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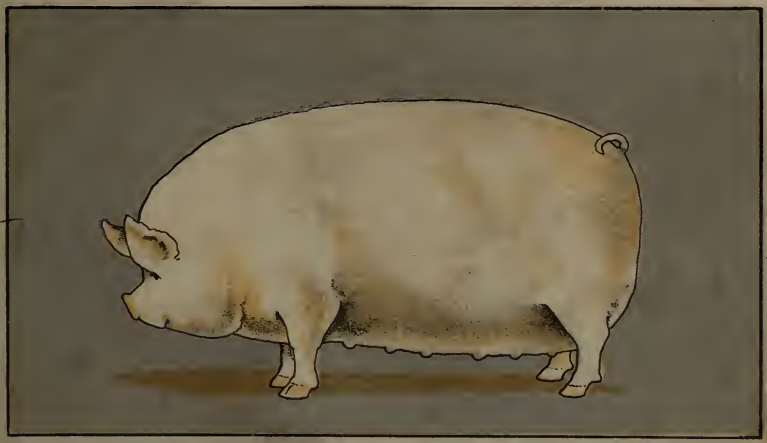
ON COWS·HOGS & SHEEP



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PART I.

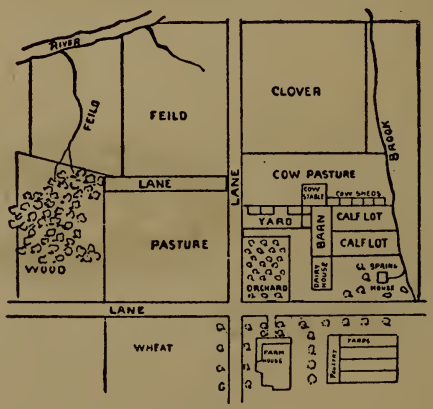
PRATTS POINTERS ON THE COW

CHAPTER I.

POINTERS FOR DAIRYMEN

Dairying as a branch of mixed farming may be conducted on any arable farm. Exclusive dairying should only be conducted where all the conditions are favorable. The following suggestions should be duly weighed by those who propose to engage in this business.

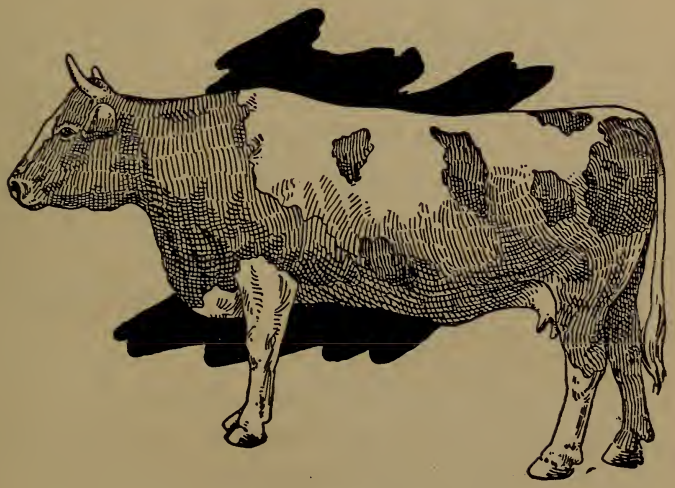
1. The conditions that are favorable to dairying include a reasonably fertile soil, good grazing land, an ample water supply, healthy cows that are good producers, suitable shelter summer and winter, proximity to a creamery, a cheese factory or a shipping station or city in which to dispose of the produce.



PLAN OF DAIRY FARM

2. Dairying of the first kind may be conducted with dual or straight dairy cows, depending on the extent to which beef is grown. Dairying of the second class should be conducted only with straight dairy cows.

3. Because of the insidious and harmful character of tuberculosis, and because of the legislation that is being continually enacted against the sale of milk from dairy herds so infected, no efforts should be spared to begin



SHORT-HORN COW

the work with cows absolutely free from it, and to keep the herd free from it all the while.

4. The aim should be to grow on the farm, as far as this may be practicable, all the food fed to the cows, as this may ordinarily be more cheaply grown on the farm than obtained by purchase.

5. Whatsoever may be the breeding of the dams, it is absolutely essential that good pure bred sires only shall be introduced into the herd, that the character of the transmission may be such as to keep up the standard of possible production.

6. The aim should be to test the producing power of the cows by keeping a sufficient record of the quantity and quality of the milk produced to make easily possible the elimination of non-paying producers.

7. Where practicable, pork raising may be made an adjunct of dairying, as it should tend to further swell the profits from dairying.

8. The dairyman should love his work and centre his energies on it if he is going to succeed.

SELECTING DAIRY STOCK

Dairying may be conducted with pure bred cattle or grades. When conducted with pure breds the aim is to add to the profits by selling the surplus progeny for a larger price than could be obtained for grades. Only a limited number, however, have skill and business tact sufficient to enable them to breed pure breds with complete success. For the ordinary dairyman well chosen grades are better. They are more suitable because they may be obtained more cheaply, and because they produce just as well in the dairy.

AYRSHIRE COW

The pure breeds of dairy cattle in the United States are: The Holstein, Ayrshire, Jersey and Guernsey. The Holstein are noted for the large quantity of their production in milk, but which is ordinarily less rich than milk obtained from the other breeds. The Jersey and Guernsey are less productive in milk, but the milk is richer in butter fat than that of the other breeds, the Guernseys being of larger size than the Jerseys. The Ayrshires are as it were a mean between the other two in quantity and quality of milk. Another breed, the Dutch Belted, are practically of the same origin as the Holstein, and resemble them much in their producing power.

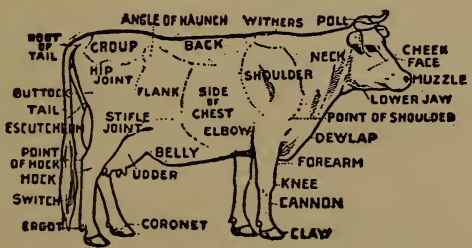
The Brown Swiss, Milking Shorthorn and Devon breeds are sometimes introduced into the dairy, but the aim should be to use them, if used, on the arable farm where dairying is only one phase of the work undertaken. The male progeny of all these are fairly suitable for being grown into beef and especially into baby beef should this be desired.

When grades are selected the cows should have good milking form, should possess good stamina and should be of fair size for the class of the grade. Apart from these the blood lines of the grades and the admixture of the blood elements are of but little moment, as will be shown under the head of breeding dairy cattle.

The form of all good milk producing cows is considerably alike. The points of difference are not of great moment. In the pure breeds, they relate to such features as size, color and the curvature of the horns. In grades they refer to the same, but in a less degree.

When selecting a good dairy cow, look first for good length and depth of the body, that is the barrel. Second, for such evidences of refinement in form as are seen in a head and neck inclining to long and slim, thin and sharp withers, thin thighs and rather fine limbs. Third, for evidences of abundant milk giving as shown in a shapely, evenly quartered udder, pliant when empty, with medium sized teats, and as shown in long, relatively large

and tortuous milkveins, going into the body through large openings. Fourth, for stamina as evidenced in a relatively wide lower chest. Fifth, for a nice pliant skin inclining to thin rather than to thick. Also look for relatively good size for the breed or grade. Among the other points of considerable importance are a rather broad mouth, a bright and large eye, and broad and deep spacing between the ribs. The males must of course have large development of head and neck, also chest; also less refinement in the sense of cleanliness and thinness of the parts.



BREEDING DAIRY CATTLE

The aim should be to breed on the dairy farm the cattle that are kept thereon, to the greatest extent practicable. Such breeding properly conducted will in a few generations lead to a high standard of production. It makes it easily possible to keep out tuberculosis, abortion and some of the other communicable diseases, which work so much havoc in otherwise well-organized dairies. When

the cows, or some of them are purchased, the danger is always more or less present of bringing in disease, and especially those diseases, tuberculosis and contagious abortion, which are the nightmare of the dairyman. Even the tuberculosis test applied at the time of purchase may not always prevent the entrance of the disease, as it may develop in animals in which the germs of the disease had found lodgment but a short time before the test was made. But the city dairyman can ordinarily obtain his cows in no other way than by purchase.

When breeding pure breds the most important object sought is suitable and high production in the cows. This is usually best obtained from high-producing dams and good sires, descended from ancestry that were good performers especially in three or four of the more present of the generations. But attention must also be given to all the requisites called for in the scale of points established. All of these have a money value in pure breds, even fancy points, that is, such points as relate to shades of color and curvature of horns, may not be disregarded.

When breeding grade cows for the dairy, the process followed should be that known as up-grading rather than through the crossing of breeds. It is accomplished through mating the females with pure bred males, and always chosen from the same breed. By such breeding

the form of the females in all leading essentials will be brought practically up to that of the standard for females of the breed from which the sires have been chosen, in about four generations. This result can be accomplished with foundation females practically without any clearly defined breeding. It implies of course that to accomplish such an end thus quickly, the necessity for the careful elimination of all inferior specimens is continually present. To bring up the milk-producing qualities to a similar standard may call for a longer time, probably one or two years more, as it is not easy to improve rapidly qualities that relate to milk production as those that relate to form. The constant and persistent elimination of inferior animals even among pure breds is absolutely necessary to the maintenance of a high standard in the dairy, whether it relates to individuality or to production.

REARING DAIRY COWS

When choosing calves intended for future milking in the dairy, it is greatly important, (1) that they shall be the progeny of cows that have been good performers in the dairy and what is more important even, that they are of the more recent generations of the ancestry that have themselves been good performers. (2) That they are chosen as far as practicable from cows that are not far from the meridian of their vigor and highest usefulness, and in no instance the first calf produced, especially from

a quite immature cow. (3) That they shall be possessed of good promise at the time of birth.

The calves should be so fed that they will make sufficient growth, that while growing the tendency to free milk production shall not be hindered, and that symmetry of form shall not be disfigured as a result of the feeding. Sufficient growth can only be secured through feeding enough of food possessed of a sufficient amount of nutriment to secure that end. That will involve the feeding of some grain during the milk period and to some extent infrequently. The tendency to free milk production may be hindered by feeding that will result in too high a condition of flesh during much of the growing period. Symmetry of form may be marred to a considerable extent by feeding quantities of liquid so excessive during the milk period that undue paunchiness may result, or by feeding foods too concentrated and so deficient in quantity as to lead to too little of paunch development.

The dairy calf should be fed in outline as follows: The first meal should be taken from the dam by the calf itself, and, of course in the usual way. It may even be wise to allow it to take three or four meals similarly. The object is to start digestion in the right manner, and in no other way can this be accomplished so well. The calf should then be allowed to become quite hungry to prepare it for hand-feeding. When learning to drink, the

calf should be given the hand until it will take milk without it. New milk should be given in three or four feeds daily until the calf is one to two weeks old. This expensive food is necessary in order to give the calves a proper start.

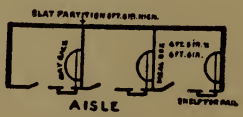
At the end of one to two weeks, the substitution of skim milk for the new milk should begin. It is done by withholding a very small quantity of the new milk the first feed, and adding a trifle more of the skim milk than was withheld of the other. This change goes on increasingly until only skim milk is being fed. This change may be accomplished in from one to three weeks, according to the vigor of the calf.

As soon as this change is begun, some oil cake or ground flax should be added to the milk, as much as the calves can take without producing too much of lowness in the digestion, a small tablespoonful may be enough to begin with. This should be continued during the milk period, and it may be for sometime subsequently. It is given for the purpose of supplying cheaply the nutriments in the cream that were withheld by this system of feeding. This should not be fed to that extent of making the calves over fat. Some grain should be added, as much as the calves will take until the milk period is ended, after which it may be necessary to restrict somewhat the amount fed. No grain is better adapted for such feeding than equal parts in bulk of wheat bran and oats, the latter being fed

ground only for a short time at the first. Such food is most excellent for building up good, healthy, muscular frames.

The fodder given should be of the best. It should be fine, whatsoever may be its kind. Fine clover, fine alfalfa, fine vetches, fine peas and oats grown together; all these are excellent. They should be cut at an early stage, that is, before they become much woody. Succulent pastures of almost any kind of young grass will be suitable, other pastures include dwarf Essex rape, vetches and oats, and other grains grown in admixture.

Various features of management are greatly important. During the milk period they should be fed milk only in moderate quantities, and in a pure and cheap condition. The milk should always be given in clean pails. They should have access at all times to pure water even during the milk period. The stables should be clean and well bedded all the while, and the calves should be given access in addition to a sheltered yard that they may have ample exercise. This is greatly helpful to the maintenance of stamina.



After the period of calfhood, the aim should be to so manage and to so feed, that development shall be con-

tinuous and ample, but not excessive until maturity is reached. The feeding should be such that the animals shall carry a fair amount of flesh all the while, but the flesh should come from foods that are not overheating or over-stimulating, that is that are not over-carbonaceous. The more that such food can be obtained from pastures, the better will the results be. Such foods furnish a naturally balanced and suitable ration, and in taking it the animals are getting that exercise in the fresh air that is so helpful to strong development. Animals of this age will not be harmed if kept much on pastures a little sparse, as it will compel them to take free exercise. The common mistake consists in keeping the animals too lean.

The food fed in winter during the period following calfhood and preceding cowhood may be simple and cheap. It may consist almost entirely of fodders and those that are cheap, as straw of certain kinds may furnish a considerable portion of it. A little light grain may be necessary, where much straw is being fed. Some field roots, as mangels or rutabagas, may also be very helpful in regulating the digestion and in promoting good growth.

All things considered, the heifers should not come into milk under the age of twenty-four months and probably thirty months would be better. Breeding and milking at an age too immature puts a tax on the animal which will lessen size and lower stamina. The tendency to-day it to breed the females at too young an age.

IMPROVING DAIRY CATTLE

Dairy herds may be brought up to a higher standard of productiveness by judicious breeding, that is judicious up-grading, by keeping milk records, by testing the milk, and by the careful elimination of unprofitable animals.

As intimated previously, the sires should as a rule be chosen successively from the same breed,

In breeding pure-breds, this is imperative. The necessity for following it in breeding grades is apparent from the fact that the progeny will inherit more properties from the sire than from the dam. The ponderance of such inheritance will be equal to the measure of the greater prepotency of the sire as compared to the same in the dam. Should a male of another pure breed be used in the next mating or in any succeeding, a factor is introduced that lessens improvement in the direction first sought, and diverts more or less the concentration of properties that will conduce to securing a certain end. Hence it is that the place for the cross breeding of dairy cattle is not a large one.

The keeping of milk records enables one to know just how much he is getting from each cow. It is usually considered sufficient to furnish an approximate estimate of production by weighing the milk of each cow twice or three times each month, and averaging the daily production for each month by the average of these weighings.

In this way, a fairly correct idea may be thus obtained of the relative production of each cow, at least in milk. Of course the record is more complete if the milk is weighed and the record made of it at each milking. Such records take much less time than is generally supposed.

But the milk record does not tell all the story. The milk should be tested at least two or three times a month to furnish a basis for averaging the percentage of the butter fat in the milk. The necessity for this is based on the fact, that while the percentage of the fat in the milk of one cow may be less than three, the percentage of the same from another cow may be more than five. When these tests are made and milk records are kept, the exact return from each cow may be ascertained. The milk tests may be made by the farmer himself, or by some member of his family. If the dairyman ascertains by close observation or what would be better still by weighing enough of the food to furnish a basis for estimating the total annual cost of the same, he further enhances the value of the information obtained by weighing, and testing the milk, this will enable him to eliminate, on the basis of non-profit or of low profit, the cows that should be discarded.

The non-ability of a cow to breed well freely in advanced age, or for other reasons, furnishes an additional basis for elimination. If a cow does not breed regularly or fairly so, she will not, of course, be able to give milk as freely as if she renewed the lactation period regularly.

The age at which cows should be turned off in the dairy cannot be given by any hard and fast rule. Some cows can be kept with much profit beyond the age of 12 years and other cows are past their best at 7 to 8 years.

THE FOODS CALLED FOR

Cows in the farmer's dairy can be kept most economically and profitably when the foods cover a wide range. They should have pasture, soiling food, fodders and grains in a proper succession or in a suitable combination. Cows in the city dairy must be kept all the while on fodders and grain foods, which means that the expense of feeding them is relatively greater.

Usually the farmers' cows may be kept more cheaply on pasture than on any other kind of food, but relative cheapness in this respect depends much on such conditions, as the relative price of lands, the extent of the area available, the suitability of the land for producing pastures and the breed or rather relative size of the cows. The lower the price of lands as a rule, the cheaper relatively can they furnish pasture. The larger the area available the longer can the feeding of soiling food be delayed. The higher the adaptation of the ground to produce grazing, the more cheaply relatively will it be produced. Cows with heavy bodies require more abundant grazing than other cows, as they are less well fitted for the active exertion necessary to gather food from pastures.

The pastures east of the Mississippi may include many varieties, according to the locality. On rugged lands the best all round grass that grows over large areas is Kentucky blue grass. The best mixture on the average arable lands in the North is timothy and one or more of the clovers. The best tame pastures temporary in their nature in the North on the low lands, are a mixture of clover or the clovers, timothy and red top. In the South, the best pastures include Bermuda grass, orchard grass and Japan and Burr clover. The best permanent grass on rugged lands in the North is Kentucky blue. Permanent pastures which contain mixed plants are best grown on low lands. They may be made up variously, but in all instances they should contain several plants and so chosen that they will grow in succession, so as to provide pasture practically through all the season. The plants that will furnish them, include alfalfa, several of the clovers, red top, timothy, orchard grass, and in some instances, Crome grass and Kentucky blue. In dry areas west of the Mississippi, a mixture of cereal grains is frequently sown for pasture.

Soiling food is food that is cut and fed green to the stock. The successful dairyman on the farm must grow soiling food for his cows. This food supplements the pastures when these fail. Supplemental foods include winter rye, alfalfa, red clover, peas and oats grown together;

vetches and oats grown similarly, millet, cow peas, soy beans, corn sorghum and in some places the non-saccharine sorghums. The most important of these are alfalfa, peas and oats and corn. Corn in the silo, makes one of the best green foods for winter that can be obtained. Field roots, especially mangels may be thus used, and also sugar beet pulp, but these are not usually so easily obtainable as corn.

The best fodders for cows in milk include, alfalfa, clover in its several varieties, mixed hay, a mixture of field peas and oats, fodder corn and sorghum. In the South cow pea hay and soy bean hay are much prized. It is greatly important that all these shall be cut at an early stage of maturity, that they shall not be under nor over-cured, and that they shall be free from must and mold. Some straw may also be used betimes, but only in small quantities and along with concentrated foods.

Grains, that is concentrated foods, should in nearly all instances be fed along with fodders, howsoever excellent the fodders may be. The necessity for this is based upon the fact, that a cow has not the capacity to digest enough of fodder to result in the maximum production of milk. It also furnishes an easy way, or at least a practicable way of feeding a balanced ration, that is a ration which will contain enough of protein and carbo-hydrates respectively to produce the best results. For instance, alfalfa is a protein food. If alfalfa only is fed, the cow

will consume an excess of protein and too small an amount of carbo-hydrates. Corn is a carbonaceous food. If the cow is fed corn only, the protein will be deficient, but by feeding the two simultaneously, a ration exactly suited to her needs will be fed. Protein foods are chiefly concerned in making flesh and milk and carbo-hydrate foods in sustaining heat and producing fat. The proper combining of foods is a study in itself. Feeding standards now easily accessible, will make the study of this problem much easier.

PREPARING FOODS FOR FEEDING

In many instances, in fact in most instances, fodders may be fed without any preparation other than that which comes as a result of cutting at the proper stage of growth and of curing properly. When these foods are possessed of sufficient palatability, they may usually be fed directly and to the extent of the capacity of the animals to consume them. When they are lacking in palatability this may be improved by running them through a cutting box and mixing with them more or less of some kind of meal. The consumption of those foods will thus be increased and a substantial saving may thereby be effected or at times, when better fodders may be scarce and dear.

Field roots may be fed directly and without preparation when not over large, when too large for such feeding they should be sliced or pulped. When pulped, the con-

sumption of cheap fodders will be increased by mixing with them when in the cut form, pulp alone or with meal added. This will apply also to sugar beet pulp, but it may be necessary frequently to feed the pulp alone.

Nearly all kinds of concentrates should be fed in the form of meal, to aid in their more complete digestion. As a rule, the aim should be to feed them with some bulk product, as cut fodders, to diffuse them for the more complete penetration of the gastric juices. No bulk product is better suited for such admixing than corn ensilage. When thus fed, the concentrates are ground still more finely by being chewed in the form of cud, and this adds to their more effective assimilation and absorption into the system.

By growing fodders to the greatest extent practicable, and by combining with these, ground concentrates, the necessity for purchasing great quantities of mixed feeds for the farm dairy and transporting them long distances may be greatly reduced, if not entirely obviated. Some of these foods are valuable, others of them are less so; all of them, in the very nature of things are dear.

The bulk quantity in some of them is composed of very inferior material, such as cows would not consume alone. Its identity is concealed through grinding, and the consumption is increased through sweetening the product by admixing with it molasses or sugar of low grade.

