
mare with foal, invariably
nd in his case all succumbed.
n up hope of being able to
is neighbor brought in the
He tried again, and to his
d with a living foal dropped
smart and rugged from the
as returned, and this year
all that could be desired.
faith in horse breeding, and
ys to work the stallion. His

experience is similar to that of many of his neighbors. There must be something in it. So far as the appearance of the horse is concerned of course, the work is detrimental. But appearance should not carry anything like the importance of performance. This horse more than pays for his keep in work done. He is comparatively speaking thin and plain, but he is all horse. His muscling is there solid and abundant. His legs are "as clean as a hound's tooth." His feet are right. He is not impotent with flabby fat put on in idleness. He needs no drugs. He is what nature intended a sire to be. This horse has proven wonderfully sure. Very rarely is it that a mare fails to conceive, and the colts born of working parents on both sides of the house are built for business, rugged and strong from the start. Few stallions get enough exercise. Too many are over-fed during the breeding season and neglected during the late summer, fall and winter months. Regular farm work would get over all these difficulties and would ensure a larger percentage of in-foal mares, more strong living foals and greater satisfaction throughout. Work the stallion.

Co-operation in Stallion Ownership.

Editor "The Farmer's Advocate" :

The sesaon of 1915 is drawing to a close, and many farmers who are breeding cart horses this year may be disappointed with the result. The best horses are almost certain to have been overdone, which is a serious matter for the owners of the mares. Such disappointments can be very easily overcome by co-operation. A little later there are sure to be some excellent horses offered at the auction marts, and there will be opportunities of buying a first-rate horse at a price which is right. If twenty farmers were to club together such a horse could be procured at a low cost to each in comparison with the benefit to be derived from using a high-class sire. Twenty farmers should provide enough mares for such a horse, so there would be no reason to worry about the public.

Stallions are always cheap at the close of the season; they look their worst, and often sell for less money than they would be hired for at the beginning of a new season. One member of such a syndicate as the writer proposes would have to be appointed as manager, and a committee of about three members could be formed who would have to attend the sales to select the horse to be purchased.

If there were more than twenty members a second society might be formed and have another stallion purchased, but twenty members would be quite enough for one horse. A farmer operating on a large scale, and, who would require the use of the horse for several mares, might take more than one share if he liked. At any rate the proposal seems worthy of consideration, and the suggestion might be taken up in many districts. Nothing succeeds like success, and what is worth doing at all is worth doing well.

Wentworth Co., Ont. B. C. T.

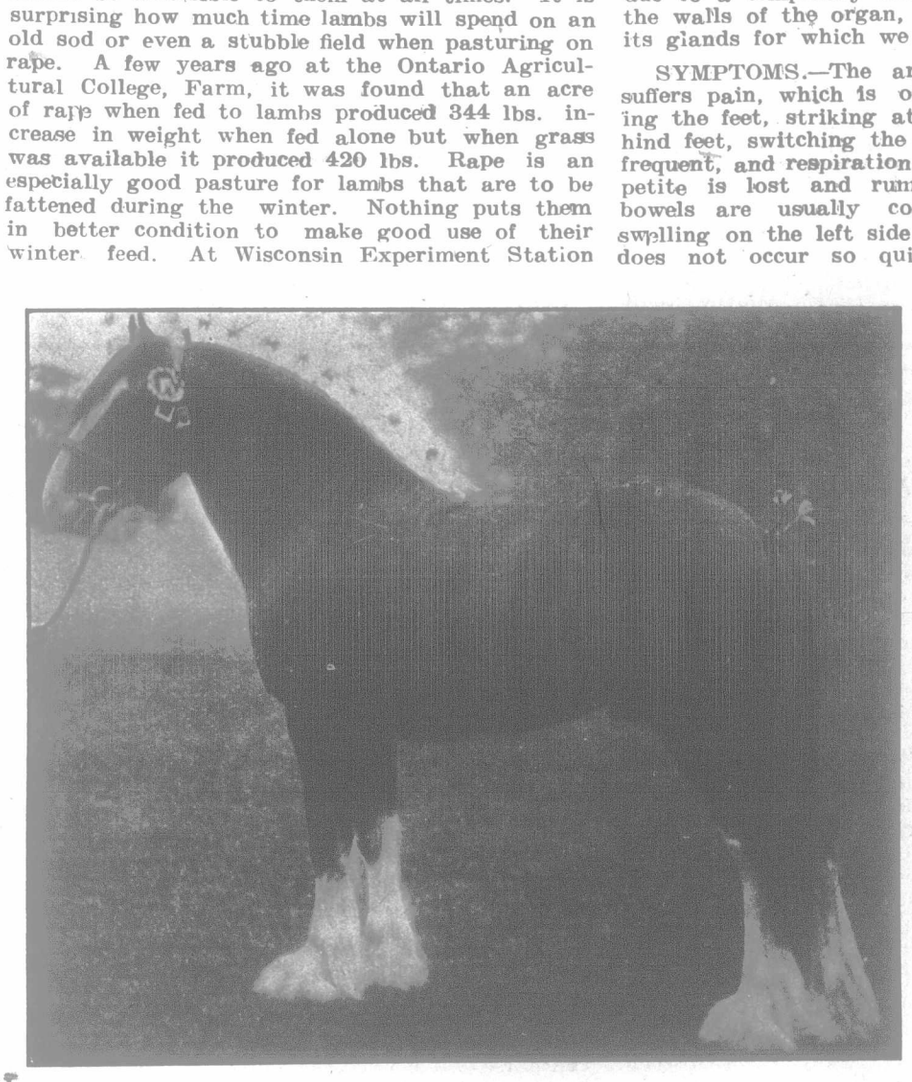
Keep the Colt Growing.

