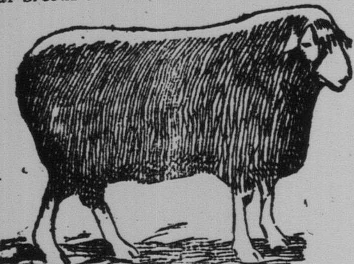
THE SHEEP INDUSTRY.

More Thoroughbreds Imported Into Canada This Summer Than for Many Years—A Genuine Revival.

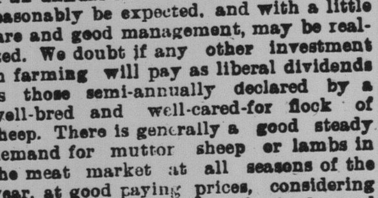
Not for many years have so large a number of sheep of the different breeds been imported to Canada as have been brought out this summer, says The London Farmer's Advocate. This may safely be regarded as an indication of the existence of an active demand for this class of stock. Indeed, it is well known by those in touch with the business that so heavy have been the drafts upon Canadian pure-bred flocks in the last two or three years that they have been reduced in numbers to a lower point than has been touched in the last thirty years; and the importation of fresh blood on a larger scale than usual has been felt to be a necessity if we would maintain the standard of our stock and hold the markets which the high-class character of our sheep has won for us. It is gratifying to know that so many Canadian breeders have the courage and the enterprise to assume the risk of importing on so large a scale; and we are glad to learn that commendable care has been exercised in the selections made for importation this year, and that a larger proportion of high-class stock than usual has been brought over. The magnificent display of sheep of all the principal breeds at the leading exhibitions in



LINCOLN RAM LAUGHTON, 235 GUINEAS 4618.
Winner of first and champion prize, R.A.S.E. Show, Maidstone, 1899. The property of Messrs. S.E. Dean & Sons, Dowsby Hall, Bourne, Lincs.

Canada amply demonstrates that we have a country admirably adapted to the production of this class of stock in the highest degree of perfection, and that we have practical shepherds not a few who are well qualified by training and experience to bring them out in the pink of condition and in robust health and vigor. The splendid record made by our flockmasters in winning honors at the great international exhibitions in which they have competed, notably at the Columbian in 1893, with Canadian bred and fitted sheep in their own hands, and those of others to whom they had sold, furnishes abundant evidence of the high-class character of our sheep, the undoubted skill of our shepherds, and the suitability of our climate, our soil, and our stock foods for the growth and development of sheep and the production of mutton and wool of the very best quality.

In view of these facts, it is unaccountable that so few sheep, comparatively, are found on Canadian farms, that by a very large proportion of our farmers they are entirely neglected, and that the aggregate number of sheep in the Dominion has been steadily decreasing for the last 15 years. We are confident this fact is not due to any general disability affecting the industry. We believe it is absolutely safe to say that in no other country are sheep liable to so few diseases or disadvantages of any kind. The climate is as near an ideal one for the successful raising of this class of stock as can be found anywhere in the world. All the principal mutton breeds do well with us. There is no class of farm stock the raising and care of which requires so little labor or expense as this inoffensive and unpretentious money-maker. Sheep will live in summer largely upon pickings in the lanes and byplaces of the farm, and will eat many of the weeds which infest the pastures, and thus help to clean the farm and keep it clean. No stock is so little affected by protracted drouths—they prefer a short nibble, and thrive better in a dry season than in a wet one when feed is over-flush. The fleece of wool—a volunteer crop, which never fails—which no other farm stock yields, and which is perennial during the life of the animal, amply pays for its winter's keep even when liberally fed, and anywhere from 50 to 100 per cent. of an annual increase from the ewes may reasonably be expected, and with a little care and good management, may be realized. We doubt if any other investment in farming will pay as liberal dividends as those semi-annually declared by a well-bred and well-cared-for flock of sheep. There is generally a good steady demand for mutton sheep or lambs in the meat market at all seasons of the year, at good paying prices, considering the cost of production; while the demand for breeding stock for improving and replenishing the flocks on the farms and in the range territories of Canada and the United States is such as to make it decidedly profitable to cater to that trade, and Canadian farmers are peculiarly well situated for taking advantage of the in-