FEEDING FOODS

Whether cows should be fed two or three feeds per day is a disputed point among practical dairymen. If fed a sufficient quantity at each time, two feeds per day will probably be as satisfactory as more. Many dairymen have adopted this plan. It enables the cows to take more rest than when fed more frequently, and this fact has an important bearing on milk elaboration.

The quantities of the grain to be fed, are influenced by the character of the fodders, by the kind of the grain, and by the amount of the milk given by the cow. When the fodders are essentially protein in character, as when beginners are fed, about one-half the grain will be called for to effect a given end as when carbonaceous fodders are fed. For instance, good alfalfa would not call for more than half the grain called for by good timothy fodder. When the grain fed is much condensed, as in the case of corn or rye, a less quantity is fed than if condensed, as in the case of oats. The rule is now being pretty generally accepted to feed one pound of grain for every three or four pounds of milk given by the cow, at least up to a certain limit.

The combinations in which the grain foods are fed, depends largely on the character of the fodders and of the foods themselves. When the fodders are rich in protein the aim should be to feed grain rich in carbohydrates

as corn. When the fodders are rich in carbohydrates as sorghum, the aim should be to feed concentrates rich in protein, as wheat bran, oil meal and cottonseed meal. The proportions of each to be fed will be similarly influenced.

Field roots, as mangels or carrots, may be fed to any extent that may be desired. By such feeding, is meant that no harm will follow such feeding, unless it should prove too costly. The same is true of sugar beet pulp. But turnips and rutabagas should not be fed per day in greater quantity than at the rate of say one peck, lest some taint should be imparted to the milk.

In the New England States, corn ensilage should be used as the basic roughage. It should be fed at the rate of thirty to forty pounds per day. The cows should be given all the hay that they will consume, whether fed as mixed hay, clover or rowen. The concentrate feed, of which a considerable proportion is usually purchased, should be cornmeal, wheat bran, cottonseed meal or gluten meal, fed in the proportions of 2.1 and 1 parts by weight.

In the Northern States, including Minnesota, Wisconsin, Michigan, Ohio, Pennsylvania and New York, good corn silage should be fed at the rate of thirty to forty pounds daily, and all the good clover or alfalfa hay that the cow will consume. As concentrate she may be given a mixture of cornmeal, wheat bran and cottonseed

meal, in the proportions of 2.1 and 1 parts by weight. In some instances it may be well to feed only wheat bran with the cornmeal, and in others equal parts of wheat bran and ground oats. The quantity fed per day in these States with leguminous fodders should never exceed ten pounds and usually five to seven pounds will be ample.

In the Northwestern States, cows in milk may be fed various kinds of hay, such as can be safely raised. There is no reason why corn silage should not be fed, but it cannot be grown in quantities so large as in other States. The concentrate will most commonly consist of such foods as ground barley, speltz or millet, ground oats and wheat bran equal parts by weight. In some instances wheat and oats grown together may furnish the sole concentrate. The feeding of such food is to be commended where it may be readily grown.

In the States with Illinois and Missouri as a centre, and in all the States which border upon these, one of the most economical rations is corn silage with clover and alfalfa, for roughage. These States grow corn abundantly, hence the silage has in many instances a large proportion of corn in it. This means that the necessity for heavy grain feeding where this condition exists will be so far reduced. The concentrate high in favor is corn, cotton-seed and gluten meal, in the proportions of 2.1 and 1

parts. Cow peas and soy beans will probably more and more furnish the protein in these States.

In the Atlantic States, from Delaware to Georgia, including also Tennessee, a favorite food is thirty to forty pounds of sorghum or corn silage. The roughage fed includes clover, alfalfa or cow pea hay. The favorite concentrate is corn and cottonseed meal, given in the proportions of 2 and 1 parts by weight. Bran is sometimes fed along with cottonseed meal.

In the Mountain and far Western States, clover and alfalfa are in nearly all instances fed as the sole roughage. In some instances, however, the hay is mixed in character, as for instance, clover and timothy or oats and vetches grown together. A favorite concentrate is ground barley, oats and wheat bran, fed in equal proportions. To a limited extent on the Pacific Coast, rice meal is fed.

In the States which border on the Gulf of Mexico, from thirty to forty pounds of corn ensilage are fed in many instances for roughage, but this food is frequently supplemented by pasture. The concentrate fed is cottonseed meal and wheat or rice bran, in equal parts by weight. When corn meal is not too dear, a favorite concentrate is a mixture of cottonseed meal, ground corn and wheat bran, or rice meal, in the proportions of 2.1 and 1 parts by weight. Thus it is, that the rations will of necessity vary in the different States.

COWS IN MILK ON PASTURE

Cows in milk should not be turned out to grazing while the weather is raw or cold. Nor should they be put upon the same, while the grass is too short and immature to satisfy the cows within a reasonable period. Every hour of exposure to raw weather means a shrinkage in the milk flow. Every step taken by the cows when grazing beyond the needs of exercise, is taken at the expense of their milk production.

When turned out to graze in spring, the turning out process should be gradual. If the cows are allowed to consume all the soft grass that they will take at the first the condition of the digestion will become too lax. Shrinkage may follow in the condition of the cow, at least to some extent. Such shrinkage means lessened production some time in the future if not at the time. This may be avoided by continuing to feed meal at least for a time after the grazing has begun, and by regulating the length of the time on which they are grazed.

The aim should be not to graze the pasture too closely. Such grazing lessens the capacity of the pasture to furnish abundant grazing through the season. It also lessens the opportunity for the cows to secure food without excessive exertion, such excess in travel hinders the taking of proper rest, so essential to milk elaboration. The great mistake in grazing is grazing too close.

It is a disputed point as to whether any meal should

be fed to cows on abundant and succulent grazing, some dairymen claim, that feeding meal at such a time, though it may not enable the cow to give more milk just then, that such a result will follow later, as it will tend to enable the cow to store up in her system a residuum of flesh that will be given up in the future, and that when so given up, will tend to increase in milk production. Notwithstanding, during that portion of the season of grazing when the grasses are sufficiently plentiful to meet all the needs of the cow, the necessity for such feeding of grain would not seem to be important. But it is entirely different, should the grazing become short and dry. The feeding of some grain, or of some grain equivalent, will then become imperative, where maximum production is to be maintained.

It is quite possible to prolong the season of grazing very materially by keeping pasture in reserve for autumn and early spring grazing. This may be accomplished with some grasses but not with all, by simply setting aside a field which is not grazed in the early part of the season. No grass is better adapted to such a use than the Kentucky blue grass, owing to its habit of growing early and again late, and to the fineness of the growth. The early and matured grass is then consumed with the new growth which makes a very suitable combination for both late fall and early spring grazing.

Some plants and some pastures must be grazed with some caution by cows in milk, and some may not be grazed at all. Of the former class are succulent rye pastures, the young and abundant growth of grain in stubbles in the autumn and alfalfa. Of the latter class are rape and turnip tops. When cows in milk are allowed to graze at will on rye abundant and succulent, the milk will have a taint that is not desirable. The same result may follow the indiscriminate grazing of volunteer grain amid the stubbles. The danger from grazing down alfalfa is that arising from bloat. This danger is greatest when the cows are first turned in to graze, and it is further increased by much succulence in the plants and by dew or rain resting on the plants. This danger very considerably decreases in the semi-arid country. Some dairymen claim that in these areas the danger is entirely eliminated, a claim which though apparently correct in many instances, is not to be too implicitly relied on. When alfalfa is grown in conjunction with one or more of the grasses, this danger is not much present. Although rape pasture is excellent for milk production, it is not wise to pasture cows on it for producing milk, as it will taint the milk. The same is true of turnip and rutabaga tops, but it is not true of sugar beet tops. These may be profitably disposed of in that way, until the weather becomes too cold for such outdoor feeding.

FEEDING SOILING FOODS

The cutting of grains for soiling food should begin when they come into head, as a rule, and may continue until they are nearly ripe. Feeding them as soiling food at a later stage of growth would not serve the purpose so well, because of the less succulence then possessed by them. About the same things may be said about the cutting of the grasses. The cutting of millet may begin when any considerable number of the advance heads are out, and may continue until the grain in the former is fully formed. The cutting of clovers and alfalfa may begin when the first blooms appear, and may be continued until some of the heads show sign of ripening. The cutting of clovers and vetches may begin when the first blooms appear, and continued until the remaining blooms are found only on a portion of the top of the stem. The cutting of these may begin earlier, but at such a stage the bulk produced will be too little. From what has been said, it will be very evident that the period for feeding each of these will be short, save in the case of alfalfa, but it may be lengthened by sowing such of them as can be sown thus at intervals. Where the area of the alfalfa is sufficient, it alone may be made to provide soiling through nearly all the season, by cutting as many crops in succession as the soil will produce. Where irrigation is practiced, enormous crops of soiling food may be thus obtained in one season.

Such soiling food is fed by cutting it with scythe, mower or reaper from day to day, and feeding it out in mangers or in racks, or in some instances on the grass. This means that it is to be drawn daily, should the weather be showery, however, it may be well to draw enough at once at such times, as may last for two or three days. It may be fed once or twice a day, according to the needs of the animals.

The cutting of corn may begin as soon as it is in full tassel, and may continue until the crop is fully matured. Corn may be drawn and fed in the same way as the fodders mentioned above, but is very frequently strewn over a grass field on which the cows may be grazing, varying the place each day on which the food is to be fed. By growing earlier or later varieties, or by varying the time of planting, the season of feeding corn may be much prolonged. It is usually wise also to have enough of this crop on hand to justify continuing to feed it thus in the mature form from the shock, as it feeds well along with the fresh grass started by the autumnal rains in the pastures.

Sorghum may be grown in practically the same way as corn and also fed in the same way, especially in areas that lie well northward. In the Southern States two and sometimes three cuttings of sorghum may be obtained in one season for such a use. It is better to let the sorghum

get well grown before beginning to cut it, that is to say, is has more nutriment at an advanced stage than earlier, sorghum is sometimes grown broadcast for such feeding, and is cut with the mower, put up into heaps or cocks, and is fed from these during the autumn. Another way is to grow it in rows like corn, to cut it with the binder, stand it up in shocks and then feed it out as outlined above.

THE SILO IN THE DAIRY

Where corn, sorghum and in some instances the non-saccharine sorghums, can be grown readily, the silo is simply indispensable in dairying. In no other way can succulent fodder be provided so cheaply, and in no other way can it be provided in a form more suitable.

Many crops can be siloed successfully. In fact, almost any crop can be kept safely in the silo if put in in the right way, but after all it would not be stating it much overstrong to say, that corn is virtually the one silo crop. Nearly all other crops may be cured and fed in that form even more cheaply, than in the form of ensilage.

In the evolution of silo building, two styles only seem likely to survive. One is the roundstave silo and the other is the round cement silo. Which of these should be preferred ought to be determined by the relative cost of the material in proportion to the duration of the struc-

ture. The cement, sometimes called the concrete silo, is the most enduring by far. But when building it, every care should be taken to have the walls true within, to insure regular and even settling of the ensilage. The silo should not be sunk far down into the ground as a rule, because of the increased labor that will be involved in getting out the ensilage. It should run far upward. Twenty feet should be regarded as the minimum height suitable, and say thirty feet as the maximum. The silo may be made of any width, but usually should not be wider than twenty feet. When too wide the exposed silo on the top of the mow will dry out too much, because of too prolonged exposure. It is much better to have two silos, each being of reasonable widths, than to have one unduly wide. The silo should be placed conveniently for feeding from it. To promote such an end it should be within the stable where practicable. The danger of the silage freezing is also lessened when the silo is thus located. The size to build can easily be determined, if it is remembered that a cubic foot of silage weighs about forty-five pounds.

In filling the silo, by all means run the corn through a cutting box, and elevate it into the silo by a blower attachment. Have it evenly spread and well tramped in the silo. No sooner has the silo been filled than feeding may begin should this be desired. Corn may be grown for the silo as it is grown for the grain, or it may be

grown in drills as it is usually grown when fodder is the chief object sought. It is best put into the silo at the glazing stage but may also be put into the same earlier or later if done in the right way.

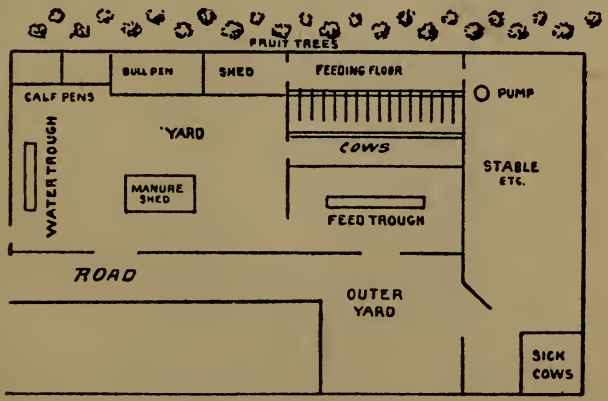
The feeding of silage is always begun from the top. It is thrown down into the feed cart or alley through openings made in the side of the silo at suitable distances, when building it. It furnishes excellent food for horses, cattle and sheep when properly fed. It should never be fed as the sole food to any kind of stock for a prolonged period, as certain hazards attend such feeding. It should be fed with caution to horses at work, as it will purge them. To dairy cows it may be fed freely for prolonged periods, and to the amount of not less than thirty to forty pounds a day.

No summer food is more suitable for dairy cows than ensilage. Cows may be brought in from the pastures when succulent, and yet they will eat ensilage greedily when it is fed to them. Consequently when there is on hand an ample supply of such food for summer feeding, it may not be necessary to grow any other form of soiling food. Silos for summer use should be small rather than large, as the amounts of food called for in summer are not so large usually as those fed in winter, since they are supplemental in character. Far too little interest is taken in furnishing this class of food.

DAIRY STABLES

DAIRY BARN

In a work of this nature it is impossible to go into minute details regarding stable construction, but a few general principles may be submitted which should be borne in mind when building stables:

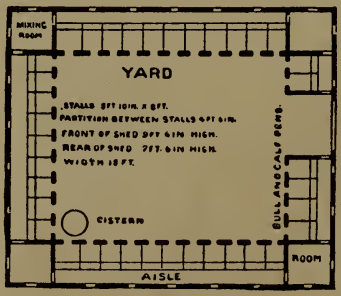


STABLE, PEN AND YARD

1. The aim should be to store food and litter to the greatest extent practicable in the loft above the stable, so that both may be easily supplied and in good condition, in all kinds of weather. This means that the structure will be on something of the basement plan.

2. The aim should be to have the floors of cement, as wooden floors cannot be kept from imbibing hurtful odors. If such floors should be considered cold, a layer of boards may be laid over the floor of the stall.

3. All the internal fittings of the stable should be simple, to keep down the cost, and for the further reason that they are also the most effective usually. These fittings should consist of wood to the least extent consistent with effectiveness, as metal fittings can be more effectively cleaned.



COW SHED

4. While any kinds of stalls are used, there is none perhaps that is more effective, all things considered, than the stall which is about 3½ feet wide, from centre to

centre for medium sized cows, that has separations formed by a pole or scantling, the lower end of which rests on the floor just in front of the drop, and the upper end is fastened about as high as the head of the cow, and that has swing stanchions in the centre for holding the cow in place.

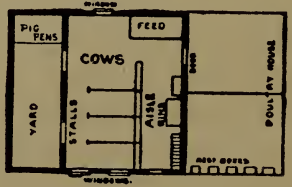
5. The mangers should be quite low and narrower below than above, nor do they need to be large. The stall floor should slant a little from the manger toward the drop, and the length from the base of the manger backward should be from 4½ to 5 feet according to the length of the cow.

6. The feed alleys are often made along the walls of the building and are about 5 feet wide. This allows for two rows of cows standing tail to tail along the building with a passage between wide enough for the removal of the droppings without inconvenience. Such an arrangement can be made in good form in a building that is about 28 feet wide.

HORSE AND COW STABLE AND POULTRY SHED

7. The drop at the rear should be, say, 8 to 10 inches deep and 12 or more wide, so that a shovel can be conveniently used in it in removing the manure. It may be conveyed away in barrows, on a sled or in carriers. If the latter can be made to dump it into a wagon for further removal to the fields, the arrangement should prove so much the more satisfactory.

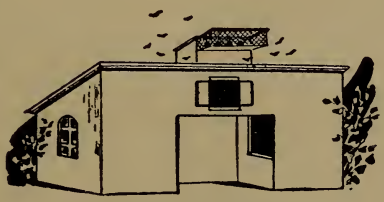
8. Where cut food is fed, a feed cart is indispensable in conveying the same from manger to manger, and the same is true of feeding the meal. The dimensions of the same will be dependent upon the amount of the feeding to be done.



CHEAP STALL

9. To keep down odors, various substances have been used. In some instances dry earth is strewn in the gutters in order to absorb the liquids in the manure. In other instances plaster of Paris is dusted over the floors, and in yet other instances, powdered phosphate rock is used. All these absorb ammonia that would otherwise escape. Where the floors can be flooded with water readily, it may not be so necessary to use these absorbents. Pratts Dip

and Disinfectant will be found an inexpensive and thorough deodorizer. Where milk is to be kept pure and sweet, too much care cannot be exercised in adopting every means that will conduce to such a result. It is the high class product that brings the high price.



OPEN COW SHED

FACTS RELATING TO MILKING

The aim should be to milk the cows in a clean and comfortable place. It should be clean first. for the comfort of the milker, second for the comfort of the cows, and third because of the great tendency in milk to imbibe odors from the surroundings. It would not be putting it too strongly to say, that milk drawn from cows amid unclean surroundings cannot furnish a really first class dairy product.

The place should be comfortable, that is, should not be too cold or too hot. In winter it should be shielded from cold winds and drafts. In summer it should be protected from excessive sunshine and flies. Uncomfortable

conditions makes the cows more restive, and adds much to the discomfort of milking. All things considered, there is no better place for milking cows than when they are in their accustomed place in the stable. This applies about equally summer and winter.

Milking should be done at a regular hour, whatever that hour is should be regularly and rigidly adhered to. Any irregularity will certainly be followed by more or less of shrinkage in the milk flow. It is not so important what the hours are for milking so that the milking shall be done at the appointed time. But the aim should be to divide the time for milking so that the two milking points in the twenty-four hours of the day shall be equally distant. This will prevent the cows from becoming unduly burdened in seasons of free milk flow, by causing them to carry in their udders milk materials that will add to their discomfort.

The cows should not be agitated before or during the time of milking. Such agitation may result before milking, from chasing with a dog, from too fast driving from the pastures in front of a horse, or as a result of threatening language or abuse from those engaged in milking. Agitation from any of these sources will assuredly exact its penalty. That penalty is a reduced milk flow. Agitation caused by fast driving from the pastures may be without design on the part of the owner or the

persons who may cause it, but agitation caused by cruel treatment on the part of the milker, is without excuse. The man who causes such agitation is more of a brute than the cow he is milking.

The milking may be done by men or women, by boys or girls, by the owners of the cows or by hired help. Long years ago the milking was done almost entirely by the women of the farm. This practice in the United States is now becoming almost obsolete, and it would seem to be unfortunate that it is so. Women will get more milk from cows, as a rule, than men, and the work itself is not undignified or unduly laborious. The mothers who chiefly milked the cows of a former generation were also the mothers who reared families who proved a blessing to the nation.

Viewed from the standpoint of utility, the ability to milk well would seem to be a greater accomplishment for the maiden of the farm than to play well at the piano. In any event it should not seem undignified for any farm maiden to aid the household by assisting in this work.

The dislike to milking so often shown by farm hands is peculiarly unfortunate for the dairy interest. It is also indefensible providing the work called for, is within the lawful hours of work, as milking cows is one of the most important items of work on the dairy farm.

The difficulty in finding satisfactory milkers is stimu-

lating effort to furnish machines that will do the work satisfactory. Some of these are at least fairly satisfactory. But it has not been proved beyond the possibility of dispute, that time is saved to any considerable extent by their use, or that they have proved money-saving in a marked degree. The most that can be said in their favor now is, that their existence has tended to relax somewhat the tension of the difficulty attending the securing of milkers. In one respect hand milking will have the advantage over them. It is this, the creating of a bond or recognition between the good kind milker and the cow, that is favorable to milk elaboration.

THE ACT OF MILKING

Milking should not be done in a dusty place. To avoid such a condition the feeding of fodder should not immediately precede the withdrawing of the milk, nor should any shaking of the bedding be attempted at such a time. There would be the same objection to feeding dry meal at such a time.

It is important that the udders and teats shall be wiped off with a damp cloth before the milking begins. This will tend much to keep extraneous matter out of the milk. In some instances a brush is used on the thighs of the cows and and rear parts generally before the wiping of the udders, but if this is done it ought to be done some time before milking.

When the milk is withdrawn it should be so withdrawn with reasonable quickness, and the udder should be relieved of all its milk at one sitting. The aim should be to withdraw it by grasping the teat in the whole hand, rather than by stripping, as the manipulation thus resulting is favorable to quick elaboration of milk in the udder. But stripping only can be resorted to when the teats are unduly short and small.