In no line of live stock is size so valuable as in the heavy horse. An extra hundredweight or two may mean an increase in value of from $25 to $100. More horses fail to reach profitable weights through lack of care during their first year than from all other causes combined. Often the first severe setback occurs when the colt is weaned. Many colts are suddenly taken from their mothers and turned out to gather their own living from an old, dry pasture and fight the flies at the same time. A colt that has been taught to eat a fair supply of oats and bran will scarcely notice the weaning process, but one that has been largely dependent upon the food supplied by its mother may receive such a check in growth that it will never entirely recover and a light draft animal is the result, when, with proper treatment, a heavy drafter might have been produced. If the colt has not already been accustomed to grain it should not be weaned until this has been accomplished. Oats and bran form a splendid mixture for the sucking colt. A little oil-meal should be added at weaning time. It is better to keep the colt stabled for a week or so until it stops fretting for its mother. If two can be kept together it reduces the fretting to a great extent. Little at a time and often is the colt's rule of feeding and this should be kept up for a time after weaning. Many good horsemen feed five times a day at this time, gradually increasing the amount and decreasing the feeds until only three feeds are given. When completely weaned the colt should be turned out on good pasture at night for the next couple of months but should be stabled during the day to protect it from flies. After the fly season is over this order is reversed, the colt being stabled during the cold nights and turned to pasture through the day. As the weather becomes colder the dry feed is gradually increased and the pasture decreased, so that the change to winter feed is scarcely noticed. If good, bright, mixed hay with a liberal supply of oats, bran and oil cake or other easily-digested nitrogenous feed is fed in conjunction with a few roots a proper beginning will have been made for a real heavy-drafter.

LIVE STOCK.

Fall Care of Lambs.

On many farms lambs are allowed to run with the ewes all season. All lambs should be weaned when from three to four months old except those that are to be sold before Sept. 1. If pure-bred lambs and those to be sold early in the fall are taught to eat grain before weaning they will scarcely miss their mothers at all. In weaning a few old ewes should be left with the lambs. The flock should be removed out of sight and sound of the ewe flock and should be given the best pasture available, something young and tender, such as new clover or clover aftermath being the best. A little later in the season rape will be available on many farms and nothing makes better lamb feed. Lambs should not be confined to rape alone. Some other pasture should be accessible to them at all times. It is surprising how much time lambs will spend on an old sod or even a stubble field when pasturing on rape. A few years ago at the Ontario Agricultural College, Farm, it was found that an acre of rape when fed to lambs produced 344 lbs. increase in weight when fed alone but when grass was available it produced 420 lbs. Rape is an especially good pasture for lambs that are to be fattened during the winter. Nothing puts them in better condition to make good use of their winter feed. At Wisconsin Experiment Station



Dunure Kaleidoscope.
Champion Clydesdale stallion at the Royal.

lambs on rape not only gained a half more than those on blue grass pasture but during the following three months winter fattening period, the rape-fed lambs gained 100 lbs. in weight for every 429 lbs. grain and 261 lbs. hay fed, while it took 476 lbs. grain and 315 lbs. hay to produce a like gain with the grass-fed lambs.