HAMPSHIRE YEARLING EWES.
First prize pen of same flock, Royal Show, Maidstone, 1899. Bred and exhibited by Mr. R. W. Hudson, Great Marlow, Bucks. Imported by Mr. Robert Miller, Brougham, Ont.

creasing trade in this line which is bound to grow into a very large one, as many United States flockmasters look to Canada for rams for the improvement of their flocks, knowing from experience that sheep bred and raised in our climatic conditions possess the requisite stamina and quality to improve the stock they are brought into contact with, and they will continue to come here for fresh blood. The Americans are fast becoming a mutton-eating people, and it is hard to understand why the same cannot be said of our own people, for there is certainly no more wholesome meat that can be placed upon our tables. Lamb is rapidly growing in favor as an article of diet, and brings highly remunerative prices, considering its cost of production, and gives quick returns to the producer and we may look for a steady increase in this trade, in sympathy with the prevailing preference for young meat in all lines.

While it is true that the quality of our best breeding flocks has been well maintained, thanks to the skill and pluck of the breeders of pure-bred flocks, who have nobly held the fort through times of depression without adventitious aid from outside sources, while kindred industries have been boomed by Government agencies and aided by special favors at the public expense, yet it is also true, as we have intimated, that sheep are being neglected by a very large proportion of our farmers, we believe to their own direct loss. There are few farms in the Dominion on which a small flock could not be profitably maintained. The expense of starting a flock on a small scale is very moderate, and may soon be repaid by the sale of surplus stock, while by retaining the best of the young females and purchasing, at intervals of two years, a new ram, which may often be sold at the end of his term of service for nearly if not quite the original cost, a flock can in a very few years be built up and maintained to the profit and satisfaction of the owner. We know many farmers who find their little flock of good

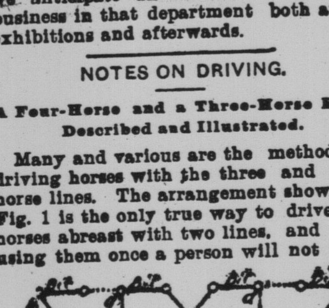
SOUTHDOWN SHEARLING EWES.
First at the show of the R.A.S.E., and first and champion at the show of the Royal Counties Agricultural Society. Bred by and the property of Earl Bathurst, Cirencester Park, Gloucestershire.

grade sheep the most profitable asset on their farms; and from our extended experience and observation, we feel safe in counselling the keeping of more sheep by the farmers of Canada, believing, as we do, that this is a field in which our people can continue to excel. The best season in all the year to buy sheep for a foundation flock, or to replenish, is in the early autumn, when the lambs have been weaned and the ewes are generally in good condition. If deferred to a later period breeders will, as a rule, have sold what they intended to dispose of, and have reduced their flocks to the number they aim to keep through the winter, and will then only sell for tempting prices, if they consent to sell at all. Those who buy early generally get the best selections. The sheep pens at the fairs this fall will be of more than ordinary interest, as the indications are that the number and quality of exhibits will exceed that of any year in the past, and we anticipate an unusual amount of business in that department both at the exhibitions and afterwards.

NOTES ON DRIVING.

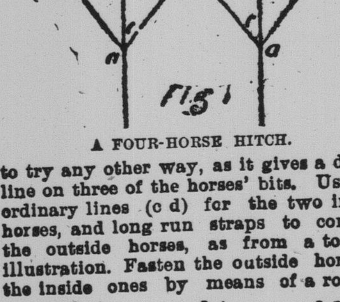
A Four-Horse and a Three-Horse Hitch Described and Illustrated.

Many and various are the methods of driving horses with the three- and four-horse lines. The arrangement shown in Fig. 1 is the only true way to drive four horses abreast with two lines, and after using them once a person will not want



A FOUR-HORSE HITCH.

to try any other way, as it gives a direct line on three of the horses' bits. Use the ordinary lines (c d) for the two inside horses, and long run straps to connect the outside horses, as from a to b in illustration. Fasten the outside horse to the inside ones by means of a rope or



DRIVING THREE HORSES ABREAST.

strap, or these may be fastened together in hame rings with halter straps, as the horses work best.

The correct way for using three horses with two lines is shown in Fig. 2. The same principle should be used on the outside horses. The run straps are the same as in Fig. 1, and are used by crossing over the withers of the middle horse and passing through the hame rings and fastening into the bits (a to b), as in Fig. 2.—R. A. Osborn, in Farm and Home.