MILKING BUCKET

Some cows do not readily let down their milk. To take it from them is a labored work and can only be done by a strong hand. The primary causes of this condition are not very well understood. It is generally believed, however, that this property is transmissible, and, therefore, that such cows should not be bred from to produce dairy stock. Other cows have teats abnormally large. None but a large hand can grasp them. Such cows should be discarded even though they should be good producers.

HANDLING THE MILK

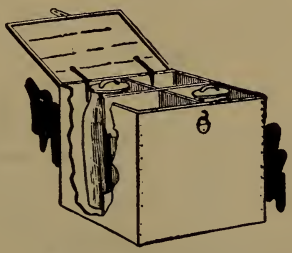
The method to be followed in handling the milk will depend almost entirely on the use that is to be made of it. Aeration is sometimes practiced, but in many instances this is not done. When the cream is sent to the factory the separation is usually made at home. When the milk is made into cheese it is sent directly to the factory. When made into butter at home the milk is of course set in pans, in some instances deep and in some instances shallow.

The aim should be to transfer the manufacture of the product to the greatest extent practicable from the home to the factory. Such a course is labor saving. It saves the members of the household very much of exacting work, and the profits to the farmer dairyman are usually as great, if not greater, than can be obtained from manufacturing at home.

When the cream is made into butter at the creamery, the separation of the cream takes place or should take place as soon as this can be done after milking. This work is best done in a milk room not distant from the stable. In fact, if properly constructed, it may be under the same roof. The cream should be sent to the creamery daily, if this is practicable.

This method of handling milk is attended with several distinct advantages. It obviates the necessity of set-

ting and churning. It furnishes the skim milk in finest form for feeding calves and swine, and before it has lost all of the natural heat. It transfers responsibility for a good butter product very largely to the creamery.



FOR SHIPPING MILK

When the milk is sent to the cheese factory, the skim milk obtained therefrom must be brought back if it is to be fed on the farm. The feeding of this product is much less satisfactory than the feeding the same fresh from

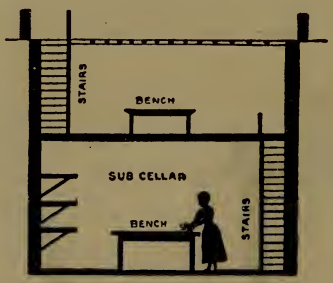
GLASS CANS

the cream separator. This means that it is much more difficult to raise good calves when milk is sent to the cheese factory than when it is sent to the creamery. But the dairyman may get his compensation in some instances from the relatively larger return obtained for cheese.

When the work is all done at home, while it may be possible to make as good and even better butter than can be made at the factory, in very many instances the product is below par. Because of this fact, home-made butter has suffered greatly in the house of its friends.

HANDLING THE PRODUCT AT HOME

When the milk is handled at home, the setting of the milk may be deep or shallow. It must be kept in a cool and clean place, and well aired.



OUTSIDE MILK HOUSE

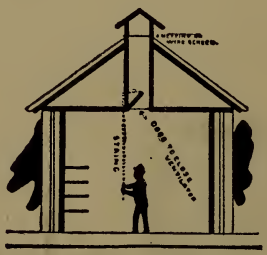
The cream is removed and collected until the quantity is sufficient for a churning. The normal temperature is from 40 to 50 degrees. The ripening of the cream for

churning is brought about by artificial heat. It is raised to a temperature of about 70 degrees, and this may be accomplished by setting the cream can in hot water. In winter the temperature of the cream for churning may be as high as 65 degrees and in summer as low as 55 degrees.

MOTION OF CHURNS

A barrel churn is the most suitable for home churning. The cream in the same should not be much more than half the capacity of the churn. This facilitates quick churning, because of the greater agitation of the cream results. The time called for in churning is ordinarily not more than 30 to 45 minutes. Then churning should cease

when the butter granules are about the size of buckshot. The buttermilk is then drawn off by using water about similar in temperature. Turn slowly for a few times and



MILK HOUSE

draw off the water. Wash or rinse a second time. Remove the butter to a worker, add some kind of good dairy salt, work it lightly and then leave it for 30 minutes. Work a second time and it is ready for being put up into pound prints for the market. These are wrapped in suitable butter paper and it is ready for being shipped.

MISCELLANEOUS FACTS

Water Supply

The water supply for dairy cows is a question of much significance. In the summer season it is easy when springs and brooks or streams run through the pastures. It is different where water congregates in stagnant ponds in the pastures in the summer season. It is not possible

for cows dependent on such a water supply to furnish milk of the purest and the best.

When water is furnished from wells the troughs should be kept clean, and mire and filth should not be allowed to accumulate about the water troughs and for various reasons, when water is supplied in a tank out of doors in cold weather, it is very important that it shall be heated in some way. There are heaters of course which may be obtained for this purpose. If cows come out of a comfortable stable and drink such water, the chill that follows will result in a lessened milk flow. If the cows have to journey some distance and then drink ice cold water, the condition is even worse. If the water can be supplied to the cows in the stall, the plan is a good one, providing the vessels into which the water flows automatically can be kept clean. One of the best methods of providing water is in a tank to which the cows may have free access when they are taking exercise in a covered shed, referred to below. In any event it is absolutely essential for cows in milk to have plenty of water, and that the same shall be pure.

Winter Exercise

The question of exercise in summer is easy, especially when the cows have access to pastures. They then take exercise at will. But it is different in winter. Some have argued that cows may be kept all the winter through

in well ordered stables, without once letting them out and without detriment to the cows. A few claim to have done this without harmful results, but the great majority disapprove of the plan.

Cows should have some exercise in winter. How to secure this for them without detriment to the milk flow may not be at all times easy. The most convenient place for exercising them in winter is in a yard, usually what is known as the barnyard. If the yard is well sheltered, it may answer the purpose fairly well, but in cold days the cows ought not to be left out very long at a time, or the milk flow will go down. An improvement on the above is a shed, which may be opened or closed in front. The cows when dehorned, may be turned loose into this, where they may remain for two or more hours. The shed should have in it a rack in which fodder may be fed.

The Bull

The case of the bull is a question of much significance. The fact should never be lost sight of that bulls of all classes of live stock are never to be implicitly trusted. This is especially true of dairy bulls, because of the extent to which the high nervous temperament is developed in them. Because of this, they should not be allowed to run with the cows at full liberty, as it can never be known when they will attempt to put in their deadly work, nor should there be any carelessness on the part of

attendants who care for them at any time. Whenever handled, it should be with the aid of a good strong brad, that is, a good strong staff with a snap at the end, which hooks into the ring which should always be in the nose of a bull after he has reached the age of one year. Nor should bulls be allowed to run with cows for the further reason, that at the time of service, they waste their energies to no purpose. Where the herd of cows is large, this waste of energy may react to the great injury of the bull. The ideal quarters for a bull are those which give him ample liberty of exercise in a paddock which should be conveniently located with reference to the stable in which he is kept.

Ice Supply

The dairymen cannot get along save in exceptional instances without a supply of ice. It is necessary to enable him to keep milk or cream at the proper temperature in time of warm weather. The ice supply should of course be laid in as far as this may be practicable at that season of the year when it is most easily obtainable. So indispensable is ice to the dairyman, that the necessity for providing it is not much less than the necessity for providing food for his cows. Of course, where ice has to be made by artifical means it is different. The ice supply may then be obtained as the ice is needed.

Salt

While salt is not in any sense a food, it is indispensable to highest production in a dairy cow. The exact way in which such an influence is exerted is not well understood, but the fact cannot be gainsaid that salt fed judiciously does tend not only to keep the cows in a finer condition of bloom, but it also tends to some increase in the butter product. In the summer season salt may be kept in the field, but protected from rain. In the stables it may be kept in a small box fastened at the side of the manger. Another way is to mix it with the food judiciously every day, or at each feeding.

PRATTS POINTERS ON GROWING BEEF

CHAPTER II.

INTRODUCTORY REMARKS

At the present time the production of dairy products in the United States is much more profitable than the production of beef on the arable farm. This, however, may change with the passing of the years. In the past, beef could be produced very cheaply on the ranges. With the gradual passing of the ranges, beef will be grown more and more on the arable farm. This will mean, first, that the breaking up of much of the range will so reduce the supply of beef, that the price will advance, and, second, that this advance in price will centre attention more on the production of beef from the arable farm. This advance in price, which is sure to come, will tend more and more to equalize the profits from dairy products and from beef products, respectively on the arable farm.

THE FUTURE SOURCES OF SUPPLY

The future sources of beef supply will be obtained, first, from straight dairy cows; second, from straight beef cows; third, from dual purpose cows, and, fourth, from range stocks. These are increasingly important in the order named. Beef obtained from the first three sources will be grown on range pastures, and on farm pastures that are too rugged for tillage. By the straight dairy cow is meant a cow that is milked during the period of lactation, and that is kept mainly for such a use. By the straight beef cow is meant a cow of beef conformation that suckles her own calves. By the dual cow is meant a cow that is kept for the purpose of producing milk in the dairy and of furnishing calves that can be grown into beef. Range cattle are or ought to be essentially of the beef type.

BEEF FROM DAIRY COWS

Beef may be grown from dairy cows, but the beef thus grown will not bring the same profit as that grown from cows of the other classes. This is not so much because of slower increase for the food fed, as because of the lower price which such meat sells for in the market. The difference in price increases as the animals become older, hence, when beef is furnished by animals of the dairy breeds, these should be marketed at an early age. Young beeves from Ayrshire, Guernsey and Jersey

breeds should be marketed at an age not exceeding say 12 or 15 months, if the greatest profit is to be realized from them. Those from Holstein or Brown Swiss cattle may be grown to the age of 24 months, but will probably bring more relative profit when sold under 18 months, as beyond that age more of coarseness is developed. Cattle for beef may also be obtained from dairy cows by mating high-class bulls of one of the beef breeds with straight dairy cows. The progeny of these are fairly well adapted to the production of beef and may frequently be kept with profit until 24 months old, but may also be sold at a younger age, should this be desired.

All of these will be grown essentially on skim milk and adjuncts during the milk period. The food and treatment for these during the milk period will be essentially the same as for hand-reared dairy calves with the difference that more meal that is carbonaceous in character will be fed. Both corn meal and oil meal should be freely fed, with a view to maintaining good flesh from the first. A mixture of equal parts by weight of ground corn and ground oats will make a good meal ration, both during the milk period and subsequently and it will be much improved by adding from 5 to 10 per cent. of oilcake. The meal ration should continue until the animals are sold. When they are on good, juicy pastures a less amount of meal will suffice than at other times. Several weeks before marketing the proportion of the

meal for fattening should be increased. When sold at the ages named and in good finish the beef usually sells for a good price, but should they become older than the ages named, the indications of increasing coarseness become more apparent and the cut in the relative prices paid is more and more pronounced.

Of course it is only permissible to use beef sires as indicated when the progeny are not to be retained for dairy uses. With pure bred cows such breeding would not be permissible, but with grade dairy cows the place for the same may be one of considerable importance.

BEEF FROM BEEF COWS

When beef is produced by cows kept solely for such a use, they are maintained usually on the range or on farms where the pastures are extensive, the finishing in both instances being done on farms that produce abundant supplies of food, especially such fattening foods as corn. In some instances, however, such cows are kept where the conditions of farming are intensive. In any case the calves are reared on the dams during the milk period.

When the animals are grown on pasture and winter fodders, they do not become sufficiently matured to take the market in best form until at least three years old and in some instances not until four years. Before they can take the market in best form, they must be put into the feed lot or stall. But when grown under intensive con-

ditions, they can be made to take the market in good form between the ages of say 18 and 30 months. To accomplish this, they must be given all the food that they will eat and suitable in kind, from the day of birth until they are shipped to the market.

The dams which furnish this class of beef may be of any grade or admixture of blood, providing such blood comes essentially from one or more of the beef breeds. The shorthorn breeds are of best size. The Hereford grades are excellent grazers on the range. The Aberdeen Polls furnish a very high quality of beef, and the Galloways are great rustlers and are very hardy. On the arable farm the best results will be obtained from grades that are nearly pure in blood. Such high grading is not so essential in cows on the range which are less pampered.

Usually when beef is grown on the arable farm, it is the better plan to have the calves come in the autumn or early winter. This will hold true of calves produced by dairy, beef or dual cows. The calves can then be better cared for during the milk period, they will do better relatively on pasture the first summer, and they will also winter more satisfactorily after the first summer. But on the range it is not practicable to have calves come at any other time than in the spring.

When beef is grown under intensive conditions from this class of cows, the calves are more commonly kept in

box stalls in which they are loose. In these they are graded so that those of approximately the same age will be together. They are allowed to suck the cows three times a day at first, twice a day when older and toward the end of the milk period once a day. They are thus suckled until about six months old. The cow is dry the remaining six months of the year. If the calf cannot take all the milk from the cow for a time, what remains in the udder should be milked out once or twice a day in order to stimulate milk production to the utmost.

Meal should be furnished to the calves as soon as they will take it. Oats should furnish a part of this meal, bran another part, and some carbonaceous meal another; oil meal should also be given. The following mixture will be very suitable: Bran, 2; oats, 4; corn or barley, 3, and oil cake, 1 part. These proportions relate to weight rather than bulk. Of this the calves may be allowed to eat at will until at least four months old, after which it may be necessary to place some restrictions on the amount of meal fed. They should also be fed a liberal supply of sliced field roots and good fine and well cured fodder. Water should be kept in the stall.

Such calves will be weaned about the time that grass becomes plentiful. When on grass 2 to 3 pounds of meal fed daily will sustain continuous development. As the pastures dry, the meal may be increased. When brought into winter quarters the meal may be still further in-

creased until so much as 8 pounds may be given daily during the last months of the feeding. The calves would then be ready to turn off as baby beef at 18 months. But if desired to carry them until 24 or to 30 months, a less amount of meal would be fed. But the fact should not be overlooked that to make highest profit from such animals they must be kept pushing on from birth until ready for the market. The profit from such a line of work comes from the early age at which the animals are finished and the high price which such meat brings on the market.

The objection to growing meat thus is that it does not bring so much of a return as is obtained from milk at present prices, but it does not involve so much or so exacting labor.

A calf thus reared will weigh say 800 pounds at 12 months, at 24 months it will weigh say 1200 pounds. These weights are conservative and may be taken as averages from good feeding. At 6 cents a pound, live weight, such an animal would bring $72.00 at 24 months, at 7 cents it would bring $84.00, and at 8 cents it would bring $96.00. For question of profit, therefore, hinges largely on the price paid for the meat. If the cows can be milked, however, and if calves from them can be reared nearly as good, though not quite so good, then another profit comes in from the milk. That this can be done from dual cows is shown below.

When calves are thus reared on the dam, it is possible to rear three good calves on one cow, providing the calves can be obtained when of suitable age. When the cow is fresh she suckles her own calf and another until the two are about 4 months old. Then a third calf is put upon the cow and is allowed to nurse until the same age has been reached. Any deficiency in the milk supply may be made up by supplemental feeding. The profit obtained from a cow managed thus may be greatly increased. The weak point about the arrangement is that it may be difficult to get suitable calves.

BEEF FROM DUAL COWS

Much of the beef grown in the future from the arable farm will come from what may be termed dual purpose cows. These will furnish a goodly supply of milk, not so much it may be as a good dairy cow, and a goodly supply of meat, not quite so much and not quite so good as from a straight beef cow, but good in both respects. The best dual cattle come from Shorthorns of the milking strains, and from Red Polls. The Brown Swiss, classed by the breeders as dairy, are undoubtedly dual purpose with their large frames and heavy hams.

The calves from these cows are reared by hand on separated milk. The method of rearing is the same as that outlined for dairy calves with the difference that the dual calves are given a larger percentage of car-

bonaceous meal. After the milk period they are managed on essentially the same lines as calves from the beef breeds, as given above. They will weigh nearly if not quite as much as the latter when 24 months old, but the finish may not be quite as high, nor the price obtained quite so good. It will not be much below that obtained for the other, however.

FATTENING BEEF FROM PASTURES

In some instances cattle grown essentially on pasture are sold from the pastures, but very frequently they are fed for a period of 3 to 6 months in feed lots before they are sold. The quality of the meat is thus improved. The profit from such feeding is dependent in a marked degree on the breeding of the animals, on the relative prices of food and meat, and on the relative buying and selling value when the animals are bought for feeding. The breeding of the animals should be such as to give them good beef form. When foods are dear, much caution must be exercised as to the choice of the same and as to the quantities fed. There should usually be the advance of 1 to 2 cents a pound on the selling over the buying price in order to insure a good profit.

The younger the age at which the stockers for feeding can be purchased, the more rapidly will they gain as a rule. Increase becomes slower as the birth period is receded from. The older that an animal becomes in order to reach a certain weight, the more the food that is con-

sumed. The food of maintenance without any growth is about half the entire amount of food consumed. From the above the wisdom of pushing animals on rapidly from birth will be at once apparent. But when cattle are grown chiefly on pastures such haste is not possible.

When the animals are put into the feed lot, the grain portion of the food should be moderate and not highly concentrated. A few pounds of oats and bran are excellent to begin with. Corn is added gradually until half the ration by weight is corn, and later half the ration in bulk may be corn. When all is going well even more than that proportion may be corn. Barley or barley and rye may take the place of corn, but if so these must be ground. During several weeks of the feeding period, toward the last, 1 to 2 pounds of oilcake fed daily will keep the animals in tone, that is it will help digestion.

The amount of grain to feed will depend largely on the kind of fodder fed. When really good clover hay and alfalfa are fed, not more than 6 to 7 pounds of grain on the average may be called for daily for animals weighing 1000 pounds, but when such fodder as the grasses, corn stover or sorghum are fed, nearly twice as much grain may be called for.

An ideal ration would be the following: 30 pounds of good corn ensilage daily, say 8 to 10 pounds of barley meal or corn and ground oats or bran, in the proportions of say 2 and 1 parts respectively by weight. The balance

would be clover or alfalfa fodder. In the absence of ensilage, field roots will serve an admirable purpose.

In some instances cattle are fattened mainly on corn in one or the other of its forms, the feeders giving as much as 18 to 28 pounds of corn per animal per day. Swine follow in such instances and glean amid the droppings, but such feeding, though commendable when corn was very cheap will not answer now. More fodder must now be used and less grain, as the fodder is cheaper relatively.

Animals that are being fattened do not of necessity call for close housing. The protection of a shed and good yard shielded from the wind will answer quite well. But the animals must be dehorned. They should be given ample bedding and a plentiful supply of water, separate mangers are not really essential. This method of fattening is greatly labor saving as compared with fattening in the stall.

In localities where commercial fertilizers must be bought in large quantities the question of feeding for beef in the winter season should be given careful consideration. When much of the food is raised on the farm and the animals fed are carefully purchased and sold and wisely fed, the feeder should get his fertilizer to the good. And in many instances, though not in all, should have more or less profit. If the animals are reared on the farm usually the profits should be greater.

NOTE

READ THIS CAREFULLY.

In treating on diseases, we have endeavored in all cases to give, in our judgment, the very best remedies, and where our own products are named we consider them the *best for the case,* and in our actual practice we should use them and no other. We manufacture the following well-known remedies for cows, sheep and hogs: Pratts Animal Regulator, Pratts Condition Powder, Pratts Cow Tonic, Pratts Calf Tonic and Pratts Hog Cholera Specific, **Pratts Bag Ointment, Pratts Dip and Disinfectant.**

At the same time, as this book is intended to be a standard work of general information upon cows, sheep and hogs, we specify other remedies in addition to our own, preferring to give other information in our possession, thereby allowing the reader the choice of remedies.

We feel it advisable to specially mention that all our preparations are known as the greatest *Animal Regulators* of the present day, strictly up to date and used and endorsed by prominent breeders and veterinarians throughout the United States and foreign countries.

Every package is sold under our affidavit, guaranteeing its freeness from poisons or other injurious ingredients and with the guarantee of "satisfaction, or money back." The ingredients are pure and wholesome, and can be used without the least fear of bad results that often follow many unreliable remedies for live stock.

Pratts Regulators control and regulate the blood, bowels and digestive organs; act as mild tonics and stimulants, and thereby cure and prevent the many diseases arising from these causes, and are used with greater success than any known preparation.

They are composed of pure medicinal roots, herbs and barks of the best quality only, and manufactured with the greatest care and exactness, the utmost cleanliness being observed.

They are quick in action, safe to use and high-grade in every particular.

In mixing them with the feed, at first it may be well to dampen the feed. When fed dry, however, be careful to see that our remedies do not sift through the feed and lie uneaten at the bottom of the trough. After the animals become acquainted with the flavor, they are eaten with a relish.

In all cases where the animal is too sick to eat make a gruel of Pratts Remedies, by mixing with warm water, and pour down the throat; where quick movement of the bowels is necessary, they can be given in large doses at first, then gradually reduce size and lengthen time between the doses, and as the animal recovers mix with the regular feed and discontinue the gruel. After the necessary movement of the bowels (in cases of sick animals), the quantity should be reduced to the amount necessary to keep the bowels natural and regular. The gruel form of feed-

ing is only required: first, when the animal needs prompt action of the bowels; second, when the animal is too sick to eat; or third, when the condition of the animal requires prompt or more than ordinary treatment. In all other cases, Pratts Remedies should be fed by mixing them with the regular feed.

