further develop energy and vitality throughout her young life, so that when she comes to maturity she will have the power to produce as well as the inclination.

We will see further how absolutely necessary it is to feed her plentifully, but still at the same time not too much, because there is a limit to the capacity of her stomach, and nothing is so unwise or more completely defeats the desired end than to feed the cow too much, because the stomach if overloaded throws the whole system out of order, and she is practically like a person that is bilious and sick; her blood does not circulate as well, and her whole system is out of tune. Since, then, there is such a decided limit to the capacity of the cow to consume and digest feed in order that she may not unduly tax the digestive organs, but cause them to do the whole amount of work, we should feed her on food that is appetizing, palatable and easily digested. To give, in fact, a maximum amount of nourishment with a minimum amount of work for the stomach and system.

There are many foods very suitable to a cow, and it is not our purpose at this time to specialize any one of them, but to show what a great producer the cow is, and how necessary it is that she receive good care at all times, and every day of the year, if we desire the best results, because, if through lack of feed, owing to short pasture or any other cause, the cow does not get enough nourishment and has to draw upon her own system, as she will do, then, of course, she depletes her system and her strength, and is not so well fitted for work afterwards, and it may take a great deal of time and feed to regain this lost strength. In fact, feeding and caring for a cow as well as we can, she must still, if a heavy producer, be drawing on her system of the energy and vitality stored up while she has been dry. If she has not been given good care when dry, so as to freshen in the pink of condition, full of energy and vitality, she will not be likely to do big work, but if she has been in that shape and is doing good work she will still be drawing on her own system, and we will then see how necessary it is if we want her to do good work another year to give her a rest before starting the next year, to recuperate her system, which means that we should have a cow perfectly dry for two months, and during those two months she should be well fed, not, perhaps, on such a high ration as in the heaviest production, but still a great deal better than most cows are fed. For no feed do we get better pay than for the feed given to a good dairy cow when she is dry, because that feed shows through the whole following period of lactation. There is no sense in milking a cow the year round when we can get more milk by milking her ten months of the year, and no cow could produce very heavily unless she is well cared for and has a period of rest and recuperation.

GEO. RICE.

POULTRY.

THE O. A. C. POULTRY DEPARTMENT.

Remodelling is the order of the day in the poultry department at the O. A. C. The old houses are being rearranged to hold fifty per cent. more birds, by tearing out the partitions that have heretofore divided each apartment into dining-room and bedroom—or, in other words, scratching shed and roosting compartment. Cement floors and walks are being laid throughout, and curtain fronts put in.

COLONY HOUSES—ALFALFA PASTURE—STANDARD AND UTILITY STRAINS.

"And what is the latest word about the colony-house system of handling poultry?" Prof. W. R. Graham was asked. "It's the only way to raise chickens if you want them good. Come out to the field with me and I'll show you some chickens and also some alfalfa." There they were all provided with colony houses, spread out so as to afford as much range as possible on new ground. There were chicks of three distinct lines of breeding that made quite an interesting study in comparison. There were some from Prof. Gowell's famous trap-nested 200-egg-per-annum strain. Precocious youngsters they were, but away off in color, showing a sublime contempt for the American Standard of Perfection. Another strain there was, consisting of trap-nested stock bred at the O. A. College, not so large, but much better in color. Again, there were strains of Barred Rocks, bred for exhibition purposes, showing beautiful coloring and shape, but not making any particular pretension to egg-producing ancestry. The moral of it is that two or more excellences are difficult to combine in high degree in one and the same individual. While egg production and standard fancy requirements are not diametrically opposite tendencies, yet if one is sought assiduously the other is liable to be sacrificed wholly or in part.

Then there was the alfalfa, sown this spring on a piece of gently-sloping ground behind the shelter of an evergreen wind-break. About thirty-five pounds of seed per acre was sown along with a nurse crop of grain. The poultry ate the oats, and threatened for a time to keep the alfalfa down, but it got away from them, and now shows a beautiful thick mat of green. Alfalfa makes grand chicken pasture.

WHITE DIARRHEA.

What about white diarrhea? This Chinese puzzle is still being conjured with, without any adequate conclusions yet as to its cause or means of prevention. Zenoleum, when used in the incubator by poultrymen according to directions, seems to have given beneficial results in about three-quarters of the cases, but in the other quarter no benefit seems to have accrued.

GARDEN & ORCHARD.

BLACK-KNOT.

Kindly give cause and remedy for black-knot on plum and cherry trees. W. T. N.