Medium-sized Males Best.

A male of medium size should be preferred to one that is heavy and clumsy. Most persons pay too much attention to the size. They overlook the fact that the larger the bird the longer the period required for reaching maturity. Provided the male selected is pure bred, it is an advantage if he is small rather than large, where the object is to hatch out pullets that are desired to mature early. In selecting the male let it be done with some object in view and which is to be accomplished. It is of no advantage to use one as a gift if he is not suitable for the purpose. Bear in mind also that the male is pure bred, and as far as his influence is concerned, is one-half of the flock.—Maine Farmer.

Watching a Plant Grow.

Any of you who are fortunate enough to have access to a microscope may try the following experiment with little trouble: Take a collonia seed and cut off with a sharp knife as thin a slice as possible, so thin that the light shines through clearly. Then place the slice on a slide, cover with the cover glass and place under the microscope. When the instrument is well focused, standing in a vertical position, moisten the slices of seed with a drop of water. Almost instantly the seed fragment will absorb the moisture and develop a number of little spiral fiber which illustrate an early process of vegetable germination.

Feeding Horses Green Oats.

Horses that are idle in the stable or that have only light work may be fed a few green oats without injury. But they should on no account be given to horses that have much work to do. Green oats will give a horse the scours more quickly than any other feed. The oat hull irritates the intestines at its best, and is therefore needs to be thoroughly dried before being fed. If given, it should have some old timothy or meadow grass hay fed with it.

CULTURE OF BULBS.

Why Flower-Lovers Should Plant a Generous Supply in the Fall—Some Directions of Value.

There is no other class of flowering plants that gives as little trouble or can be so successfully managed by the amateur flower-lover as the bulbous class. The culture is extremely easy, as throughout their growing time they require no more care or labor than does a potato to bring it to maturity, and during their time of rest no attention whatever is necessary.

Of all the bulbous plants, the spring-flowering bulbs are most to be desired. These, which are generally called "hardy" or "Holland" bulbs, come into bloom early in the spring, some of them even showing their dainty flowers while the streamlets are still frozen in the woodlands and the snow-drifts hang along the mountain's brow. After months of intense cold, cloudy days and seeming endless nights, there is nothing more pleasant to the eye or that gives more genuine pleasure to the heart than to see the dainty spring-blooming bulbs forcing their heads through the recently frozen earth, and defying the ice king to again venture on his death-dealing mission. They come in a time when it is impossible to have any other plant out of doors. The house plants cannot stand the frosty nights, the perennials are just beginning to grow, and the seeds of the annuals have just been planted in some pan or box in a sunny window. The fact that plants giving bloom at this very desirable time are of such easy culture, and that the different kinds of bulbs can be secured at such a moderate price, should induce everyone to plant extensively.

To have a succession of bloom from the time when snow is still to be seen until the last of June, one should plant scillas, snowdrops, crocus, hyacinths, narcissus, crown imperials, paeonies, daffodils, tulips, etc.

Bulbs will thrive in any kind of soil and in any situation, so no one should be without them. While this is a fact, better results are obtained when more care is exercised in the selection of soil and location. A good deep, sandy soil gives best satisfaction, located where the bed may receive at least a part of the forenoon sun. In preparing the bed, it should be spaded up deep and made fine. The bulbs should be planted from two inches to six inches deep, and from three inches to six inches apart. The bed should be slightly raised above the surrounding soil, so that water will not settle around the roots and bulbs.

Although most of the Holland bulbs are perfectly hardy, they do much better if they have some protection through the winter. A covering of stable manure over the bed after it is planted in the fall, to the depth of from four to six inches, is the proper thing. This will keep the bulbs from being repeatedly thawed out and frozen up, should the winter be an open one. Besides this, the strength is washed out of the manure down into the soil by the autumn rains, and annually enriches the soil. By this annual covering the flowers are made much larger and of a more brilliant color. Of course, it must be removed as soon as the frost is out of the ground in the spring.

All these hardy bulbs should be planted in the fall, and the earlier they are put in the better. While they may be planted on into November, if the ground is not frozen, far more satisfactory results are obtained from earlier plantings. The bulbs have to make the most of their roots in the fall, before the ground becomes frozen, for as soon as the frost is gone in the spring the bloom makes its appearance, and there is no time for the bulbs to make roots, as, instead of that, the roots must be feeding the flower and producing a new bulb. The sooner they are in the better, as more time is given for root growth, and the stronger the root the larger the flower the following spring. The first of September is the time for all the bulbs should be planted to give most satisfactory results.