The regular use of our preparations keeps live stock in such excellent condition that they are not liable to disease. Many dairies are kept entirely free from all sickness by their constant use. Their equal is unknown for standing bulls and stallions, and more than pays for the cost many times over. Oxen are healthy and grow larger; their meat is finer flavored. Calves grow quickly, robust and healthy. Swine are kept free from the common ailments and can be raised with much profit when Pratts Remedies are used. They prevent and positively cure hog cholera, except in its last stages. Sheep fed on Pratts Remedies pay largely. Lambs are strong and free from disease.

DISEASES OF COWS

CHAPTER III.

THE DAIRY COW

The cow is a hearty, healthy animal, and if properly fed and cared for, is subject to very little sickness. The dairy cow, when fed judiciously, will frequently last twenty years, but this cannot be expected if she suffers from neglect, carelessness or cruelty. The Jersey cow, while high-bred and valuable for her remarkable products of milk and butter, is more delicate than the ordinary dairy cow. Notwithstanding this, she is a favorite with the dairyman, and often purchased as the family cow. "Prevention is better than cure," and, therefore, the farmer should take the greatest care to avoid all existing or exciting causes of illness, and be quick to detect and prompt to remedy approaching trouble. A healthy animal shows unmistakable signs of its condition—the eyes are bright, coat smooth, appetite good, breathing regular and milk given in full measure. The sick cow has more or less fever, failing appetite, hot and dry muzzle and rapid breathing. The soft eyes become dull, the hair rough and tight, and all these symptoms rapidly increase, becoming more marked, unless the cause is determined and relief obtained. Illness usually arises from overfeed-

ing, exposure and sudden cold, in which immediate action must be taken. Animals are patient and without complaint until sickness is firmly fixed upon them. Only constant vigilance of the farmer can keep the dairy herd in good condition. To do this is to his interest and profit.

TUBERCULOSIS IN CATTLE

Tuberculosis is a common germ disease that affects all domestic animals kept on the farm, but is by far the most frequent in cattle. It is similar to consumption in the human family. The germ which produces it, *Bacillus tuberculosis,* is always present in the system of infected animals. It may affect any organ or tissue of the body, but is more frequently found in the lungs and intestines. When the lungs are seriously affected, a chronic cough is likely to be present. When the intestines and mesenteric glands are seriously affected, chronic diarrhoea is present. But the only assured diagnosis is that which is obtained by the tuberculin test. This dread disease is the cause of more loss in cattle than all other diseases combined. As it is a communicable rather than a transmissible disease, preventive measures only are effective. These consist, first of all, of removing all animals shown to be infected by the tuberculin test, keeping the stables well ventilated, and rearing the calves on the milk of non-infected cows. The test should be applied twice a year at first, then once a year, and later less fre-

quently. When infected animals are removed thorough disinfection of the stables with Pratts Dip and Disinfectant should follow.

NON-CONTAGIOUS ABORTION IN COWS

is caused by either of the following: High feeding, crowded space, smutty corn and ergoty pastures or accidental injuries. The last named cause is by far the most frequent. The cow which has aborted should, as a matter of caution, be immediately removed from the rest of the herd. When a case of this kind occurs, it is well to give all the animals in the herd Pratts Animal Regulator. The sick animal should be fed on cooling food. If there are any signs of weakness in the other cows Pratts Animal Regulator (in gruel form where necessary, if animal is too sick to eat) will give the animal strength. If the case is very serious, to relieve the animal of pain only, a small dose of laudanum may be administered. In advanced stages, it may be necessary to remove the dead calf, for which a veterinarian should be called in.

CONTAGIOUS ABORTION IN COWS

Contagious abortion is a germ disease. It is caused by the action of living germs upon the uterus and placental membranes. It may reach cows through contact of the genital organs with a fence, rubbing post, floor, or litter previously soiled by infected animals. It may also be conveyed to the uterus through service from a male

that has previously served an infected cow. The indications of abortion in advanced pregnancy include: Dullness and an inclination to remain aloof from the herd; a discharge of mucus from the vagina, which is enlarged; the enlargement of the udder and the presence of milk secretion in cows that are dry; and slight labor pains some hours before the foetus is expelled. This dread disease frequently lingers for two to three years. A cow that aborts should at once be removed from the herd and cared for by a separate attendant. The foetal membranes, if retained, should be at once removed by hand and they along with the foetus and bedding, burned or buried. After scraping the stall, disinfect thoroughly with Pratts Dip and Disinfectant. Give the entire herd Pratts Animal Regulator daily as it will tend to prevent the disease from spreading.

If the cow that has aborted is in weakened condition, administer Pratts Animal Regulator in gruel form. In serious cases, to relieve the pain, give a small dose of laudanum.

MILK FEVER IN COWS

This disease affects cows only among domestic animals. Its attacks are almost entirely confined to cows when giving birth to the third, fourth, fifth or sixth calf, that is, to cows whose energies have become centered on the production of maximum quantities of milk. One of the chief causes, therefore, is a plethoric condition of the

system in cows of mature age and that are great producers of milk. The other predisposing causes include: Easy delivery; high temperatures in stables; a costive condition of the system, and lack of exercise. Among the symptoms that indicate the approach of the disease are uneasiness, accompanied by switching of the tail, a stupid or wild condition of the eye, sudden constipation and a checked milk flow. As the disease progresses, the cow lies stretched out in a torpid or semi-torpid condition. Among the preventive measures are: A spare diet, light and laxative, before calving for about a week; ample exercise and a mild laxative from 2 to 5 days of the calving, as a quart of linseed oil or a pound of Epsom salts.

This, together with the daily use of Pratts Animal Regulator, will usually effect a cure.

The pumping of atmospheric air filtered and sterilized and well boiled water is very efficacious. This treatment can be obtained by the use of Pratts Milk Fever Outfit for Air Treatment. The price is $3.

LUMPY JAW IN CATTLE

Actinomyeosis or lumpy jaw in cattle is infectious and chronic in its action. The indications are peculiar enlargements or tumors about the head, but it may also affect the internal organs. It is caused by the presence and activity of a vegetable organism, that is a fungous parasite known as *Actinomyces*. It also affects sheep and

horses. It develops slowly. It is not directly communicable but reaches the subject through the food. It has been noticed that animals grazing on certain pastures are more subject to it than when grazed on other pastures, hence it is thought that the parasite may live through one stage of its development on certain plants. It is only when the tumors discharge that harm can be done. The meat of affected animals is not necessarily unfit for food. The affected animals should be separated from the others. In some instances the tumors may be removed by the surgeon's knife.

Disinfect mangers and stables with Pratts Dip and Disinfectant and cleanse with Pratts Dip all wounds made by incisions. Iodide of Potash given as a drench in about one-quarter drachm doses daily has been found useful before the disease has invaded the bony structure.

BLACKLEG IN CATTLE

Blackleg is a malignant infectious disease peculiar to cattle, sheep and goats. It is caused by a germ which may remain virulent for years. It usually affects cattle between the ages of six months and two years. Those that are fat are the easiest prey. It may reach them through food or drink but usually through inoculation. The germs come in contact with the system through abrasions of the skin or wounds. The most tangible symptom is swellings or tumors under the skin, stiffness

or lameness in one limb and sometimes in one side of the body. In from one to three days death usually occurs. Treatment is almost useless. The carcasses should be deeply buried. The preventive measures are much the same as for Anthrax. Always disinfect thoroughly with Pratts Dip and Disinfectant.

Blackleg may be prevented by vaccination, but animals vaccinated under six months may have to be vaccinated again as the immunity conferred mav not last for more than eighteen months.

ANTHRAX IN CATTLE

Anthrax is one of the most malignant diseases that affects domestic animals. It attacks cattle, sheep, swine, goats, horses, mules and some of the smaller animals. It is caused by a microscopic organism known as the *Anthrax bacillus,* a minute rod-shaped germ that may be found in the blood and tissues of affected animals. They multiply endlessly and cause death by introducing poisonous substances into the system. The germs may live outside the body for years. They may be conveyed (1) through imported hides, hair and wool; (2) through fertilizing materials made from diseased animals; (3) by running water coming from tanneries; (4) by the bite and feet of insects that have come in touch with the virus; (5) by the feet of dogs and birds; (6) through food materials from infected lands. The germs may find lodgment

through the medium of perspiration, the skins or the digestive tract. The indications include sudden attack, accompanied by great depression, very high temperatures, hurried breathing and the turning bluish red of visible mucous membrane. Remedial measures are of little avail. The preventive measures include burying deeply dead carcasses, draining of infected lands of swampy breaking up infected pastures, vaccination by the Pasteur method and proper disinfecting with Pratts Dip and Disinfectant.

PLEURISY

This is produced by the same causes that produce inflammation of the lungs. It will be noted especially by the character of the breathing. There will be extreme tenderness of the muscles of the chest, also a jerky movement by the abdominal muscles. Pleurisy yields very quickly to prompt administration of Pratts Animal Regulator, which should be fed in gruel form if the animal is too sick to eat. The same blister applications, etc., as mentioned for inflammation of the lungs should also be used. Our note on page 66 explains that we will give other treatments, so we mention the following: Twenty drops Tincture of Aconite; three fluid ounces Acetate of Ammonia. Mixed in one pint of water.

BRONCHITIS

This disease is an inflammation of the larger tubes of the lungs. It is always accompanied by a cough. There

is a dullness and drooping of the spirits, loss of appetite, mouth hot and dry, nostrils scarlet or reddish brown and dry. The cough is at first harsh, and then followed by a whitish discharge from the nose, and then becomes more soft and rattling. You will notice the discharge from the nose about the third or fourth day. The animal generally lies down. It should be kept in a warm stable and fed soft food and have good care. Pratts Animal Regulator in large doses in form of a gruel, sufficient to physic the animal, should be given and then the quantity reduced to the regular amount. Sometimes warm water injected into the bowels helps recovery. The nose bag, recommended for horses, is helpful and often effects a rapid recovery, along with the constant use of Pratts Animal Regulator. As per note on page 66, we give the following: Three fluid ounces Acetate of Ammonia; one-half fluid drachm Tincture of Squills. Mixed with one pint of water.

COLDS

They are generally noticed by a heated forehead and sneezing of the animal. Very frequently there is a cough, sometimes diarrhoea, much fever and loss of appetite. urine. In cases of severe illness, liberal quantities of At other times, the animal is constipated and deficient in Pratts Animal Regulator in gruel form are all that is necessary, gradually reducing as the animal recovers.

Many persons have home remedies which they apply according to their judgment. The animal should be kept warm and legs bandaged. Other local outward applications, as given for pleurisy and inflammation of the lungs, will also be found useful.

OVERFED PAUNCH

Any kind of food will produce this trouble if taken too freely. It is slower to develop than bloat. The left side is distended and hangs downward. There is difficulty in breathing and stupor. It is caused by grain food. Diarrhoea sets in before death as a rule. Where Pratts Animal Regulator is properly fed, this disease never occurs. If movement of the bowels is required very quickly, we mention: One pound Epsom Salts; one pound Glauber Salts; two fluid ounces Oil of Turpentine; one-half drachm Nux Vomica. Mix thoroughly.

The above can be given along with the *usual* dose of Pratts Animal Regulator, and is simply mentioned as a rapid purgative, but we would not recommend its use unless the animal is really suffering from severe costiveness and quick movement must be had, as Pratts Animal Regulator, in gruel form, will move the bowels, but take a little longer time than the above.

DIARRHŒA—SCOURS

Diarrhoea is caused by indigestion. Large doses of Pratts Animal Regulator in necessary quantities to physic

the animal is all that is needed in conjunction with the feeding of a very light ration of wholesome and dry coarse fodders. If the animal is too sick to eat, make a gruel of Pratts Animal Regulator mixed with warm water and pour down the throat. After which, continue with them together with starchy foods, gruels and mashed roots. In chronic diarrhoea, Pratts Animal Regulator is invaluable. In case it continues too long, the animal should be killed, and buried deep, and should not be eaten under any circumstances nor fed to the hogs. As per our plan to furnish another recipe, we give the following: Two fluid drachms of Tincture of Kino. Three times daily.

DYSENTERY

In its first stages, the dung is semi-fluid and of bad odor; later contains blood and mucus and is very offensive. Discharges are very painful and straining. The appetite is lost, hair staring and thirst is great. There is much fever. Pratts Animal Regulator in large doses (in gruel form if the animal cannot eat), sufficient to physic, is all that is necessary. Afterwards continue usual size doses. However, as per note on page 66, we mention: Two ounces pulverized inner bark White Oak; two fluid ounces Oil of Turpentine. Mixed with one quart of water or gruel, given twice daily.

SCOURS IN CALVES

This is simply indigestion and may come from overfeeding, irregular feeding or bad milk. It is noted by poor appetite, or a very ravenous appetite, a bloated pot belly, staring hair, bad breath and watery diarrhoea. The calf soon becomes emaciated and dies. Reduce the milk ration immediately and then give two fluid ounces of castor oil with a teaspoonful of laudanum, and then feed Pratts Calf Tonic in gruel form regularly. We advise castor oil only when a quick physic is required; if the case is not an extreme one, we would not advise giving it. If it is a sucking calf, be sure and feed the cow Pratts Animal Regulator, as it is always well to treat the cow same as the calf during the time of sucking. There is nothing better to prevent calves from scouring than Pratts Calf Tonic. It is prepared specially to act quickly on the more delicate organs of the youngsters.

WHITE SCOURS IN CALVES

Scour arising from indigestion in calves is not contagious, but that form known as White Scour is exceedingly and persistently contagious. It has been found difficult to destroy the infected germs in the stable, even by the use of disinfectants. White Scour comes from a germ that enters the system of the calf usually if not in all instances through the navel before it is healed. When once it appears in a building, it attacks nearly every calf born there, while the germs remain in the same. Promi-

nent among the indications of White Scour are: Its quick occurrence, the great prostration of the animal, and the color of the discharges which are yellowish white. They are also profuse and distinctly offensive. Usually death occurs within twenty-four to thirty-six hours. There is no remedy for White Scour. The preventive measures include, giving the dam an abundant supply of dry and clean bedding at the time of parturition and sprinkling the same with a strong solution of Pratts Dip and Disinfectant. As soon as the calf is born the navel string should be cut and tied with a cord soaked in a solution of strong Carbolic Acid. Remove and burn bedding, scrape stalls and use Pratts Dip and Disinfectant freely.

COLIC

One pint of Glauber salts dissolved in pint of warm water should be first given, and afterward inject a quart of warm water in the bowels, with two fluid ounces of laudanum added to it. Then feed regularly Pratts Animal Regulator, mixed with warm water as a gruel, if the animal is too sick to eat. Colic does not occur when Pratts Animal Regulator is fed regularly. We would advise blankets wrung out in hot water to relieve the pain. In extreme cases, especially if there is nervous excitement, give the following: Four drachms of Carbonate of Ammonia; two drachms of Belladonna. Mixed with one pint of water.

WORMS

There is one positive remedy, and that is Pratts Specially Prepared Worm Powder. It kills and expels worms every time. Worms simply cannot exist when this powder is used.

INFLAMMATION OF THE BLADDER

This is noted by frequent passage of urine; there will be a twisting of the tail, uneasiness of the hind parts, straddling gait and slight fever. Pratts Animal Regulator in large doses can be given so as to move the bowels, which is all that is necessary in these cases. Feed in gruel form if cow is too sick to eat; if not, mix with regular feed. Sometimes the disease is noticed in cows right after calving, and extreme costiveness of the bowels in such cases may be relieved quickly by a dose of castor oil. Inflammation of the bladder is cured and prevented by the use of Pratts Animal Regulator, and calving is made freer and cleaner.

REMOVING THE AFTERBIRTH FROM COWS

Among the causes of detained afterbirth are the following: (1) Debility in the system: (2) premature birth; (3) musty, moldy, smutty or ergoted fodders fed in large quantities or for prolonged periods, and (4) too rapid closing of the neck of the womb after calving. The indications of retained afterbirth are usually apparent. More commonly the membranes hang from the valva and

decompose gradually. The odor resulting is very offensive. The retention of any portion of the afterbirth is very harmful to the cow. In some instances a weight of one to two pounds attached to the hanging portion will suffice. In others the placruta is removed by the hand skilled in such work. The right hand and arm of the operator, after being smeared with carbolized oil, lard, or vaseline, is pushed into the uterus and the attachments to the walls of the same are worked loose with the fingers.

INFLAMMATION OF THE WOMB

is generally caused by difficult calving or improper removal of the afterbirth. It is noticed by shivering fits, colicky pains, uneasiness of the hind parts, twisting of the tail, looking toward the flank and frequent straining. The entrance to the vagina has a red, inflamed appearance. If the hand is introduced, the womb will be found dilated with fluid which must be withdrawn by use of a small rubber tube, which should be followed by injections of warm water to clean the womb, and a teaspoonful of solution of carbolic acid, mixed with a pint of warm water should also be injected. Sometimes a pound of sulphate of soda is good. However, a gruel of Pratts Animal Regulator should the animal be too sick to eat, is all that is necessary in cases of this kind, with proper care as mentioned above. After the animal has recovered, Pratts Animal Regulator should be fed, mixed with its regular

feed. The womb should be cleaned out every couple of hours with the solution of carbolic acid and warm water, as mentioned above.

BLOODY MILK

This is caused generally by injuries to the bag. Some cows show signs of it during heat. We would advise changing the regular food, feeding Pratts Animal Regulator, and applying gently hot or cold water, according tc condition of the udder, and be very careful in milking.

GARGET

This occurs from too great a supply of milk-producing foods, or from local injuries. The bag may be hard and a lump felt in the centre. Cold water applications are a good thing, and Pratts Animal Regulator (in gruel form where necessary) is all that is required. Active, but gentle hand rubbing of the bag three or four times a day is good. Iodide of potassium in drachm doses is helpful. The milk must be drawn off frequently, and if painful, a milking tube must be used to allow it to run out.

TO PREVENT LEAKING OF MILK

This may be temporarily prevented by taking white oak bark, put in water and boil down to a strong solution. After milking, soak ends of leaky teat in the solution for a few minutes.

COW-POX OR VARIOLA

This is highly contagious, eruptive fever, communicated alike to mankind, horses and cows. Round inflamed spots appear upon the teats, and in three or four days fill with liquid, which afterward becomes thick yellow pus. This is the true vaccine virus used by inoculation as an antidote for small-pox. The influence of cow-pox upon mankind is much the same as vaccination—a slight fever, swelling of the glands and headache. The disease spreads through an entire herd of dairy cows very rapidly, probably conveyed by the milkers, whose hands and clothing naturally become infected. This disease is not a dangerous one, neither is the treatment difficult; the greatest care, however, must be taken not to break the pox, or they will make stubborn sores, troublesome to heal. To allay the constant irritation, apply Pratts Healing Ointment and give Pratts Animal Regulator, to regulate the general system. This should be given to all the cows and heifers not yet affected.

APHTHA (Sores on the Lips and Tongue)

This disease is confined to painful blisters, soon becoming sores on the lips and tongue, so that the cow cannot eat and grows weak, falling off in milk rapidly. It yields readily to simple treatment. The mouth is washed twice a day with one ounce borax and one fluid ounce tincture of myrrh mixed in one quart of water. Pratts

Animal Regulator should be carefully fed to all the herd when aphtha first appears. If the mouth is too sore to permit the animal to eat freely, we would recommend a gruel of Pratts Animal Regulator mixed with warm water, and then pour down the throat; feed the animal on regular gruel feed.

OBSTRUCTED TEATS

Wash off teats with 1 part Pratts Dip and 50 parts of water. Use Pratts Teat Opener. Pratts Self-Retaining Milking Tube can then be inserted until teat is better. Rub teats with Pratts Bag Ointment.

DEPRAVED APPETITE

Cows will at times select rotten wood, old bones, rubbish, etc., as diet, which shows plainly that, from irritation of the stomach, they are possessed of an unnatural appetite. This condition is more commonly caused by some element, most commonly phosphate, being too much lacking in the food, and in such instances may be largely remedied by feeding pure bone meal for a time in the food.

FOOT AND MOUTH DISEASE

Symptoms.—Sore feet and blisters form in and about the mouth and on udder. Animal shivers, has fever, becomes lame and teeth become loose. It is very contagious.

Treatment.—Separate all sick animals and wash mouths with 1 part Pratts Dip to 100 parts water, or one-half spoonful of tincture of aloes and myrrh. Stand animals in a trough containing 1 part Pratts Dip to 20 parts water. Repeat in five days. Disinfect all stables, litter, etc. Give daily Pratts Animal Regulator with the regular feed. Use Pratts Healing Ointment on teats and udder. When recovered, sponge all over with 1 part Dip to 20 parts water.

PART II.

PRATTS POINTERS ON SWINE

CHAPTER I.