In Britain many thousand lambs are annually fattened with turnips, both fall turnips and swedes being used. The lambs are either folded on the turnips or the turnips are pulled and carted to the lambs. Mainly because of the shorter season, this system has never been adopted to any extent here, but Old Countrymen claim that turnips produce much more feed on a given acreage than rape. There is usually from a month to six weeks of open weather after the turnips are fit to use and where a fair-sized flock is being fattened considerable benefit might be derived from turnip feeding even here in Canada.

Where grain is fed along with the pasture a quicker and better finish is secured. The kind of grain to use will depend to a large extent on the pasture. With grass, rape or turnips, oats and bran with a little oil-cake will give excellent results. Where the pasture consists of clover or alfalfa, corn may be substituted for the bran and oil-cake, as the legume pasture furnishes sufficient nitrogenous matter.

Digestive Diseases of the Ox—III.

IMPACTION OF THE RUMEN.

Impaction of the rumen is one of the most common forms of indigestion in the ox. It consists in distension of the rumen or first stomach with solid matters. It is a pathological condition somewhat similar to tympanites or bloating, but differing in the urgency of its symptoms, and the method of treatment. It depends upon introduction of solid matters to such an amount as to partially or wholly paralyze the organ by over-distension. Some foods seem more liable to produce this disorder than others, as grain chaff or potatoes; but anything particularly palatable to the animal may be taken in such quantities if opportunity presents itself. Sudden changes of food, especially if the change be to a food particularly palatable, over-feeding on grain without giving the animal exercise, indigestible food, as overripe hay, food of poor quality, even if consumed in only moderate quantities may cause it. The animal continuing to eat but not ruminating sufficiently, the amount of ingesta gradually increases in the rumen. This distends its walls until they become partially paralyzed, hence the normal contraction and relaxing does not take place, and as a consequence the somewhat churning motion that takes place in health is absent. In many instances we notice a case of impaction without appreciable cause, which, no doubt, is due to a temporary suspension of the action of the walls of the organ, or a failure in action of its glands for which we can give no cause.

SYMPTOMS.—The animal becomes dull and suffers pain, which is often expressed by stamping the feet, striking at the abdomen with the hind feet, switching the tail, etc. The pulse is frequent, and respiration usually accelerated. Appetite is lost and rumenation suspended. The bowels are usually constipated. There is a swelling on the left side of the abdomen, but it does not occur so quickly as in tympanites, neither is it of the same nature. When tapped it produces a dull sound and when pressed it has a doughy feel and the imprints of the fingers do not quickly disappear; it "pits on pressure." There is often a grunt during expiration, more evident when the patient is lying, especially if lying on the left side, a position that is seldom maintained for any considerable time. In the later stages tympanites often sets in as a complication; then the respiration becomes more labored. the grunt during expiration more pronounced, and in many cases resembling a groan rather than a grunt. The patient now often grinds his teeth and persists in standing with protruded muzzle and arched back. In some cases inflammation of the rumen results, in which case there will be well-marked increase in temperature, and the patient will manifest pain if pressure be made on the left side. The above symptoms are more or less well-marked in severe cases, but in cases of less severity the patient occasionally appears to have periods of ease and expresses a desire for food. If food be supplied he will eat a greater or less amount with apparent relish, but the symptoms of illness soon become more marked than before. This is of necessity the case, as the walls of the rumen are more or less inactive and the mucous glands also in a state of partial inactivity, the organ is not performing its proper function, hence the introduction of a fresh supply of food must intensify the trouble.

TREATMENT must be directed to the removal of some of the impacted food-mass and the restoration of activity to the over-distended walls of the viscus. When the distension is not excessive a brisk purgative of (for an ordinary-sized cow) 2 lbs. Epsom salts, ½ oz. gamboge and 2 oz. ginger in about 2 quarts of warm water administered as a drench should be given. In order that this may act it is necessary that the paralysis of the walls of the organ be overcome. For this purpose nerve tonics as nux vomica in 2 dram doses every six or seven hours should be given. If the patient be of more or less than average-sized cow the above doses should be accordingly larger or smaller. It is not wise to