In planting bulbs, do not mix the different kinds in the same bed. Keep the tulips in a bed by themselves, and the hyacinths by themselves, and the same with the other varieties of bulbs. Nothing gives more displeasure than to see a bed of all kinds and sizes mixed. Hyacinths of dwarf growth and tulips with long stems do not look well together. Keep each kind by itself.

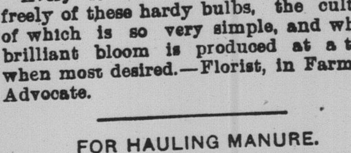
Many people take their bulbs up annually, after they have ripened up in the summer, and replant them again in the autumn. This is useless. They should be left in the ground three or four years, and then the clumps should be taken up and divided and replanted. By leaving in the ground year after year finer flowers are produced, and the labor of replanting is done away with. They also multiply more rapidly when left undisturbed for some time.

Every lover of flowers should plant freely of these hardy bulbs, the culture of which is so very simple, and whose brilliant bloom is produced at a time when most desired.—Florist, in Farmer's Advocate.

FOR HAULING MANURE.

Platform Which Robs This Disagreeable Work of Its Worst Features.

Manure hauling is generally a hard and disagreeable job, yet it is one that all successful farmers must perform. By the usual method of hauling it in the



PLATFORM FOR HAULING MANURE.

farm wagon both the loading and the unloading are hard work. If a man does his duty by his farm he will use a manure platform often enough to pay for having one. The accompanying sketch will show one on low-wheeled running gears, and without the sideboards, which are easily put on when required. It is merely a platform nailed to two by four scantling, and bolted securely to a frame made of two by six plank which fits inside the standards that hold the wagon box in place. There are holes cut through the platform to let the tops of these standards through. The platform sits just high enough to be free of the wheels. It can be made seven feet wide if that width is desired.—J. L. Irwin, in Agricultural Epitomist.

Salt Lick for Horses.

Place a box of salt near the watering trough so the horses can lick it whenever they go to drink. This is preferable to the usual method of salting the farm horses once a week.—Farm Journal.

SECRET OF STILTON.

No Definite and Precise Rules Are Known for the Making of the Famous Cheese.

Various attempts have been made during the last hundred years, especially within the last quarter of a century, to discover the secret of success in the making of Stilton cheese, in itself a characteristic English product, superior when properly made and cured to everything else of its kind. In the making of, for example, Cheddar cheese, there is no secret involved. The process of manufacture is well known and understood, and the product can be as creditably turned out in the Galloway district of Scotland and in the cheese factories of Canada as in the Somerset vale from which the Cheddar cheese takes its name. Around the aristocratic Stilton, the native home of which is in Liecestershire, some degree of mystery has, on the other hand, always lingered.

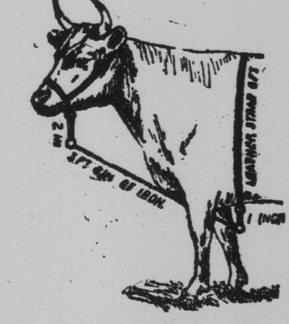
To penetrate, if possible, more deeply into this mystery than one had ever done before, J. Marshall Dugdale accepted a commission from the Royal Agricultural Society to visit the Stilton district in order to report on the present method of making Stilton cheese. The result of Mr. Dugdale's inquiries appear in the new quarterly number of the society's journal (Vol. X, No. 38) and it may safely be said that it advances our knowledge of the subject to a higher level than has previously been attained. Yet, at the outset, Mr. Dugdale tells us that as his visit of inspection proceeded it became more and more evident that the task upon which he had entered was a most difficult one. Every cheesemaker seemed to work upon different lines, and he was unable to find any two cases where all the details were carried out in the same manner. Whether the dairy and the buildings for the manufacture of the cheese were convenient and well fitted up or were inconvenient and made the most of, the fact remains that, owing to the skill and attention of each maker, at all the different dairies he visited he tasted excellent cheese.