POINTERS FOR SWINE GROWERS

The benefits from keeping swine are many. They include the small outlay for the investment in proportion to the returns; the quick and constant character of the returns; the suitability of swine-growing for being an adjunct to the dairy, and the extent to which swine utilize waste products that would otherwise be lost.

Swine husbandry may be established for less cost relatively than any branch of the live stock industry un-

less it be poultry. The grower of swine may purchase a few females at weaning time at an outlay not exceeding $5 per head. He may purchase a male of similar age that is pure bred for $10 to $25, and when these purchases are made he is equipped for his work so far as the foundation animals are concerned. In no other branch of live stock may the beginning be made so cheaply except in poultry. True, some shelter must be furnished, but for a time poles and straw will answer the purpose in providing a winter shelter for swine. They do not want much shelter of any kind in the summer season. But, of course, a more substantial hog house will be required at a later period, when swine husbandry is to be carried on at its best.

No kind of live stock bring returns so rapidly as swine except in the case of poultry. Swine, like sheep, may be made to bring returns twice a year, as when two litters a year are obtained from one sow, but, whereas sheep produce but one or two lambs in a year, the offspring of swine may number half a dozen and more at each litter, which means that a brood sow under favorable conditions may produce a progeny numbering not less than twelve against progeny from the ewe numbering not more than one or two under normal conditions, and against progeny from the cow not usually exceeding one at a birth.

Swine make an excellent adjunct to the dairy, as they furnish an excellent medium through which the waste products of the dairy may be utilized with profit, and to any extent that may be desired. Where skim milk and buttermilk may be had in plentiful supply, the growing of swine becomes much easier and usually more profitable than it would otherwise be.

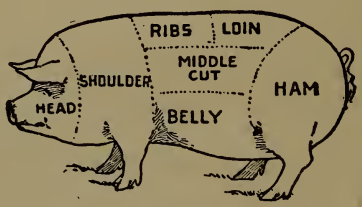
One of the greatest advantages of swine husbandry is the extent to which swine utilize waste products that would otherwise be lost. Swine are veritable scavengers, and can turn all kinds of waste products and even offal to good account. They can take waste products from the garden and orchard and turn them into good money. They can take offal from the butcher's abattoir and turn it into meat that is palatable and nutritious, and they can find corn in the droppings of live stock that are being fattened and turn it into meat that is the delight of the epicure. Any animal possessed of such magic powers of digestion as swine is well worthy of the careful attention of mankind. It is the voracious appetite of the swine accompanied by their quick digestion and assimilation that enable them to work such wonders in the transformation and utilization of products that would otherwise be waste.

Any farmer may keep swine with profit, no matter what his line of farming may be. Some farmers of course are better situated for this work than others, but there is no man on a farm who cannot find some profit in

swine husbandry, at least to the extent of keeping a few animals to consume the waste products of the farm. Nor is there any cottager, however lowly his home may be, who may not keep one or two animals with profit to aid in turning to good account the waste products of his home.

FOUNDATION STOCK

This, of course, as in the case of cattle and sheep, may consist of pure breds or grades, according to the object sought. The average farmer should aim to keep only grades, and the person who has but one or two animals should aim to keep only that number.

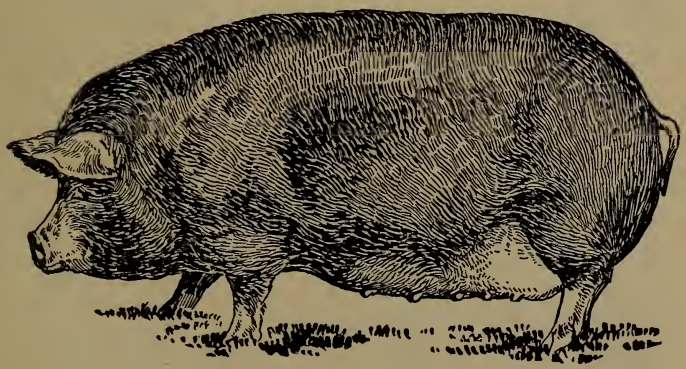


For meat purposes, grades well chosen and well cared for will be quite as good as pure breds. They will grow as fast if not a little faster, they will make as much meat if not a little more, and they will be quite as rugged if not indeed more so. These results follow from the renovation which the fusion of mixed blood brings with it when the blend is made on judicious lines.

Of course, pure bred males ought to be used in every case and of good individuality. This is a chief safeguard in any line of breeding, where improvement is sought.

THE BREED OR GRADE TO CHOOSE FROM

The pure breeds of swine in America to-day may be classified as large, medium and small. The large breeds are the Large Yorkshire, the Tamworth and the Chester White. The medium breeds are the Berkshire the Po-

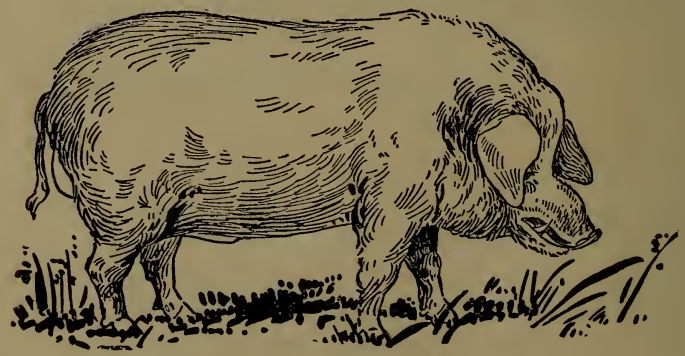


BERKSHIRE SOW

land China, the Duroc Jersey, the Victoria, the Cheshire and the Hampshire. The small breeds are the Suffolk, the Essex and the Small Yorkshire. The Large Yorkshire and the Tamworth are distinctively bacon breeds. The Poland Chinas and Duroc Jerseys are the most popular by far of the middle breeds, and next to these are the Berkshires and the Hampshires. The latter, characterized

CHESTER WHITE

by a band of white around the front part of the body, are now forging well ahead, notwithstanding their recent introduction as a distinct breed. The breeder of pure breds



OLD ENGLISH PIG

has his choice among all of these. If he wants to breed bacon the Yorkshire or the Tamworth ought to be his choice. All the other breeds are more or less of the lard type, but by no means equally so. The small breeds meet with but little favor in this country.

The breeder of grades may choose the foundation stocks from any of the mixed blood elements where he can purchase females at meat prices. It does not matter much how mixed the blood elements are. In fact the more mixed they are the more marked and rapid will the improvement be when these are mated with pure bred sires.

POLAND CHINA

The sires may be chosen from any of the pure breeds that may meet the desires of the grower. If he wants to grow fat pork, any of the middle breeds or also the Ches-

ter White may be chosen. If he wants to grow high class bacon he should use a Large Yorkshire or a Tamworth sire. Bacon swine differ from the lard types in having longer bodies, longer heads and longer limbs, and something less of width than swine of the other class.

BREEDING SWINE

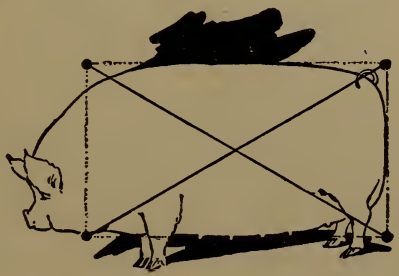
When breeding pure bred swine, as when breeding pure bred cattle and sheep, constant attention, and of the most careful character must be given to the requirements of the standards. These are such as relate to form, color; the amount of the covering and also to fancy points, notwithstanding the general resemblance in form of the animals in each class; some difference characterizes each of the breeds in the class. The color markings of swine are easily traced, as in every instance, save that of the Hampshire, the colors are essentially solid, although the Poland China and the Berkshire have sundry white markings on the feet. The thickness of the hair, or the opposite has an important bearing on protecting the animals from cold or from sunscald. The fancy points are such as have reference to the size and erection or droop of the ear and the length of the tail and the amount of the curl in the same. When breeding grades, the choice of good sires and the persistent use of the same from generation to generation will bring up the quality of the animals for meat-making to quite equal that of the breed from which the sires have been chosen, in from three to four genera-

tions, providing all inferior specimens have been discarded for reproduction. This rapid improvement may be made with the material the most unpromising with reference to form in the foundation stock.

In order to secure bacon characters, in addition to the use of males of a bacon breed, it will be necessary to continually select sows somewhat long in body and not too short or long of limb. The long body furnishes a relatively large amount of bacon. This, it is, which brings the highest price in the market of any part of the carcass. Regard must also be had as to the nature of the feeding, as is shown below.

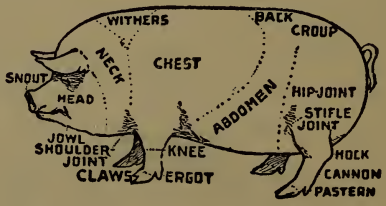
IMPROVING THE HERD

Before any breeder can effect permanent improvement, he must have in his mind an ideal as to form, and he must be able to choose the materials used with sufficient judgment to enable him to appreciate more and more toward that ideal in the progeny which he breeds. The



MODEL PIG

ideal lard type has the following leading essentials: (1) A form rather compact, broad and deep, and standing on short legs, set well apart. (2) A back broad in every part and straight or nearly so, from above the shoulders to the tail end. (3) Sides deep and straight and of even width from the front of the shoulder to the rear of the ham. (4) A head fairly short and at least carrying a fair amount of jowl, and a good covering of rather fine hair over every part. The males must, of course, have more of massiveness, heavier necks and other differences that masculinity brings with it. The bacon types differ from the above in having less of width of body, including ham and shoulder, more of length in the side and head, more of length of limb and arch of back, and less of jowl.



When selecting pure breds for breeding, as intimated, scrupulous regard must be had to what the standard calls for in all particulars. But fancy points should not be unduly exalted. For instance, it would be much wiser to choose a Berkshire dam for breeding, faultless in form but lacking in the white on the lower part of one foot,

than to choose one with perfect color markings and at the same time possessed of something inferior in some feature pertaining to form.

When selecting grade females or indeed any kind of females, the preference should be given to those that are possessed of fairly long bodies and a reasonable but not an excessive length of limb. The roomy body is indication of a numerous progeny when bred, and the limb of fair length is favorable to easy and active locomotion. By carefully selecting females from litters that are relatively large, the prolificacy of the herd may be brought up to a high level in a few generations of breeding.

The rejecting of animals in the herd for breeding includes in pure breeds, all animals lacking in any considerable degree any essential called for by the standard for the breed. The rejection of the same when breeding grades, should not extend to color markings or fancy points, even in high grades, but it should include all animals under size or off in form. All that have been shy or irregular breeders, all sows that are in any way vicious or that have gone beyond that age when they produce regular litters, and all sires that are not prepotent.

FOODS FOR SWINE, SUMMER AND WINTER

No class of live stock kept upon the farm will eat so great a variety of foods. Almost any plant that grows will be eaten by them in the succulent form. No class of

live stock that has been domesticated will compare with swine as scavengers on the farm. The waste from the house, the slaughter house and the barn or feeding yard seems equally grateful to them. But the fact should not be overlooked that equally high class meat may not be obtained from all kinds of food. This is true even of grain foods.

In the summer season, swine under farm conditions should be maintained mainly on grazing. In no other way can they be maintained so cheaply or kept so beautiful. The character of the grazing is given below. But except in the care of brood sows that are not pregnant, some grain food should be given along with the grazing.

When they cannot be grazed, they should have free access to a roomy yard. In addition to the grain food fed to them, they should be given an ample supply of soiling food daily, and for convenience in feeding, it should be grown in some paddock nearby. It may consist of many kinds of food, as clover alfalfa, peas, vetches, rape, sweet corn and turnips. Refuse from the vegetable garden is excellent. Such soiling food should be quite succulent and should not have reached the woody stage.

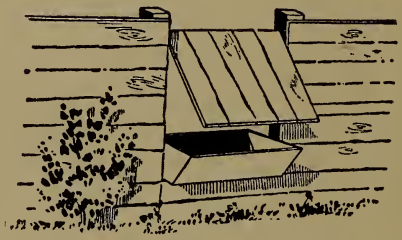
The winter foods for brood sows are dwelt upon below, and for boars the ration is not far different. If a second litter for the season is carried through the winter after weaning and until fattening, nitrogenous foods, as

shorts or middlings or peas, should compose a large part of the ration; also skim milk when it can be had. But some corn or barley or rye may be fed at the same time. When the fattening season approaches, either of the three foods last mentioned should be markedly increased.

SHELTER FOR SWINE

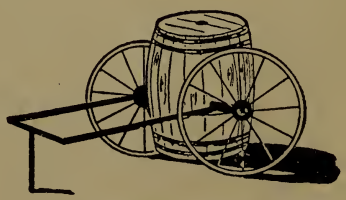
The essentials in shelter for swine include the following: 1. A dry and sunny place for the hog house and yards and one protected from the winds. 2. Sufficient warmth in the winter season to keep the swine in comfort. 3. Ample yard attachments in which the swine may exercise and under some conditions glean a part of their food. 4. Proximity to a wallow, that is, a bathing place of artificial construction or otherwise. 5. A running stream near a piggery furnishes an ideal place, but in places where hog cholera is present it has its perils.

In a piggery the following are among the leading essentials of a good hog house: 1. Ample room for the needs of the swine kept in the various divisions and for the storage of bedding overhead. 2. Ample warmth of construction to insure comfort in cold weather and withal accompanied by a good system of ventilation and lighting. A straw loft overhead will aid in removing dampness in cold weather. 3. Apartments of various sizes to meet



SWINGING DOOR TROUGH

the needs of the swine. Movable divisions are not so easy of construction as in sheep houses, because of swing doors that are frequently constructed in front of them. 4. A passageway in the centre of the building, the pens being on each side. 5. Troughs in front of the pens, but inside of them, and swing doors just above and in front of the troughs, to provide the means for the easy feeding of the swine. 6. A bed a little elevated in each pen to aid in keeping it dry. 7. A fender in each pen which brood sows are to occupy, to protect the young pigs. 8. A yard attachment for each division and a swing door or



GARBAGE TUB

a door that may be lifted by the aid of rope and pulley from the passage to open into the yard. 9. A feed room, usually in one end of the building and a heater in the same for cooking the food. 10. A well in the feed room or at least a tap that will furnish water. The yards which the brood sows are to occupy ought to be on the sunny side of the building. If the floors are of concrete, the sleeping beds should have a thickness of boards laid over the concrete.

SMALL PIG PEN

In northern areas sheds made of poles and well overlaid with straw as described below find much favor, especially where the weather is cold and the precipitation is light. In areas where diseases as hog cholera are common, small houses that will accommodate one brood sow and her litter are in favor. Each of these is enclosed by a movable or permanent fence, a certain amount of yard or pasture room being inside. In yet other areas the kind of structure described above or some modification of it is in favor.

THE STOCK BOAR

At the weaning season or soon after, the young sire to be used in the herd should be put in a pen by himself and thus kept apart from the other swine. The large yard that ought to be attached may be enclosed with a fence that is close. Such a fence is ideal around such a yard, but it may be over expensive.

The boar should be reared principally on nitrogenous foods, such as wheat middlings and skim milk, if these are to be had; also such other food as green alfalfa or rape. If these or some of them can be grown in his yard, so much the better. His food in winter should have considerable succulence in it, such as is furnished by field roots. At no time should he be kept on a dry diet of rich foods as corn or rye meal, but a part of his diet in winter may profitably consist of such foods.

It is of much importance that the boar shall be given due exercise. This he will take in the yard, unless the area is too cramped. In winter the whole grain fed should be strewn where he would have to gather it up. In a barnyard occasionally he would profit by being allowed to turn over its litter.

THE BROOD SOW IN WINTER

It is greatly important that the brood sow in winter shall be fed chiefly on nitrogenous food. Wheat bran, peas, shorts and skim milk are all good, but they are not

the cheapest foods that may be furnished. Viewed from the standpoint of cheapness and suitability, there is nothing better than alfalfa hay and mangels, adding a small amount of grain in cold weather. The hay should be cut when coming into bloom and well cured. It is fed without any further preparation. In addition the sows should have a mangel at a feed in the natural form. They will winter quite well on either the hay or mangels with a little grain, but both are better than one. Almost any kind of grain may be fed, and when within a reasonable time of farrowing, the grain ration should be increased somewhat. If wintered wholly on meal, the meal should be soaked. House swill or water may furnish drink for the swine when on alfalfa or fine cut clover, which is a fairly good substitute. Sows fed thus and properly exercised will almost invariably produce good litters of pigs and strong and vigorous at birth. Corn, barley and rye are too carbonaceous a food for brood sows when fed alone.

To insure plenty of exercise for the sow, she should be given access to a barnyard where this is practicable. To encourage her to take exercise it may be well to scatter some grain in the litter or the manure. When they cannot enter a barnyard some grain scattered on the hard and clean bare ground or trodden snow, will encourage them to seek exercise when picking up the grain.

Where the winters are so mild as to allow of some grazing, these precautions may not be necessary, but some exercise for the brood sow when pregnant is absolutely essential to the well being of her young. The more exercise that the dam takes, the more vigorous will the progeny be at birth.

The winter quarters for the sow may be of the simplest until the time of farrowing. A low shed with a straw pile built over it at threshing time will suffice. It should be so built that the sows may burrow in the sides of the straw at their own will. The low opening on one side gives them ingress and egress to the sleeping place. Sows may be wintered nicely in structures thus made. When kept in other and better structures, not more than two should be slept in one apartment near to the farrowing season, lest they should overlay one another at such a time to the detriment of the progeny.

THE BROOD SOW WHILE NURSING

At farrowing, the brood sow should have an apartment of the hog house by herself. Into this she should be put a few days before farrowing, that she may become accustomed to the same. At farrowing the sow should not be given much straw. A chaffy bed is better. The apartment should not be cold. All being well, the sow should be as little disturbed as possible while farrowing. In very cold weather it may be necessary to take the pigs

to artificial heat in a basket or box, for a few hours at least, returning them to the sow at intervals to nurse. For two or three days at the first she should only be given a thin slop with a little meal in it, lest the milk flow should be unduly stimulated. Inflammation of the udder may follow such stimulation, and this would mean disaster to the pigs.

As soon as they can take all her milk, she should be fed a stimulating diet of meal, fed in the form of slop, and and one that will at the same time be rich in protein. One half of the ration may consist of oats, bran, wheat middlings or peas; the other half may consist of such grains as corn, barley, speltz or rye. The grain, unless the corn, should be ground, and this too may serve the purpose better when fed as slop. It should be soaked from 6 to 12 hours according to the season of the year, longest in winter. Wheat middlings and corn or barley in the proportions of 2 parts by weight of the middlings and one part of either the corn or barley, make an ideal ration for a brood sow; mangels or sugar beets fed with any of the above rations are helpful. The sows should be given all that they can eat in three feeds per day, and as the nursing season progresses, the proportion of the carbonaceous food fed may be increased, to prevent undue emaciation in the sows.

The period for suckling the young should depend

very considerably on whether one or two litters are to be reared per year. If but one litter, the young pigs should be allowed to nurse as long or about as long as the dams will submit to such nursing. This will usually be for a period of say 10 to 12 weeks. If the sows are to rear two litters, which may be quite proper where the winters are not too long, they should not suckle their young longer than eight weeks. Whether one or two litters are reared in one year from one sow, depends very largely on the climate. Ordinarily in cold climates but one litter per year should be reared and in mild climates two litters may bring much more profit than one.

THE BROOD SOW IN SUMMER

When but one litter is reared in the year, the management of the brood sow in summer is very simple. She calls for no other food than pasture until the autumn closes in, that is providing the pasture is reasonably good. She will make up for the emaciation which was probably present at the close of the nursing period. In fact, under some conditions, as when she has access to carelessly harvested grain fields, she may become too fat for breeding in best form.

When two litters are to be reared it is different. The sow being emaciated at the close of the nursing period of the spring litter and soon to become pregnant again, should be fed freely on nutritious foods in addition to

the pasture which she may glean. This feeding should be continued as far as it may be necessary to keep her in good flesh until she farrows again in the autumn. While it is possible to have sows overfat at the farrowing season, the mistake is in almost all instances in the opposite direction.

When but one litter is reared in the year, the aim should be to have it come reasonably early, as early in fact as will not endanger the lives of the young pigs. In the northern states this will be about April 1st; in the central states, somewhat earlier. This will admit of turning off the young pigs at the age of 7 to 8 months, and weighing about 200 pounds, before the really cold weather comes on. The second litter should come about 6 months later, or about Oct. 1st. The young pigs will be almost ready to wean when the winter comes on, and they may be sold the following spring.

THE YOUNG PIGS WHILE NURSING

As soon as the young pigs will take food from the dam, they ought to be encouraged to take it. To accomplish this, a board or two may be fastened across the corner to the pen, so that the pigs may go under but not the sow; a low trough is put inside. Skim milk is the best food to begin with. In its absence oat meal or ground oats minus the hulls and formed into a thin slop will answer. Shorts will answer quite as well if not better.

They should get all of this that they will take. After a time they may eat with the dam. To enable them to do so, a plank should be put in front of the trough, and the trough should be shallow, such feeding will relieve the dam much and will be very helpful to the young swine.