Ans.—The black-knot which occurs on both plum and cherry trees is caused by a fungous disease known to botanists as Plowrightia morbosa. This is spread from one tree to another by spores which are carried by the wind. When a spore finds lodgment upon a branch, and begins to develop, it produces minute threads, which enter the bark and spread through live wood, forming a network of fibres knowns as the mycelium of the fungus. This causes a swelling of the bark and wood, which forms the knot. During the early part of the summer the swelling appears as a yellowish-brown mass upon the branch, which later develops a velvety outer coat, caused by the production of summer spores. During the latter part of the season the knot changes to a dark, black color, and numerous winter spores are developed in small sack-like cavities, which rupture during the winter, and the spores are carried by the wind in spring. In this way, there is danger of the fungus being carried by both summer and winter spores. The grubs which are often found in the inside of the knot are the larvæ of various kinds of insects, which deposit their eggs in the swelling, and find there a place for the development of the larvæ. They are not the cause of the knot, but merely make use of it as a place for rearing their young.

The only remedy for the knot is to cut it out whenever it appears, removing the knot several inches below where it appears on the branch, so as to remove all of the mycelium of the fungus, which, if any is left, will develop a new knot on the end of the stub. Probably you may have noticed that certain varieties of plums and cherries are much more subject to the knot than others. Usually it is those kinds of slower growth, or those which are weakened by a heavy crop production, which are most subject to the knot. Thorough spraying with the Bordeau mixture will help to prevent the development of spores which fall upon the trees, but wherever the knot appears, the only remedy is to cut it out and burn it. H. L. HUTT.

O. A. C.

THE STALK BORER.

A young plant of corn was brought to "The Farmer's Advocate" a few days ago; it was one of a number found to be attacked by a worm which had eaten the ends of the leaves, and was concealed in the heart of the plant. On examination, the culprit proved to be a caterpillar of the common stalk-borer (Gortyna nitela). It is called "common," not so much for its abundance, but because it attacks a large number of plants, both wild and cultivated. Among these may be mentioned potato, tomato, corn, spinach, dahlia, aster, lily, spiræa, ragweed, cocklebur, milkweed, etc. The presence of the insect is usually made known by the withering of the leaves of the plant above where it is feeding in the interior of the stem, and also by round holes in the stem of potato, tomato, etc., and in the leaves of corn. The young caterpillars are hatched in June, and feed on the interior of the plant, becoming full-grown in August, and changing then to the chrysalis state. They are purplish-brown in color, with a continuous white line down the middle of the back, and other white lines interrupted on the middle segments of the body; the head and following segment are broadly marked with white. The interruption of the lines in the middle is characteristic of this caterpillar. The moth, which comes out in September, is dull gray in color, the inner two-thirds of the fore wings being much darker than the remainder, and separated by a conspicuous pale line crossing the wing parallel to the outer margin.

As the caterpillar is an internal feeder, it is not easy to apply a remedy. In the case of potato and tomato plants, it may be killed by inserting the blade of a sharp penknife in the opening of the burrow and slitting the stem upwards till the worm is reached; but, with corn, the only plan seems to be to cut it out of the plants that are seen to be affected, or, if not very numerous, to hoe them out and feed them to the stock. In any case, all the remains of the plant should be destroyed in the fall, and not left to serve as winter quarters for this and other noxious insects till the spring. C. J. S. BETHUNE.

O. A. College, Guelph.

PLUM TREES SPLITTING

Plum trees split from the ground up to first branches. The opening penetrates through bark into wood. Trees have borne fruit four or five years, and are well cultivated. Can anything be done, or will it kill trees in time? J. S. M.

P. E. Island.

Ans.—The probable cause of the plum trees splitting is that the trees made strong growth during the season and grew rather late in the autumn, so that when frost came the expansion of the large amount of sap caused the splitting of the trees. A sudden lowering of temperature will cause trees to crack when they are gorged with sap. In the present instance, it is probable that the trees will heal over. If the trees make very strong growth every year, we should suggest stopping cultivation earlier in the season, so that the wood will be better ripened, and there will be relatively less amount of sap.

W. T. MACOUN, Horticulturist.

Central Experimental Farm.

The Ontario Department of Agriculture has recently come into possession of Part 2 of an illustrated work on fruits, published in England over 200 years ago. The title page is missing, but a frontispiece is entitled as follows: "Flora, Flowers, Fruicts, Beastes, Birds and Flies exactly drawne, with their true colors lively described. Printed and sould by Peter Stent at the White Horse in Guilt Spur Street, nere Newgate." A pencil entry gives the author as John Rea, and the date 1665 or 1676. Under the list of many sorts of the best apples to be planted at large in orchards is given the following: "Figg Apple is without Core or Kernel, and without Blossoms, the Fruit cometh out of the sides of the branch, and as big as a Pippin."

WATCH BETTER THAN EXPECTED.

I received the premium watch in due time, and am highly pleased with it, as it is so much better than I had expected. A. J. REYNOLDS.

York Co., Ont.

A Country Mill, Queen's Co., P. E. I.