Illustrations are given of Stilton cheese rooms and of the methods of manipulating the curd—a most important matter. It does not appear possible to enunciate a single series of rules for the making of the king of cheese. There is a fair degree of uniformity up to the time when the curd is ladled into the straining cloths, but, at this stage, and in the treatment of the curd before salting, diversity sets in, and as many as three different methods in successful current use are described in detail. Most of the cheese is made from two curds, as making from one curd is very risky. Great divergence of opinion prevails as to the degree of tightening of the straining cloths. No test for acidity was used at any of the farms, the degree of acidity being judged by the taste, feel and smell of the curd. When the right amount of acidity has developed the curd is broken by hand to the size of small walnuts, and salt is added at the rate of about one ounce to four pounds of dry curd, or one ounce to three and one-half pounds of wet curd, care being taken not to get the curd pasty. For further technical details, and for information as to curing the cheese, the paper itself should be consulted by makers.

It is significant, however, to read that the more the author inquired into the subject, the more were the variations in the methods of working that came under his notice. He therefore concludes that at the present time it is impossible to lay down any definite and precise rules for the making of Stilton cheese so as to suit every case. He is convinced that nothing but practical experience on each farm will show the best method of making really first-rate cheese from milk obtained on the farm. The secret of success in Stilton cheese-making appears to be the possession of a thorough knowledge of the subject, and the capability of applying that knowledge with effect on whatever farm the maker may reside. If a maker knows how to rennet the milk properly, and how to get the right amount of acidity at the time of hooping, he has acquired probably two of the most important details in the process of manufacturing Stilton cheese.—London Times.

To Prevent a Cow From Sucking Herself.

I enclose a sketch of a contrivance to prevent cows from sucking themselves. I tried about half a dozen different ways to stop a cow I have from sucking herself, and at last I tried this one, and I



FOR SELF-SUCKING COW.

found it very successful. I went to my harnessmaker, and got him to make a halter for the cow's head, and a leather strap, six feet long, to go around just behind the front legs, and then I got the rest made of iron.—Arthur Mills Wilcocks, in Farmer's Advocate.

Nitrogenous Weeds.

The common chickweed and pigweed, that start up in gardens in midsummer and make remarkable growth within a short time, are both weeds that rank very high in nitrogenous compounds. Not even second-growth clover will furnish as much nutrition for their bulk. Hogs and cows are extremely fond of both, and will eat them greedily. They are excellent not only for breeding sows, but for hogs that are being fed grain and need more succulency in their ration.

Cracked Wheat for Young Chicks.

Some cracked wheat should be given to chicks before they are a week old. It is the best exercise their digestive organs can have. Whole wheat will be eaten when the chicks are 10 days or 2 weeks old, and should always form a part of their ration. It is particularly valuable to make them feather quickly, the grain containing just the kind of material necessary for feather production. Even chicks that are hatched in mid-summer will become fully feathered before winter and will make early spring layers.

A DAIRY COW.

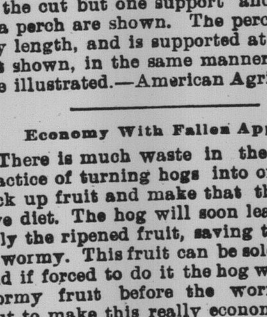
The Breeding, Fitting and Training of a Calf Is Necessary to the Production of a Profitable One.

Breeding, fitting and training horses for the speed track requires knowledge, judgment, skill and patience. The young animal must be the get of an ancestry whose distinguishing traits are intelligence, action and endurance. He must be bred for speed, good judgment and skill gained from experience, and the breeder must determine whether the young thing gives promise of possessing the qualities essential in an animal bred for speed. Judgment, skill and patience are required in feeding, fitting and training the young thing for a winning performance in the speed contests. This feeding, fitting and training begins at a very early stage of the colt's existence, and is patiently persisted in until the time of development is reached.