The matter of exercise is very important for the young pigs, and the better they are nourished, the more important is it. To accomplish this, in warm days they and the dam should have access to the yards, and a little grain sprinkled in the same will enable them to take exercise. When they can follow the sow to the pastures, this of course is not necessary. Lack of exercise may easily lead to much loss in young swine.

Much care should be taken to shield the sow from sudden changes in her diet and also the young pigs. A sudden change in the diet of the sow may at once affect the pigs adversely, because of the influence exerted on the milk. Food very sour or impure may even produce milk that may prove fatal to the pigs that nurse. They should be guarded against sudden changes of weather, exposure to cold rain is destructive, and trailing after the sow in the dewy grass may become very harmful.

There is no better method of weaning the young swine than by reducing much the diet of the sow, a day or two before weaning. That of the young swine should of course be augmented. The sow should then be shut

quite away from the litter, and kept on a low diet until the milk flow has ceased.

GROWING SWINE ON PASTURE

The young swine should be ready to wean or nearly so by the time that the pastures are well supplied with grazing. To these they should have acceess in good weather, both before and after weaning, more especially after. The cheapest pork will be made while they are on pasture.

Various pastures will answer well. Winter rye will be the soonest ready, and alfalfa, clover and blue grass next. Barley, especially of the beardless and the hulless varieties, furnishes good grazing both before and after breeding. Dwarf Essex rape is excellent, and may be given in a succession to cover much of the season. Soy beans are also good and cow peas in southern climes.

The aim should be to have the grazing come in a succession. This may be readily accomplished by leaving, say three fields, long and narrow, butting against a lane. In these food may be grown that will come in a succession. The swine may be given access to them from the lane as desired, or from a grass pasture serving the purpose of a lane.

They should be given supplemental food when on the pasture. Only a small amount is needed. No grain will serve the purpose better than corn, especially when

the pasture is a legume, as it balances the food and it may be fed unground. But other grains may of course be used.

FATTENING SWINE ON CROPS UNHARVESTED

Where land is not too dear and where the cost of labor is excessive, it is quite possible in many instances to harvest the crops with greatest profit by allowing the swine to feed upon the crop in the field. For such fattening no crop is more suitable than corn. For such fattening, the varieties that are somewhat dwarfish in their habit of growth and that produce a large amount of grain relatively, have the highest adaptation. Such is squaw corn grown far north, and certain other varieties that may be named. The waste of stalk from these attending such grazing is less than it would be from large varieties. It is well to begin with some small variety of sweet corn, because of its early ripening, and to follow with some other kinds of corn that came in season later. In this way the season for fattening may easily be prolonged. The waste of fodder may be reduced by allowing cattle to glean after the swine.

Peas of the field varieties may answer well for finishing swine in the field. They may thus be grown and fed off in areas that have a normally dry harvest climate; where the harvest may be rainy, this mode of harvesting may be hazardous, as rain would soon start growth in

the peas, after which they would not serve the purpose of fattening. As in the case of corn, it could be so arranged by sowing earlier and later varieties, that the season for fattening would be sufficiently prolonged to bring the swine to a good finish. As peas come a little earlier than corn, it may be well to begin with peas and finish on corn. The straw of peas is spoiled for food when the crop is thus gleaned.

Soy beans and peanuts in the South, make excellent finishing foods for swine, and if the crop of sweet potatoes may be in part added, the combination is most excellent. In many instances, however, these foods are too valuable for such feeding. When they are thus fed upon by swine, it may be necessary to feed some corn toward the close of the fattening season to harden the pork.

When fattening swine thus, they must not be expected to consume all the food. A time will come in each instance, when the food will be so lacking, that to require swine that are fattening upon it to glean it all would hinder their fattening. Such gleaning should be completed by other swine that are not being fattened.

FATTENING SWINE WHEN CONFINED

The aim should be to fatten swine so that they will be on the market before the season of coldest weather, unless where the place of confinement can be kept quite comfortable in cold weather. Fattening swine under

conditions unduly cold means an undue expenditure in food.

The best foods for such fattening include corn, barley, speltz, peas and rye. When fed alone, corn and peas stand foremost among these for such feeding, and they may be fed without grinding. For bacon feeding peas and barley rank high. The other foods are better ground and soaked. These foods may be variously blended.

The time called for to finish the swine will of necessity vary, but usually it is not longer than about 6 weeks. During the finishing period the swine should be given all the food that they will eat up clean.

MARKETING SWINE

Swine should be ready for the market at an age not exceeding 8 months, and usually 7 months will be better. Whether of the bacon or the lard types, the aim of the grower should be to market them within the age named, for the reason that gains are then more cheaply made than at any subsequent period. The favorite weights for the bacon types is 160 to 200 pounds. Beyond 225 pounds the carcasses are less acceptable. The lard types may be 50 pounds or even more than that heavier. The aim should be to put each in good finish of its kind.

Formerly it was common to dress the carcasses on the farm, and then to put them on the market. In some instances they were cured at home, and the meat was

sold in the cured form. Three methods are still followed where settlement is sparse, but where transit may be made by rail, they are now almost invariably sold on foot. This is by far the best method of marketing under average conditions.

PORK FOR THE FARM HOME

Pork is really the standard meat for the farm home. It is so because it is so easily grown, because it is so easily cured, and because of its excellence when eaten in the cured form. It should be the aim in every farm home to have an ample supply at all times to meet the needs of the family.

The farmer has complete control over the kind of pork that he can grow for his own family. His aim should be to grow that of the bacon type or approximately thereto, because of the excellence of such a product for table use. In addition to excellent side meat thus furnished, the shoulders and hams are less fat than those of the other types, and consequently in using them there is less waste.

For home use swine are usually slaughtered on the approach of cold weather. This admits of using much of the meat not included in sides, hams and shoulders, in the fresh form. Usually the three classes of pork just named are salted. The heads are frequently made into head cheese, and other portions into sausage meat.

For slaughtering, a scalding barrel, a platform for removing the hair, a place for suspending the animals, and certain sundry tools are neceessary. When caught the pig is turned on its back, and a sharp butcher knife is pointed backward, entering the body a little way in front of the brisket. The scalding should be quickly done and the hair quickly removed. After suspending the animal, the entrails are removed and the carcass allowed to cool before it is cut up, but it should be so dissected before it freezes.

The parts to be cured are then rubbed over with salt. They may then be laid on a sloping platform of boards for a time, preferably in a cellar. Then they are washed and more salt added. They are next hung up to complete the curing in a dry place, and in the summer season they should be protected from flies.

MISCELLANEOUS FACTS

The two leading types of swine, viz.: the bacon and lard types, has each a distinct area on which it may be grown with greatest profit. This fact should be carefully recognized by the growers of swine.

The bacon types are best grown where the foods are nitrogenous, and the lard types where they are carbonaceous. Where alfalfa is abundant and such others as clover and peas, the adaptation is best suited to the bacon types, but where corn is the principal grain crop, the adaptation is better for the lard types.

Bacon types may be changed into lard types in a few generations by the judicious use of lard type sires. On the other hand the lard types may be changed into bacon types by the continued use of bacon sires. Some breeds are now of the intermediate type as the Berkshire, the Cheshire and the Hampshire.

CHAPTER II.

DISEASES OF HOGS

Before reading our suggestions in regard to diseases of hogs, read carefully the note on page 66.

PREVENTION OF DISEASES

With the human race a patient can tell where and how he suffers, but the sickness of a dumb animal must be wholly determined and treated from symptoms. The best means to prevent sickness among hogs is to give them pure air, clean, dry pens, and plenty of good food. So many hog diseases are contagious that a sick animal should at once be removed from the herd, and put in a distant and separate pen. To prevent spreading of disease, troughs should be scalded, and Pratts Dip and Disinfectant sprinkled as a disinfectant about the premises, as soon as the sickness appears. Dry earth must be scattered through the pens and yards. When pigs have good,

care, and are regularly given Pratts Animal Regulator there is practically no sickness among them.

HOG CHOLERA

There are at least two diseases belonging to this class, viz., hog cholera and swine plague. They are both characterized by an inflammation of the stomach and intestines, enlarged and inflamed conditions of the lymphatic glands and the sloughing of portions of the skin. The treatment for these and also the preventive measures are in many respects the same. This trouble has until recently proved a veritable scourge in many States of the Union. The disease is communicated through the medium of germs taken into the system. These germs may come through the following agencies: (1) Purchasing swine which may contract the germs when in transit on the cars; (2) by exhibiting at fairs; (3) through persons who have visited infected herds, also through the feet of dogs and birds to which the germs may have adhered; (4) through the water of an infected pond or stream. Reduced stamina and filthy quarters favor much the spread of the disease. From what has been said the preventive measures will be apparent. Among the indications of hog cholera are the following: (1) Dullness, loss of appetite or depraved appetite and a disposition to lie down; (2) constipation or diarrhoea; (3) a stiff gait; (4) red spots or blotches become discernible about the

ears and under the neck and belly; (5) in some instances there is difficulty in breathing.

To prevent this disease, and to cure it in its early stages, we strongly recommend the faithful use of Pratts Hog Cholera Specific. Many reports have reached us as to the value of this remedy. We learn that inoculation has also proved successful in warding off this disease.

The value of sanitation cannot be overestimated. Thoroughly disinfect with Pratts Dip and Disinfectant.

SWINE PLAGUE

Swine plague, though like hog cholera, is entirely distinct therefrom in the sense that it is a separate disease, but it is only when the lungs are extensively inflamed that it is possible to distinguish with unerring certainty between the two diseases. The recognition of its presence is based largely on such symptoms as coughing and labored, painful and oppressed breathing. It is a severe disease. It frequently comes as a pneumonia or an inflammation of the lungs and pleural membrane. The animal is in a sleepy and even comatose condition much of the time. If it walks it staggers. The skin reddens in a marked degree and the bowels become constipated. This disease, though not nearly so common as hog cholera is usually very fatal. Preventive measures are all important. Use Pratts Hog Cholera Specific as directed and disinfect with Pratts Dip and Disinfectant.

The most dangerous source of infection by far is coming in touch with diseased animals.

TUBERCULOSIS IN SWINE

The losses from tuberculosis in swine are beginning to assume enormous proportions. This trouble comes very largely from swine drinking the milk of tuberculous cows and gleaning in the feeding lots after tuberculous cattle. The apparent indications are not always unerring. Among them are the following: Digestive disorders, such as diarrhoea and vomiting; a stunted condition and a staring coat and breathing more or less labored. There is no positive cure for this severe disease, but good sani-

It can hardly be necessary to advise the daily use of Pratts Dip and Disinfectant when tuberculosis is present.

The importance of testing heads of cattle that may be affected with tuberculosis is thus further emphasized.

INTESTINAL WORMS IN SWINE

Four species of worms have been found capable of living in the intestines of swine and of inflicting more or less harm to them. These are the Common Round Worm, the Thorn Headed Worm, the Pin Worm, and the Whip Worm. The two first named are the most harmful. The common round worm is found chiefly in the small intestine. The female is 11 inches long and the male about 7 inches. The pinkish white body tapers at both extremities. The thorn-headed worm is usually

found only in the small intestine. The average length of the female is about 11 inches and of the male from 2½ to 3 inches. The color is milk white. The pin worm, usually found between the folds of the lining membrane or mingling with the contents of the small intestine, is about half an inch long. The whip worm is usually found at the beginning of the large intestine. It is about 1½ inches long and is enlarged toward the posterior part.

Among the symptoms of the presence of worms are diarrhoea, constipation, impaired appetite and varying degrees of unthriftiness. But it is only when the worms are present in large numbers that these symptoms are produced.

The common round worm is communicated through the medium of the eggs which contain well developed embryonic worms, and they reach the digestive tract through the medium of the food and water. The pin worm and the whip worm are similarly communicated. The eggs of the thorn-headed worm develop through the medium of a host, as the white grub, eaten by swine.

Among the preventive measures are the draining of stagnant pools and wet places where the embryos may be harbored; the ploughing up of the yards and pastures, guarding against feeding on floors not kept properly cleaned, or on ground that may have been much used for such feeding; giving water from a deep well, and not allowing the swine to wallow in the drinking troughs.

Giving a generous diet is also important, as the parasites are less liable to live where the digestion is vigorous.

Pratts Hog Worm Powder is a positive remedy and a four days' treatment will quickly put the worms to flight.

PNEUMONIA IN SWINE

This ailment is attended with acute congestion and inflammation of the spongy tissue of the lungs. The prominent symptoms are dullness, loss of appetite, shivering, labored breathing and more or less of coughing. The respirations are labored. The most common cause is a sudden chilling of the body, but it may be brought about by mere exposure. Every effort should be made to keep the affected animals comfortable and to give them nourishing food.

The presence of this trouble is usually indicative of neglect somewhere.

Mix daily with their feed, Pratts Animal Regulator, and improvement will soon be noted.

DIARRHŒA OR SCOURS

This trouble is known by the very soft condition of the voidings which are sometimes almost watery. It usually occurs before the weaning stage and more commonly in swine not yet 10 days old. This trouble is highly contagious. It usually results from some untoward condition of the milk of the dam. This may be caused by feeding improper food as that tainted with the elements of decay, from making a sudden

change in the food, from excess of milk furnished by the dam, and from some untoward condition in the health of the sow. The causes of scours being known, the means of prevention are also known. The young swine should be kept comfortable and the voidings carefully removed two or three times a day. The floor should be sprayed with Pratts Dip and Disinfectant. Correct the food given to the dam, and use daily, Pratts Animal Regulator. Rapid improvement will be noted. A small table spoon full of sulphur given to the sow daily will be helpful.

PARALYSIS IN SWINE

This trouble may affect various organs of the body, but more commonly it is the muscles and bones of the hind parts that are affected. It is of frequent occurrence. Paralysis of the hind parts may come from a variety of causes such as: (1) Inflammation of the spinal cord. (2) From the pressure of tumors on the spinal cord, from the eneysting of parasites and from an overfat condition on the absence of exercise. (3) Injury from piling up in cold weather. (4) Indigestion and constipation. Prominent among the preventive measures are: Guarding against injury from the injuries named; feeding food that will ward off indigestion and that has in it a suitable proportion of the mineral elements, and giving ample exercise. There is nothing that will help the animal so quickly over this trouble as Pratts Animal Regulator.

To relieve constipation Epsom salts may be given in

the food or otherwise in doses of 2 to 8 ounces, according to the need. From 5 to 15 grains of Nux Vomica may also be given two or three times a day as a nerve invigorator.

INFECTIOUS SORE MOUTH

This trouble is not very prevalent, but when it does get into a herd of young pigs, it may cause much loss. It usually occurs in swine from a few days to several weeks old. It is a germ disease. Among the symptoms are an indisposition to nurse, inflamed patches usually on the jaws and lips which later form ulcers and in time slough off, thus making deep depressions around the mouth. The affected animals remain apart, are dull and stupid and lose flesh rapidly. To build up the run down condition always present in this ailment, use Pratts Animal Regulator daily in their feed.

The following has also proved efficacious: Dip the pig's head foremost into a solution of per-manginate of potassium every day for 3 or 4 days. They should be kept submerged as long as they can endure the ordeal. The solution should contain one ounce of the crystal dissolved in each gallon of the water used.

RHEUMATISM IN SWINE

More commonly rheumatism results from cold, damp pens and exposure to cold rains, swine pens to the inner walls of which moisture clings are much liable to produce this trouble. Among these symptoms are: (1) Lameness

in one or more of the extremities; stiffness and arching in the muscles of the back, and large swellings in the region of the knee, hock and other joints of the feet. Preventive measures are very important. These include furnishing dry quarters, a liberal supply of dry bedding frequently changed, a variety of laxative food, a sufficiency of exercise and covering cement floors with boards where the swine sleep.

Pratts Animal Regulator will be found invaluable to relieve this disease.

A tablespoonful of cod liver oil given to each pig once or twice a day in its food will also be helpful.

QUINSY

This disease sometimes assumes an epidemic form similar to distemper in young horses, and is fatal to a large number of young pigs, as well as older hogs. The symptoms are the swelling of the glands under the jaw; oppressed breathing; difficulty in swallowing. In the latter stages the neck is badly swollen, the tongue protrudes and death is caused by choking. The swelling sometimes takes a gangrenous form. It is caused by exposure to sudden changes of temperature; or by bad food, impure water or filthy enclosures; and mortification at times sets in, which may cause death in a few hours. Hogs piling up around an old hayrick on cold nights will often be the cause. The ones underneath become so warm that when routed out in the morning, the cold air striking

them, the sudden change will produce inflammation of the lungs, or quinsy. Young pigs often get quinsy. They should be kept warm, clean and in well ventilated pens; plenty of straw, and mess of gruel three times a day in which stir the usual quantity of Pratts Animal Regulator. If the bowels are constipated, this is all that is necessary, given in gruel form if too sick to eat; otherwise, mixed with the food in large doses to move the bowels freely. It may be well at first to give in gruel form, so as to move the bowels quickly. An ounce of castor oil to each pig can be added. In bad cases, to grease the throat well with equal parts of cod-liver oil and turpentine is good, no matter what remedy you use otherwise. Also, a deep cut into the tumor, from two to four inches long, and deep enough to reach the seat of the disease will relieve it. The diet should be a thin gruel, in which a teaspoonful of turpentine can be stirred.

Another recipe, given as per our note on page 66, is: Four grains of Tartar Emetic; six grains of Ipecacuanha; six grains of White Hellebore. Mix together for older hogs, and half this dose for young pigs.

Three or four drops of tincture of aconite, when dropped on the tongue every two hours, is said to be very excellent. However, in this disease, as in all others, we have been most successful in the use of Pratts Animal Regulator alone.

CONSTIPATION

Do not allow the pigs at any time to become constipated. A feverish condition arises from it, developing into some inflammatory disorder. The food should be changed, from time to time, green food being the best. Many people resort to Epsom salts; but the after effect is to constipate them more than ever; the best thing known to regulate the bowels is Pratts Animal Regulator mixed with the regular food.

CATARRH

This develops slowly and is not noticed at first. It inflames the mucous membrane of the nose passages. It is supposed to be hereditary in some instances. The appetite fails, the animal becomes poor and has a fever. It is a disease which is not often seen; is of a scrofulous nature, often terminating in consumption. The animal should be kept dry, and given milk, boiled food, oat meal gruel, boiled barley, mashed fruit, cabbage, etc.; food which does not require chewing is what it wants. If the bowels are constipated, first give Pratts Animal Regulator in gruel form. We mention as per our note on page 66, as follows: Half an ounce of Glauber salts and a drachm of saltpetre mixed with honey, smeared well back on the tongue. Give three times daily, every other week, the following: One-half drachm of Sal-Ammoniac; eight grains of Camphor. Mix with a little molasses and smear on the tongue.

COUGH

This is a local irritation and by many claimed again as a form of hog cholera. It is caused by an obstruction of the lungs. Pratts Animal Regulator, fed first in gruel form if the animal is costive, is a sure remedy; the throat and lungs should be rubbed with Pratts Liniment and the animal kept well blanketed; but we mention another remedy, as per our note on page 66 : Powdered castor bean, in two or three drachm doses; mixed with molasses and smeared on the back of the tongue.

KIDNEY WORMS

It sometimes produces paralysis of the hind quarters. It is seldom fatal, and generally affects more than one hog in a herd. Pratts Hog Worm Powder, mixed with the regular feed, will prevent or cure kidney worms. Rub the loins with Pratts Liniment every other day.

PROTRUSION OF BOWELS IN PIGS

This trouble is often caused by diarrhoea and weakness. Wash the parts well with water; then apply sugar of lead and water—a drachm of the lead to a pint of water, to which add a small quantity of laudanum; then gently press the part back, pushing up the finger a short distance. Three to five drops of laudanum may be given to each suckling pig to alleviate the pain. Pratts Animal Regulator, fed in the regular feed, strengthens these parts and effects a permanent cure.

PILES

Are known by blood passing off with the movement of the bowels, or blood stains around the anus. The disease is generally considered hard to cure. We would advise a change of food, such as sour milk, and especially light, digestible things for a hog in this condition. Injections of vinegar and water are good. Pratts Animal Regulator, fed regularly, will greatly relieve them. Our note mentions, on page 66, we would give other endorsed recipes, so we mention: Sulphur, with cream of tartar, or castor oil in moderate doses. If the anus is swollen, apply vaseline.

PARALYSIS OF THE HIND QUARTERS

This is sometimes caused by worms in the kidneys. The animals show a weakness in the back, and often get up and run in a straight line quite fast, swinging to one side for a while and then go over to the other side; finally get so bad that they fall over and can only drag themselves about. The appetite is good until a few days before they die. Apply Pratts Liniment over the loins. Pratts Animal Regulator at first should be fed in gruel form; reduce as the animal recovers. In accordance with our note on page 66, we give the following: Three drachms of powdered castor oil seeds, and eight ounces of rye flour; mixed in a quart of sour milk or thin gruel. Give this first thing in the morning; and repeat once a week. The following may be given two or three times

a day: Four grains of powdered Nux Vomica, one-half drachm of powdered Anise Seed; one-half drachm of powdered Ginger. Mix with a little molasses and smear well back on the tongue.