The production of a profitable dairy cow begins with a breeding, fitting and train of a calf. The ancestry must be the best we can get for the purpose, and the calf must be fed and cared for with that end constantly in view. The food provided must be of that kind and quantity which will most completely develop a milk-giving animal, and not a flesh and fat-producing animal. Nature has furnished this food in the mother's milk and in grass, but as we must rob the milk of its fat we must replace this element with something equally good and much cheaper. One cent's worth of corn and flaxseed meal is worth as much to the calf in combination with sweet skim milk and grass as one pound of butter fat in the whole milk. The value of oats, fed in connection with skim milk and choice hay for a dairy calf food, should not be under-estimated. Vigorous growth, exercise and development is what we must get if we are to have a cow capable of large performance. The oats and hay are bulky and increase the capacity of the stomach and digestive organs, and their exercise develops the capacity of the animal for properly taking and using large quantities of bulky milk-making food. Good sweet hay, preferably early cut, well cured clover, should be supplied from the time the calf is three or four weeks old. A clean, well-bedded, well-ventilated, sunlit stable is the place for calves in winter and the same with screened windows for summer. Milk cows and calves should be kept in screened stables during the heat of the day in summer. There is no profit for the owner or comfort for the cows and calves in fighting flies in the hot sun. Developing the milk-giving habit, which comes with the office of maternity, is an important feature in the fitting and training of a good cow. Maternity should come neither too early nor too late. Growth and physical vigor are often sacrificed in forcing the office of maternity upon the young things. Much depends upon the development of the animal, but it may be safely said that no heifer should drop her first calf before she is 2 years old, and not later than when 30 months of age. The handling of the calves and heifers is also an important feature of this development and training. They should be trained to the cow habit of dependence upon and regard for their master from infancy to maturity. The heifer or cow that does not repay her owner for gentleness, kindness and intelligent care, has not sense or capacity enough for a dairy cow, and the man who withholds these from the good cow has neither sense nor capacity enough for a good dairyman.—Dairy and Creamery.

Louse-Proof Roost.

Make a foundation of 4x4 scantling, in the shape of a frame, about as long as the building, and wide enough to make the roosts of suitable capacity. For the perches use 3x4 or 4x4 scantlings, ripped through the middle so as to make two pieces 4x1½ or 4x2. The upper corners are rounded off as shown, and the perches



LOUSE-PROOF ROOST.

are supported on standards of inch pipe, 18 inches long, or half-inch iron rods. An old fruit can is attached to each support by being soldered at the bottom of the can, the top being left open. These cups are kept half-full of coal oil or crude petroleum.

The roosts can be lifted off the supports for cleaning and to give access to the floor of the building. They may receive an application of coal oil or be whitewashed themselves occasionally. Instead of using the framework for foundation, the pipes or rods may be simply driven into the ground in their proper places. In the cut but one support and one end of a perch are shown. The perch may be any length, and is supported at the end not shown, in the same manner as at the one illustrated.—American Agriculturist.

Economy With Fallen Apples.

There is much waste in the common practice of turning hogs into orchards to pick up fruit and make that their exclusive diet. The hog will soon learn to eat only the ripened fruit, saving that which is wormy. This fruit can be sold or dried, and if forced to do it the hog will eat the wormy fruit before the worm escapes. But to make this really economical some grain and milk should be given to hogs in addition to their fruit diet. This will make the young pigs grow and will strengthen their digestion for the exclusive corn feeding that will come when they are put up to be fattened.

Green Crops for the Orchard.

Bare soil soon loses its humus and becomes infertile. This must be prevented. Here is one way of preventing it: Plow the orchard in the spring, cultivate both ways and keep all weeds down till September 1, at which time the soil will be in fine condition for a seed bed. Sow rye at the rate of two bushels per acre. This will cover the ground well before winter, and therefore protect the ground from blowing or hard freezing during the winter. Let the rye stand till knee-high in the spring, then turn under and proceed with clean cultivation through the summer.

Cause and Effect.

If you starve your cow your pocketbook will be starved.

BEE PROBLEMS.

Photographing Bees—Their Habits, Especially Their Polyandrous One, to Be Fully Investigated.

Just how the problem will be solved has not yet been decided upon in all cases, but some of the proposed experiments are interesting in prospect. For instance, in the case of the honey bee it is proposed to construct special observation hives; for although this insect has been serving man for centuries, we are not nearly so intimate with its habits as we might be. The hives will have glass windows, which can be opened on occasion and photographs made of what is going on inside. It is not known just how much honey each bee will collect in the course of a day, nor how long it will be gone on each excursion among the flowers. Special arrangements will be made for ascertaining this information. From the door of each hive a long tube-like passageway will lead, composed for the most part of glass, but in places of wood and metal. In this tube or front hallway of the hive, there will be a little vestibule or chamber in which the bee can be confined momentarily on his way in or out of the hive. The floor of the vestibule will really be the platform of a very delicate weighing instrument. When a bee starts to leave the hive it will be allowed to walk along the passageway, but when it reaches the exit the insect will find its way obstructed by a little glass door. Immediately another glass door will be slipped behind the honey-gatherer and then, as it walks around the little chamber, its weight can be had accurately, the scale being adjusted to the fraction of a gramme. Next a delicate mechanism will drop a spot of paint, ink or other coloring substance on the back of the bee for the purpose of future identification, a record being taken of the color and shape of the spot of this coloring substance. The insect will then be released and allowed to proceed in quest of sweets. When it returns a note will be made of how long it was absent and when it passes through the vestibule it will again be weighed, the increase being recorded as equivalent to the amount of honey gathered. The different changes which take place in the hatching of drones and workers among the bees will be carefully studied; also the curious method by which the bees are enabled to "construct" queen eggs when the regular queen eggs have been destroyed and there is no resident queen to lay others. The reason why bees live under a system of polyandry will also be traced to its origin, if possible.

USE AND VALUE OF LUPINES.

Some Information Concerning Them as Plants for Green Manuring.

Among nitrate-producing plants suitable for green manuring lupines have long held a prominent place. There are three species of cultivated lupines called blue, yellow and white, after the color of the flower. All are annuals. The lupines thrive upon the most sandy and barren soils, where not even rye will grow. They have very long roots which penetrate light soil to the depth of six or eight feet. These plants are all quite hardy, and when properly treated yield a large amount of vegetable matter which is very rich in nitrogen. The growth, however, is entirely worthless for forage, as it contains a bitter, poisonous substance called lupulin. The lupines yield a great amount of large seeds. In Europe the seeds are crushed and macerated in water for a day or two. This washes out the injurious substances, and the residue makes a good food for sheep.

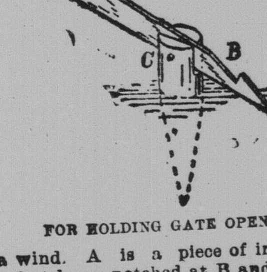
In the United States land is still so plentiful and cheap that lupine soils are not considered worth cultivating except in some localities where early vegetables and stone-fruits are grown for market. On better soils, crimson clover will yield more profit than lupines. Lupines may be sown in spring in the northern, and in fall in the southern States. The seed is usually sown broadcast at the rate of 40 to 60 pounds per acre, and covered in to the depth of three or four inches. The plants when suitably fertilized are vigorous growers, and one plant spreads out till it occupies a square yard or more.

The seed of cultivated lupines is nearly all imported, and costs about ten cents per pound. Like all leguminous plants, the lupines draw upon the free nitrogen of the air for the more costly part of their food and fix this in their tissues, which, when turned under become available for non-nitrogen-gathering plants. Chemical analyses show that one ton of green lupines contains of nitrogen 8.8 pounds; phosphoric acid, 6 pounds; potash, 17.3 pounds. The average growth on well-fertilized soil is six tons per acre, which at the prices of commercial fertilizer makes the fertilizing value per acre worth about $20. Of this $20, $8 represents the value of the nitrogen taken from the atmosphere, $1.80 is the value of the contained phosphoric acid, and $10.20 that of the potash. Both the latter substances must come from the soil. As the very sandy soils on which lupines are ordinarily grown contain naturally scarcely a trace of either phosphoric acid or potash, both these substances must be supplied in the fertilizer or it will not pay to grow lupines.

A good fertilizer for lupines is acid phosphate 600 to 800 pounds per acre, kainit 800 to 1,200 pounds, or muriate of potash 200 to 300 pounds. Lime and marl are also needed where a permanent improvement of the soil is needed.—Gerald McCarthy, of the North Carolina Experiment Station.

Holding Gate Open.

The accompanying diagram shows an excellent method of holding open a gate



FOR HOLDING GATE OPEN.

in a wind. A is a piece of inch board four feet long, notched at B and slanting at the lower end. C is a bolt through the stake and on this the stay works freely. On opening a gate the lower board slides up the slant and lodges in the notch until liberated. This is a good thing; I have tried it myself.—James Skelton of Niagara-on-the-Lake, in Practical Farmer.