TO PREVENT PIGS FROM EATING THEIR YOUNG

This is very frequent in some sows, and, if prevented, they will sometimes keep their milk up, so that the pigs die of starvation. When this is not due to a diseased uterus, a mixture of ten to twenty grains of spirits of camphor, with one to three of tincture of opium, poured into the ear, will cause the sow to lie down and remain quiet for several hours (the effect of the opium), after which she will be rid of her feelings toward the young. Very often by rubbing the pigs with brandy, it will prevent the sow from eating them; and also put some brandy on the nose of the sow herself. The best thing, however, is to feed Pratts Animal Regulator prior to the birth of the pigs, which loosens the bowels and puts them in proper shape, preventing costiveness, reducing all fever, and acts as a mild tonic.

LICE

The hog pen should be thoroughly cleaned and disinfected with Pratts Liquid Lice Killer. This preparation is for external use only. For direct application on the hog use Pratts Powdered Lice Killer. Both of these articles are the strongest and most effective lice killers

known, and will quickly do the work. After the pen is once infected with these lice, it takes prompt work to get rid of them.

MANGE

This is caused by an insect, which must be killed in order to cure the disease—not only on the pigs, but in the pens and surroundings, or wherever the pig rubs against. Pratts Liquid or Powdered Lice Killer will quickly rid the hogs of these insects. Mange is shown by small red blotches or pimples.

PART III.

PRATTS POINTERS ON THE SHEEP

CHAPTER I.

POINTERS FOR SHEEP GROWERS

This discussion will consider mainly sheep as they are kept on the arable farm, though it will have some reference also to growing them on the range. The methods of handling the flock under these widely differing conditions is in some respects very different. It is on the arable farm that sheep have come to be most neglected during recent years, a fact that is greatly to be regretted, because of the adverse influence which such neglect is sure to have on progressive agriculture.

The attempt should not be made to keep sheep under improper conditions, as to do so will certainly lead to disaster. Conditions are improper when they are kept on a very limited range of pasture, when they are grazed to any considerable extent on wet and soggy land, and when they drink from pools that are stagnant in the summer season. Sheep by nature like much freedom for exercise. They crave that variety of foods which changed pastures bring to them. Feeding on wet and marshy pastures are the certain harbingers of disease. If long continued such grazing will assuredly bring disaster to the flock because of the parasitic invasion that is sure to follow.

The benefits from sheep husbandry, especially on the arable farm, are very great. They include the following: 1. Sheep are inveterate weed destroyers. If allowed access to the fields, they will not only feed upon nearly all kinds of weeds, turning them into mutton, but they will also consume immense quantities of weed seeds that may be growing in the stubbles or pastures, thus preventing them from growing. 2. A small flock on the average farm may be sustained through all the pasture season virtually on food that would otherwise be wasted, as for instance food that grows amid the stubbles, along the fence borders and in other by-places on the farm. 3. No kind of live stock brings with it so much of enrichment to the land as sheep. This is owing largely to the condition in which

the droppings are distributed over the land without cost to the owner. 4. Sheep call for less protection than any other kind of live stock kept upon the farm. They graze in the fields during a longer period, and they are more easily fed than any other kind of live stock. 5. They bring returns twice a year, that is in the flesh and in the wool. 6. They will furnish the farmer with a large portion of the fresh meat which he wants for all the year.

From what has been said it is clearly apparent that a small flock of sheep should be kept on almost every arable farm. Such a consummation would double the sheep of the United States many times, and it would do so without lessening production in any other line.

FOUNDATION STOCK

When breeding pure-breds, the foundation animals should be drawn only from good flocks, properly pedigreed and of good individuality. When making selections, due regard must be had to all requisites called for in the scale of points, and to individuality in the animals. Animals that have been much fitted for the show ring should be passed by as a rule, lest they should prove shy breeders. Every one should not engage in the breeding of pure bred sheep. To make a decided success of the work calls for the exercise of the most skilful judgment and for careful attention to every detail of the work.

For grades, the foundation animals may be of the

commonest kinds, providing they are healthy. Of course the individuality as to form should be given careful attention. It matters but little what the breeding of such animals may be, as the improvement through up-grading may be so quickly made when a pure bred ram is chosen to effect improvement. Instances are on record wherein range sheep of the commonest kinds, brought in from the range, have given a progeny by such a line of breeding, in two generations, which has beaten the world, in the show rings of the International at Chicago.

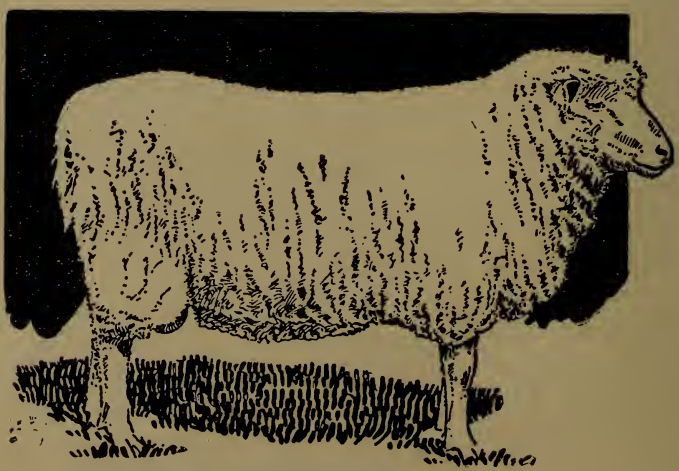
The sources from which to draw such stock are two. The first of these is the arable farm. The second is the range. Those obtained on the arable farm will probably be more advanced in breeding than those brought in from the range, but to obtain them will probably involve greater outlay. Foundation stocks can be most readily and most cheaply obtained in the stock yards in the autumn. Young females will answer best if they can be gotten. If they cannot older ones will do. Both classes can be obtained at meat prices.

Every care, however, should be taken to guard against the introduction of diseases. Those most to be guarded against are sheep scab and internal parasites. The latter sometimes prove a veritable scourge. When purchased from some local flock, every care should be taken to get all needed information about its freedom

from parasitic diseases. When purchased at the stock yards, such information is not obtainable, but range sheep are not much liable to be affected with these troubles.

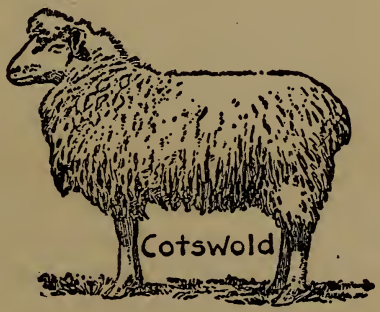
THE BREED OR GRADE TO CHOOSE

There is large room for choice in the breed or grade that will be introduced. To some extent it should depend on the grazing. The small breeds are best adapted to rugged and sparse pastures. To some extent it should be based on the extent to which wool or mutton is desired, and again on the market, as some markets call for a certain type of sheep.



SOUTHDOWN RAM

The following classifications will be found fairly correct: It is based on the fineness of the wool. The fine wool breeds are the American Merino, the Delaine Merino and the Rambouillet. The middle wool breeds are the Southdown, Tunis, Shropshire, Dorset, Cheviot, Suffolk, Hampshire and Oxford. The coarse wool breeds are the Leicester, Lincoln, Cotswold, and Black-faced Highland. The wool is fine, probably, in these breeds in the order named.



For wool mainly, the Merinos have highest adaptation, but rightly handled they are fairly good also for mutton. The Southdowns make the very finest mutton but are small. The Shropshires are very popular for mutton and wool production. From the Tunis and the Dorset winter lambs can be grown, but more especially from the latter. It would be correct to say that at the present time the dark-faced breeds are the most popular for mutton.

The Leicester, Lincoln and Cotswold breeds, heavy wool producers, are not quite so much in demand now as they were in former years.

BREEDING SHEEP

When breeding pure-bred sheep, every attention should be given to all the requisites of form called for in the standard, to the wool characteristics called for in the same, and to color markings and even fancy points, while there is more or less of similarity in form, yet there is considerable difference, and there is much difference also in the size. These differences can only be learned from the standards and by observation.

The same is true of the wool furnishings which call for even more careful study and observation than the properties pertaining to conformation. The color markings, carefully stated in the standards, are discernible chiefly in the markings of the face and legs. The fancy points, such as wool on the foretop and over the head, and the size and carriage of the ear, are all valuable as evidences of correct breeding, but too much must not be made of them.

When breeding grades, more especially when mutton is the dominant object sought, the following essentials are important and probably in the order named: 1. A compact and squarely built form and standing on short legs. 2. A broad back at every part and level and firm,

with a broad and well covered loin. 3. Good and full development of the hind quarter, including a low thigh and full twist. 4. Good development of the fore quarter, including much width and fulness of breast and brisket. 5. A rich flesh colored or pink skin. 6. A fleece possessed of much evenness in length and texture of wool and well distributed over the body.

When breeding grades, the sires should be chosen from that breed which is nearest to the ideal of the breeder. It is not really necessary that they shall be well up in the fancy points of the breeds, providing they have the more important furnishings, and this means that they may in many instances be purchased for less money.

The stamping of wool characteristics is much slower than of those that pertain to form, and change in some of the characters of wool, as length for instance, is more easily made than change in texture.

IMPROVING THE FLOCK

A pure bred flock can usually be brought to a higher standard by rigid selection of the best types, male and female, and by continually discarding as breeders those below a certain standard, and by furnishing liberal and suitable food supplies accompanied by good care. The sires may sometimes be chosen from within the flock, but not in all instances.

The improving of grades comes through the use of pure sires, accompanied by a most rigorous selection. The process, as in breeding cattle, is to use a sire of some one of the pure breeds, and not to introduce a sire of any of the other breeds without the best of reasons. In the very first cross of such breeding upon the commonest kind of ewes, the lambs will be such as will meet the demands of the mutton market in fine form. Especially is this true of the first cross upon range stocks, which are usually possessed of much stamina, whatever may be the characteristics of their individuality. Three to four generations of such breeding will not fail to bring up this improvement to the standard of the pure breed from which the sires have been chosen, as far as individuality is concerned relating to form. To secure as much improvement in the wool qualities will call for more time.

Whether breeding pure breds or grades, the culling process should go on without intermission. No sheep should be kept for future breeding that is possessed of undesirable form or wool covering. Where such a process of elimination is rigidly adhered to, the standard for the average of the flock will soon be rapidly improved.

The best time for culling the flock is at the weaning season. At this time the culling should be most rigid. All ewes should be discarded with properties that are undesirable. These properties include ewes that have gone

beyond the proper age for breeding, those that have form or covering that is undesirable, and those that have any defects of udder. The age at which breeding ewes should be turned off of course varies much. Merino types, especially when grown on the range, will breed successfully for a longer term of years than ewes that are kept under conditions that are more artificial. Ewes should never be kept after the teeth begin to fail unless they are fed on specially prepared food suited to their needs, and that is not costly, as, for instance, sugar beet pulp that may be obtained in proximity to a factory. Ordinarily three crops of lambs are obtained from grade ewes before they are turned off. The first crop is usually furnished by ewes that are two years old. When the third crop of lambs is obtained, the ewes are then four years old. At that age they will fatten in full form for the market. Pure bred ewes are frequently kept to a greater age, and the same is true of ewes kept on the range.

SUMMER FOODS FOR SHEEP

Sheep revel in a great variety of grasses, and yet they may in some instances do well on a single grass or on a limited number. Kentucky blue grass and its handmaid, white clover, are especially suitable for sheep pastures. The Buffalo and Bunch grasses of the range also make a superexcellent combination. Notwithstanding, sheep seem to crave a variety of grasses, insomuch that

vegetation exists in but few forms on which they will not feed ravenously, if they can but have access to it in the early stages of its growth.

Quite as important, however, as variety in the grasses is freshness in the same. Sheep shun vegetation that is woody, and they will not do well on it, howsoever abundant it may be. Because of this it is eminently wise to try and change the sheep frequently on pastures, that they may feed upon them in all their freshness while green and succulent.

Many supplemental pastures may be grown for sheep. These include mixed grains, rye grown alone, dwarf Essex rape and even corn. The grain pastures may be eaten down two or three times under some conditions of grazing. The rape plant and in some sections Kale, is par excellence the grazing plant for sheep that is supplemental in its character. In many instances it is possible to grow two or three of these grazing crops in succession in one season. Such cropping furnishes a very large amount of grazing, and is greatly helpful in cleaning the land.

WINTER FOODS POR SHEEP

In winter as in summer, sheep will revel on a variety of foods if they can have access to them. This should be borne in mind when providing fodders for them. Mixed grains, as peas and oats on vetches, and grown

thickly and cut a little under ripe, make excellent fodder for them. Millet also is good. The finer clovers grown in combination are excellent. No single fodder is better than alfalfa. Corn fodder and sorghum are also good when properly grown. The same is true of good pea straw. But even when feeding upon fodder of an excellent character, sheep will be able to obtain food from the cereal straws when these are fed to them say once a day, the residue being used for bedding.

PORTABLE FEEDING RACK

There should also be succulence in the winter fodder. This cannot be better furnished than in the form of sugar beet pulp or of field roots. Any kind of field roots may answer the purpose. In many localities the sheep may graze more or less in the winter season, and where they can the succulence thus furnished will be very helpful to them.

SHELTER FOR SHEEP

In winter, sheep call for protection from storms and wind. This done, they will endure much cold. In summer they want protection from heat and flies. The lambs, when young, also call for special protection.

Under some conditions, a dense grove in a sheltered spot may furnish ample protection for a flock of sheep, especially of the fine wooled types. The denseness of the fleece which they carry, and the oily character of the

ROOT CUTTER AND PULPER

same, is a great protection from injury from storms, especially rain storms. Usually, however, the protection of a shed is necessary, especially during a part of the winter. It may be of cheap construction, as of poles covered with straw, or it may have walls of baled straw, provided with some kind of roof. The roof in all instances should ex-

SHEEP BARN

clude rain. A floor is not a necessity in a sheep shed where the ground is dry, and such a structure should never be erected on wet ground.

A more permanent structure should have: 1. A loft overhead for carrying a large amount of fodder and bedding. 2. Movable divisions so that these may be made large or small as occasion may call for. 3. A passageway along which food may be conveyed from end to end, whether fodder or grain. 4. Racks which will hold fodder and grain for the sheep from which they can feed

SHEEP SHED

readily without chaff and straw getting into the wool. 5. Doors opening into each compartment that are cut in two so as to admit of easy access of ventilation when desired, and of easy access to the yards. 6. Yards of more or less size that may be kept continually well bedded in winter. 7. A pen or pens lined so as to be warm, in which lambs may safely come into life in cold and stormy weather.

The storms that injure sheep most are sleet or rain storms. Exposure to these is extremely hurtful. This is especially true of the breeds which have wool long and open. Rain penetrates such wool more or less. Such storms are especially fatal to lambs, even though they survive, the injury from such exposure is very great.

CHEAP SHEEP SHED

The protection from winter winds may be secured by running a high and close board fence around the yard, in other instances by building stacks on the windward side, and in yet other instances by locating the shed contiguous to a grove. Constant exposure to winter winds, especially to such winter winds as blow in prairie areas, is harmful to sheep.

Protection from excessive heat is furnished of course by suitable shades in the pastures, but in no way can sheep have protection from heat and flies more perfectly furnished than when they have access to a shed or stable well ventilated and yet dark. This may be accomplished by covering the open windows with some coarse kind of sacking. When the sheep may have free access to these, they will readily seek such protection in a voluntary manner.

When the lambs come in cold weather, it should be in a warm pen and well lighted, into which the ewes are drafted a day or two before the lambs come. Naturally artificial heat is not necessary, but it may be furnished in

exceptional instances. This apartment should have movable divisions in it, but these should be of small size.

WATER FOR SHEEP

Contrary to the belief of many, it is very important that sheep shall be supplied with water. They can live without it being supplied to them in the usual way, but not without privation. The grass in summer supplies them with enough to support life, even when it is dry, and they may consume snow in winter. But the eagerness with which they drink water in summer and also in winter when on dry feed, shows the greatness of their need for it.

In the pastures there is no better way of supplying water than through a running stream or a spring. Next to such a source is pure water pumped up from a well. Water from a pond is vicious and from a stagnant marsh it will soon bring disaster. When the pastures are very succulent they may not need water at all.

In winter it is best supplied in the sheds, that is under cover. It is not necessary that it shall be heated. When sheep are being fattened or when breeding ewes are nursing their young, they will ordinarily consume large quan-

tities of water, but when field roots are plentifully supplied, the necessity for water is much less than it would otherwise be. Another way is to supply it in buckets in each apartment, which may be replenished daily from a pail.

THE FLOCK IN SUMMER

In summer the chief requisites are: Juicy and abundant pastures while the ewes are suckling their lambs and especially in the early part of the season; ample range for the sheep during the summer, to provide them with an occasional change in the forage; proper grading of the flock with reference to pastures at weaning time and making provision for suitable grazing in the late autumn or early winter.

The weaning season is an excellent time for grading the flock. The ewe lambs when weaned should be put on a pasture by themselves, and the ram lambs likewise by themselves, that is, those intended for future breeding on the farm or on other farms. The aim should be to have good pastures ready for them. The same provision should be made for lambs that are to be made ready for the market. All the ewes that have raised lambs should have the udders milked out once or oftener at proper intervals.

The cull ewes should then be put on good pastures, preferably rape, and fattened quickly for the market, as it will not pay to fatten them in the winter as a rule, especially when they are old.

It is a good plan also to have grazing in reserve for the late autumn and early winter, on the principle that it is cheaper to keep sheep on grazing than on other food, and it is also better for the sheep.

THE FLOCK IN WINTER

On going into winter quarters the flock should again be graded. The breeding ewes should be apart from those too young to breed, and the stock ram or rams should be kept apart as each division calls for feeding not quite the same as for the others. The rams, in addition to fodder, should have field roots, the most objectionable for them being mangels. They require little or no grain if a few pounds of sliced roots are fed daily. The ewes, too young to breed, should be given some grain, preferably oats, or oats and peas, a pound of the mixture being fed daily. They should be given field roots if they are to be had. The breeding ewes, in addition to good fodder, should be given about a pound a day each of grain, preferably consisting of oats with a little bran added, and only

a few pounds of field roots or beet pulp per day. Ensilage may take the place of roots, but it does not exactly fill the place of the former.

Subsequently to lambing, no change should be made in the food for a day or two, after which the grain and roots should be gradually increased until that limit is reached nearly up to the capacity of the animals to take these foods. When turned out to graze, the change should be very gradually made. When on full and succulent pasture, the ewes do not need any grain. All grain fed may be given in the unground form.

THE CARE OF LAMBS

The season at which lambs should come depends upon the object for which they are grown. When grown as winter lambs they should come in November and December. When grown as stock lambs they should ordinarily come from say some time in February until the turning out season. When grown for the autumn and winter market following, it is not really essential that they shall come before the turning out season into grazing.

When the ewes are vigorous and the temperature is not too cold, young lambs newly born are soon on their

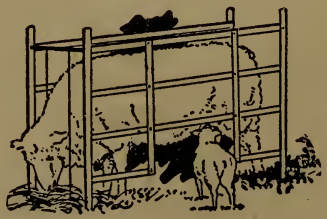
feet, and able to take care of themselves, but even under the most favorable conditions it is well if the farmer or shepherd, as the case may be, is on hand when the young lambs are born, as various attentions may be called for, any one of which may involve the life or death of a lamb. When they are two or three days old, they may be drafted to an apartment where other ewes and young lambs are kept. In this way each sheep will get the proper kind of food. When lambs are only a few days old they will endure low temperatures without much harm, hence they should be allowed free access to the yards at such a time, along with the dams. Too close confinement may prove fatal to their well being.

As soon as the lambs will eat, which will be when they are about two weeks old, they should be encouraged to do so. This can best be effected by making for them what is called a "creep," that is an enclosure with food inside which will admit the lambs but which will not ad-

LAMB CREEP

mit the ewes. The food should consist of meal, as ground oats, at first and oil meal, and later of whole oats and oil meal. They may also be given roots finely sliced, and fine clover or alfalfa. Whether the creep should be used in the field when they are on grass, will depend on the object sought. Ordinarily it is not necessary when rearing show lambs.

When lambs are dropped on the pastures, they come into life with but little hazard when the weather is good, but it is always wise to have the flock visited two or three times a day. Such visits may prevent much loss, especially in times of adverse weather. Exposure to cold rains at such a time may prove peculiarly harmful. Male lambs intended for fall or winter fattening should be castrated when from one to three weeks old, and all lambs should be docked under the age of one week.



HURDLE FOR EWES

Lambs are usually weaned when from 16 to 18 weeks old. As soon as weaned they should be graded as outlined previously, and put on pastures good and succulent. An additional grain supplement, fed to them at such a time, will be helpful. Oats, or oats and some other grain will answer the purpose well, and only a small quantity, as say half a pound, is needed. If on good rape pastures the grain supplement will not be needed.

GROWING WINTER LAMBS

Winter lambs may be obtained from Dorset and Tunis dams, but most readily from the former. They may also be obtained from grade ewes of other breeds, in which the breeding habit has been so changed that they drop lambs in the fall rather than in the spring. This change may be brought about in two or three generations by the use of Dorset sires accompanied by selection and certain kinds of feeding. When such lambs come in November and December, they are ready after the glut of the Christmas season is over, and before what is ordinarily known as spring lamb is on the market. Winter lamb is, therefore, a luxury, coming in at a special season and commanding a special price, where markets have been established for the same.

While suckling their lambs the dams should be given all the grain of suitable kinds that they will eat. They should be given good protein fodders as alfalfa or clover hay, and all the field roots that they will consume. When feeding them, the aim should be to secure all the milk that it is possible to obtain in order to promote rapid growth in the lambs. The lambs should be given grain that will produce growth and a fat and plump condition. For such feeding a grain ration composed of cracked or broken corn kernels and oil meal is peculiarly helpful.

It is all important that the lambs shall be plump and fat at an early age, otherwise the object for which they have been grown may not be attained. They should weigh from 40 to 50 pounds at the age of 60 to 75 days. The place of consignment should be known beforehand. In some instances they are shipped alive, in others in the dressed or partially dressed form.

FATTENING SHEEP AND LAMBS ON PASTURE

Both sheep and lambs may be fattened on almost any kind of palatable pasture, providing a grain supplement is given to them. This may not always be necessary, but usually it is helpful.

The best grazing on which to fatten them is dwarf Essex rape. In from 8 to 10 weeks sheep or lambs should be ready for the market when grazed on good and well grown rape, and without any grain supplement. But care should be exercised when turning them onto the rape, lest there shall be loss from bloat, and when it has much frost on it, lest it should give rise to stomach troubles.

Some small kind of corn that is leafy and of fine growth may also be grown to provide grazing, on which sheep and lambs may be finished. The squaw corn or some of the sweet corns will answer the purpose very well. Early and later varieties should be grown to prolong the grazing period. They are also finished in some instances in the dry mountain States of the West on grazing furnished by peas and oats grown together.

FATTENING SHEEP AND LAMBS IN WINTER

The aim should be to feed leguminous fodders. Alfalfa, clover, vetch and pea hay are all excellent. Millet cut reasonably early and fine grown corn or sorghum are also good, but not so good as the former. Woody, coarse and over-ripe clover or alfalfa and also timothy well matured, are of but little use for such feeding. The same is true of coarse corn stalks.

The following grains are excellent: (1) Oats and peas in the proportions of 1 and 2 parts by weight; (2) oats and barley equal parts; (3) oats and corn equal parts; (4) oats and speltz 1 and 2 parts; (5) oats and wheat 1 and 3 parts; (6) good screenings fed alone; (7) screenings and corn 2 and 1 parts. Where oats may not be had, bran may take the place of that grain, but a much less quantity of the bran will suffice. It is well also to feed less of the light grain ration and more of the heavier as the feeding season advances. The grain ration should also be introduced gradually, but after a few weeks, usually two to three, the sheep may be allowed to take all that they eat with a relish of the grain, the fodder being supplemental. If 5 to 10 per cent. of the grain ration is oil cake, the fattening will be even more satisfactory. Field roots instead will also be helpful.

The feeding period usually continues for about 12 weeks. It may be hastened somewhat, dependent on the condition of the sheep when the fattening begins. In some instances it may not run for more than 8 weeks, in others for twice that period.

SHEARING SHEEP

The aim should be to shear sheep as early as this can be done without bringing prolonged discomfort to them. How early will depend on the climate and to some extent

on the season, but it ought to be early enough to prevent them from suffering with excessive heat. On the arable farm in the northern States they should be shorn some time in April. But when thus shorn it may be necessary to house them temporarily in very cold or in stormy weather. In the open range country they are frequently not shorn until May or into June, lest the sudden storms that occur there should bring disaster to them.

The shearing is now done almost entirely by machinery when many are to be shorn. These machines are run by some kind of power, and they do the work with much despatch and effectiveness. Where the flocks are small, the shearing is still done by hand. Before the shearing, the sheep should be tagged, that is clots of filth should be removed such as gather about the tailhead, especially at that season of the year when grass is springing into succulent life.

Some years ago the practice was almost universal of washing sheep in a pond or brook, before shearing them. This practice is now almost entirely abandoned, for the reason first that it delays the shearing to a period unduly late, second that it is not necessary now that the home manufacturing of cloth has been abandoned, and third that it does away with a process not unattended with hazard to the well-being of the sheep and sometimes the washer.

MEAT FROM SHEEP ON THE FARM

Meat is now by far the costliest staple food that is consumed in this country. The indications point to the conclusion that with the increase in population the price of meat will tend all the while to go higher. The farmer may supply his own table practically all the year, and there is no class of meat that he can furnish so cheaply as mutton since it may be grown very largely on the waste pasturage of the farm.

When a mutton is killed in the summer season it may readily be kept from spoiling in an apartment of the ice house where the farmer has one. The apartment should be enclosed to keep the meat free from any extraneous matters. This is one of the simplest and at the same time one of the cheapest methods of thus keeping mutton.

GENERAL OBSERVATIONS

Sheep, like cattle, should be well supplied with salt both summer and winter. It is most necessary and helpful when the pastures are the most succulent, but it is helpful at all seasons of the year. In summer it is best supplied in a covered trough in the pastures to which they may have access at all times, and in winter they should have similar access to it in a clean trough or vessel

in the pens. Where they cannot be given such access, salt should be supplied to them quite frequently in the food, but in limited quantity at one time.

In the winter season, where the snowfall is considerable, it may be a difficult problem to furnish sheep with enough of exercise to best meet their needs. To keep them closely housed much of the time and hedged into a small yard, will be fatal to their well doing. They never do so well as when they can have more or less access to the fields in winter. To encourage them to take exercise the plan has sometimes been adopted of drawing food to some place that is sheltered and strewing it over the ground for the sheep to pick up. The way to this feeding ground may be kept open when necessary by the aid of a snow plow.

Sheep should also be carefully protected from burs in the fields. There are such as burdocks, cockle burs and Spanish needles, also sand burs. When sheep pasture amid these in the autumn the burs adhere to their wool and to the extent sometimes of rendering the fleece of little value. The remedy is clear. Either the burs should be prevented from forming or the sheep should be kept away from the pastures infested by them.

The most serious menace to the future of the sheep industry at the present time in the United States is the

dog. Especially is this true in proximity to towns and cities and even villages. These are rapidly increasing, and as they increase they bring increasingly this menace with them. The statement is too true which says that the sheep husbandry has been literally wiped out in many places where once it flourished, and for no other reason than that of the incessant attacks made upon it by vagrant dogs. The wolves are still a serious menace in many of the range States, but even there they do far less harm to this industry than is done by dogs even in the most sensible and sane communities. Legislation should remedy this crying evil, but legislation is slow to move in the matter, lest it should incur the ill-will of that great army of hunters who are owners of dogs. Meantime the only effective protection is that which comes through the shotgun or the medium of poison.

CHAPTER II.

DISEASES COMMON TO SHEEP.

CAUSES, SYMPTOMS, PREVENTION AND CURE

Before treating on the above, however, we refer you to the note on page 66, which it would be well to look over carefully before reading our remarks in reference to diseases of sheep.

Sheep are generally healthy animals, and few cases of sickness occur when they are properly taken care of unless certain parasites gain entrance to the flock. The ailments that have proved most destructive in America are stomach worms and tape worms. When neglected or improperly fed, however, like all other animals, they develop many ailments which frequently prove fatal unless promptly attended to. The symptoms of disease can usually be seen far enough in advance by careful watching, so that very few cases need prove fatal if the proper remedies are applied at the right time.

STOMACH WORMS IN SHEEP

The stomach worm is a small thread-like worm that inhabits the fourth stomach of sheep. During recent years this worm has led to more serious loss in lambs than probably all other diseases combined. If the stomach of an infected animal is examined just after death, the worms may be seen with the naked eye, floating about in its contents or adhering to the mucous membrane. The animals infected have a starved appearance. The skin becomes pale and the wool dry and harsh. Scouring is more or less frequent, and in some instances constant. The life history, like that of the tape worm is not fully known. Old sheep are much less harmed than lambs. The preventive measures consist in breeding from the same flocks when they are all known to be healthy and grazing the ewes during the early part of the season on grain pastures rather than on old grass pastures.

Worms in sheep can be quickly and permanently cured by Pratts Specially Prepared Worm Powder. It is a safe, pure vegetable remedy for both lambs and full grown sheep.

THE BROAD TAPE WORM

The broad tape worm frequently works great havoc among lambs when present in the flock. It consists of a

head and many segments. When reactive the segments shed off from time to time and in this way the pastures become sources of infection. Sheep that feed on pastures low and damp are much more troubled with the disease than those that graze upon pastures more elevated. This trouble is almost entirely confined to lambs under the age of four to five months. The affected lambs become emaciated, the skin becomes pale and light and the wool dry and harsh. In the later stages of the disease there is more or less of diarrhoea, accompanied by a slow and tottering gait. The lambs die of exhaustion. Preventive measures include breeding from the same flock during successive years and changing the pastures frequently where the disease has lingered. Pratts Specially Prepared Worm Powder is an unfailing remedy for tape worms in sheep.

LUNG WORMS IN SHEEP

These are of two kinds, the hair lung worm and the thread lung worm. Both inhabit the bronchial tubes. The eggs are taken up by sheep and lambs in the pastures or in water and in some way find their way into the lungs. The indications of their presence are a dry and pale blue, harsh wool, and in the later stages a deep cough. Nasal discharge is copious when the thread lung worm is present. For the hair lung worm, which is very small, treat-

ment has availed but little. For the thread lung worm fumigation with certain substances has done some good, but on the whole treatment has not proved very satisfactory. Much attention should be given to changing and renewing the pastures by disinfecting with Pratts Dip and Disinfectant, and to providing the sheep with pure water.

DIGESTIVE TROUBLES IN SHEEP

Feeding food continuously that is dry and woody is much liable to produce digestive troubles. The most common of these is impaction of the food in the third stomach. It leads to constipation and in some instances to inflammation of the bowels. A constipated condition of the bowels is always harmful. Any such tendency should always be warded off by feeding daily some such laxative food as field roots, wheat, bran, oil cake or flax, along with the dry food. Do not fail to give Pratts Animal Regulator three times a day until improvement is noted. It is a wonderful digestive, tonic and all around regulator.

Impaction may also be relieved by giving Epsom salts. The dose for a mature animal of say 150 pounds, is four to six ounces, dissolved in a pint of hot water. If not relieved in say ten hours the dose should be repeated.

CONSTIPATION

Usually caused by a change in food. Frequently when sheep are changed from green pasture to dry fodder. Passages are hard and dry, and the animal moans with pain while the bowels are being moved. Costiveness is bad and should not be allowed to continue. Where Pratts Animal Regulator is fed, constipation does not occur. In cases of severe costiveness give in large doses and then decrease gradually. If it is a very severe case, an injection of warm water and soapsuds should be made, which will give relief. Constipation which usually occurs in winter, may be almost entirely prevented by feeding succulent food as field roots.

As mentioned in our note on page 66, we give the following formula: One teaspoonful fluid extract of leptandra, two ounces Glauber salts in half pint of thin gruel, and drench the animal well.

DIARRHŒA

This usually occurs from sudden changes of diet, or damp and foggy weather. It may originate with eating food over succulent. Liberal doses of Pratts Animal Regulator should be given in gruel form to thoroughly cleanse the bowels, and then gradually decrease to a sufficient quantity to keep the bowels in proper condition, at

which time mix with the regular feed. No grain should be fed at such times except oats and the dirt should be sparing till the trouble is relieved. It should be attended to promptly, however, as it often proves fatal. As per our note on page 66, we mention the following: One gill scalded milk, one drachm hyposulphite of soda, and one ounce pulverized animal charcoal. To a lamb give one-half this quantity, and repeat as often as seems necessary.

INFLAMMATION OF THE BOWELS

This does not often occur, but when it does, it is generally caused by impure water or bad food. Again, it may come from sudden cold. The symptoms are red, watery eyes, bowels are inactive, breathing short and difficult, followed by fever and loss of appetite and flesh. We would advise large and liberal doses of Pratts Animal Regulator, to move the bowels freely, and then gradually decrease until the bowels become natural, and mix with the regular feed. We give the following, however, in accordance with note on page 66 : A dose of linseed oil, castor oil or Epsom salts to move the bowels, and then give the animal proper care and nourishment.

SHEEP SCAB

Sheep Scab causes greater loss to the sheep of the United States than any of the external parasites that prey

upon them. It is produced by minute insects, many of them too small to be seen with the aid of the naked eye. Usually, however, if a tuft of wool is pulled out near the edge of the infected part, little curving objects may be noticed by the unaided eye near the base of the wool fibres or among the scales adhering to these. They irritate the skin by biting it, thus producing an intolerable itching. The continuous rubbing of the sheep wears out the vital forces of the animal and may thus cause its death. The remedy consists in dipping the sheep twice, one week apart. The first dipping is to kill the nits already hatched and the second to kill those that hatch later. For this purpose use 1 part Pratts Dip and Disinfectant to 70 parts water. Pratts Dip has obtained the United States Government's rating of 1 to 70 for Official Dipping to cure Sheep Scab.

The sheep should then be removed from their old surroundings for at least twenty days. The nits cannot live for more than twenty days apart from the sheep and ordinarily not more than twelve to fifteen days. Ticks may usually be removed by one careful dipping annually. The best time for dipping sheep and lambs is just after the shearing time.

BLOAT IN SHEEP

Bloat in sheep is caused by the generation of gas consequent upon the taking hurriedly into the stomach of

large quantities of green food by animals that are hungry. Chief among the foods that are most dangerous when thus eaten are alfalfa, clover and rape. Certain kinds of weeds may produce the same result. The danger is always greater when the pastures are wet with dew or rain. The preventive measures consist in keeping the sheep away from such pastures when hungry, and especially where the pastures are wet, and in cutting and feeding such food after it has wilted more or less. The treatment for bloat must be very prompt or the sheep will soon die from suffocation. It consists in tapping the paunch with Pratts trocar and allowing the gas to escape through a canuala inserted into the incision. The puncture should be made in the bowel depression midway between the last rib and the hip, and about three inches below the backbone.

BRONCHITIS

In this disease there is an inflammation of the air passages, and if not promptly checked, inflammation of the lungs will follow. The symptoms are very much like catarrh, only the cough is more severe and there is some fever and loss of appetite. The treatment in this case is Pratts Animal Regulator, if very severe, in gruel form, and gradually reducing the dose and the length of time between doses, until the animal is in shape to eat, and then mix with the regular feed.

At the same time, as per our note on page 66, we give the following: One drachm saltpetre, one drachm powdered gentian, and one ounce linseed oil, given for three or four days.

PLEURISY

This is an inflammation of the membrane surrounding the lungs, and is very acute and painful. It is caused by exposure, low condition of the system and is not contagious; but many animals of the same flock often are taken sick because they are likely to be subjected to the same lack of care or exposure which causes it. Prevention is much better than cure, and by proper care pleurisy should be prevented. We advise Pratts Animal Regulator; if the animal is very sick, in gruel form in large doses to move the bowels, and gradually decrease until the bowels are in good shape, then mix with regular feed.

However, we give the following, as per note on page 66: One drachm nitrate of potash, one scruple of powdered digitalis and two drachms spirits of nitre. Give twice a day for four or five days, but first move the bowels freely with castor oil or some other purgative.

INFLAMMATION OF THE LUNGS

This disease frequently occurs from herding too many sheep together in close quarters; then again it is the

result of sudden exposure of insufficient ventilation in the stable. The common form will be known by the sheep panting, heaving of the flanks, discharge from the nose and a cough.

Pratts Animal Regulator, fed in gruel form in frequent doses, is a valuable remedy. As the sheep recovers, the time between the doses should be lengthened, and as the sheep commences to eat, mix with the regular feed. In all cases where Pratts Animal Regulator is used, after the bowels are once freely moved, the dose should be regulated so that the bowels will be natural and regular.

As mentioned in our note on page 66 to furnish other recipes, we would mention the following: Ten drops of fluid extract of gelsemium dropped on the tongue twice a day. One ounce of chlorate of potash in half a pint of flaxseed tea, given daily until the animal shows improvement. Keep the animal apart from the others, so that it may have rest and quiet.

GARGET

This is inflammation of the milk glands, and will not usually occur if the milk is drawn should the ewe lose her lamb. Drawing the milk, bathing the udder with warm

water and feeding Pratts Animal Regulator are all that is necessary.

APHTHA

This is known by blisters in the mouth and on the feet of the sheep. It is painful and difficult to cure. Give Pratts Animal Regulator in the usual doses, first, however, giving a double dose to physic the animal. The mouth should be washed with an ounce of powdered alum and one ounce of tincture of myrrh in one quart of water. Wash the feet with warm soapsuds and bind up in carbolic ointment. As per our note on page 66, we mention the following: Give Epsom salts, and use in conjunction the above local application.

INFLAMMATION OF THE BLADDER

is very often due to the feeding of too much cornmeal or other heating food. It is noted by the retention of the urine and fever. Pratts Animal Regulator regulates the kidneys and bladder and suppresses all inflammation, and has proved successful in this disease. Feed per direction by mixing with the regular feed of the animal. However, as per our note on page 66, to give different recipes, we mention the following treatment: Bleeding from the neck and linseed oil in two-ounce doses until the animal shows improvement.

LAMBS

Colic, diarrhoea, constipation, paralysis, water on the brain and other ailments peculiar to lambs can be prevented, as well as cured by the proper care of the ewe and the feeding of Pratts Animal Regulator. The same treatment in all cases for the lambs, when large enough to eat, can be applied the same as for sheep, only in a modified form. Even paralysis is due to neglect in the care of the ewe and indigestion or depraved appetite caused by stomach troubles. Much might be said in reference to the different diseases of lambs, but intelligent reading of the diseases of sheep will enable the reader to comprehend the best method in handling any sheep disease that may occur in the flock.

FOOT ROT IN SHEEP

Foot Rot occurs in the contagious and non-contagious form. The former is the more serious by far. This form of foot rot occurs in sheep that have been brought in from dry pastures to those of an opposite character. In contagious foot rot swelling and inflammation above the horn and especially between the claws occurs, whereas in non-contagious foot rot the horn only is the essential seat of the trouble. After a while the horn disintegrates and falls away piecemeal. Ulcers are formed on the exposed

parts and the discharge has a most offensive odor. When the feet are badly affected the sheep feed upon their knees. The affected horn should be at once cut away and Pratts Dip and Disinfectant applied to the affected parts every other day.

When a large number is to be treated, the sheep should be driven through a shallow vat or trough containing a mixture of Pratts Dip and Disinfectant and water in the proportions of 1 part Dip to 25 parts water, and covering the bottom of the vat to the depth of not less than one inch.

CATARRH

Generally caused by exposure to rains and stormy weather. It is noted by a discharge from the nostrils and sneezing and sometimes coughing. The sheep should be placed in dry quarters and should be well sustained by nourishing food, and given Pratts Animal Regulator, first in gruel form, later mixing with the regular feed.

In accordance with our note on page 66, we, however, give the following remedy: Two ounces of composition powder in a quart of boiling water; allow it to stand an hour, and after straining it, add three ounces of sugar of milk, and give about three tablespoonfuls several times a day.

RHEUMATISM

This is recognized as a blood disease and, of course, affects the whole system. It is almost always caused by exposure to cold and wet weather and poor diet. It is noticed by failing appetite, swollen and stiff joints and general restlessness. The swelling frequently changes from one place to another. Pratts Animal Regulator is invaluable in this sickness, but the sheep must be well protected from the cold and damp, and have plenty dry straw for bedding. The other formula which we speak of giving in our note on page 66, would be as follows: Two ounces of Epsom salts, two drachms of spirits of nitre, one-half drachm of fluid extract of ginger.

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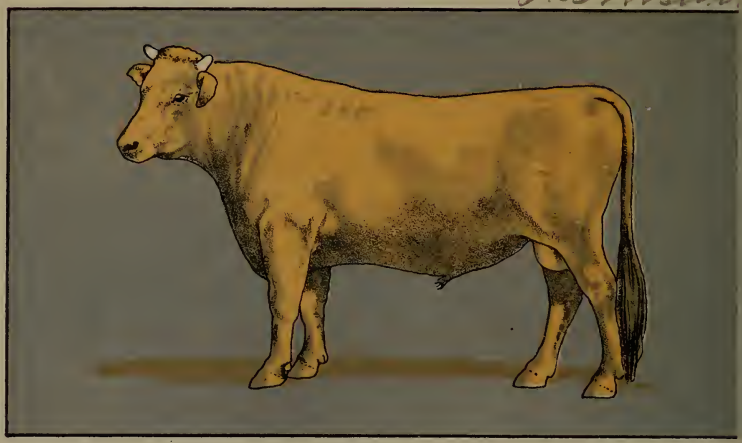

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